

FINAL
Programmatic Environmental Impact
Statement (PEIS)
For the
Realignment, Growth, and Stationing
of Army Aviation Assets



February 2011

Prepared by: U.S. Army Environmental Command

With assistance by:

Applied Sciences & Information Systems (ASIS), Inc.

and

Booz Allen Hamilton



1

2 **FINAL PROGRAMMATIC ENVIRONMENTAL**

3 **IMPACT STATEMENT FOR THE REALIGNMENT,**

4 **GROWTH, AND STATIONING OF ARMY**

5 **AVIATION ASSETS**

6

7

8

9 **FEBRUARY 2011**

10

11 Prepared by

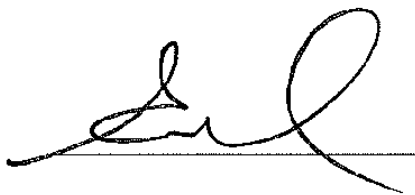
12 U.S. Army Environmental Command



FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT FOR THE REALIGNMENT, GROWTH, AND STATIONING OF ARMY AVIATION ASSETS

February 2011

Approved and Reviewed by the US Army Environmental Command

A handwritten signature in black ink, appearing to read 'SK', written over a horizontal line.

Scott D. Kimmell

Colonel, US Army

Commanding

TABLE OF CONTENTS

1			
2			
3	ES 1.	OVERVIEW	i
4	ES 2.	PURPOSE AND NEED.....	i
5	ES 3.	DECISIONS TO BE MADE	ii
6	ES 4.	ALTERNATIVES.....	ii
7	ES 5.	PUBLIC INVOLVEMENT	iv
8	ES 6.	PUBLIC INVOLVEMENT	v
9	1.	PURPOSE, NEED, AND SCOPE	1-1
10	1.1.	Introduction.....	1-1
11	1.2.	Purpose and Need of the Proposed Action	1-2
12	1.3.	Need for Army Aviation Growth and Realignment.....	1-3
13	1.4.	Purpose of the Proposed Action.....	1-4
14	1.5.	Scope of the Analysis	1-4
15	1.6.	Public Involvement	1-7
16	1.7.	Army Decision Making Process	1-8
17	1.8.	Assumptions Regarding Ability to Execute the Decision.....	1-9
18	1.9.	Decision to be Made	1-9
19	2.	DESCRIPTION OF THE PROPOSED ACTION	2-1
20	2.1.	Introduction.....	2-1

21	2.2.	Proposed Action.....	2-1
22	2.3.	CAB Force Structure	2-1
23	2.4.	Introduction to Brigade Training	2-4
24	2.5.	Installation Specific Activities Required to Implement the Proposed Action	2-5
25	2.6.	Garrison Construction.....	2-6
26	2.7.	Training Infrastructure Construction	2-11
27	2.8.	Individual/Crew Qualification Ranges	2-11
28	2.9.	Aerial Gunnery and Integrated Aviation/Ground Maneuver Qualification Ranges	2-11
29	2.10.	Live-Fire Training.....	2-12
30	2.11.	Maneuver and Flight Operations Training.....	2-13
31	3.	ALTERNATIVES AND SCREENING CRITERIA	3-1
32	3.1.	Introduction.....	3-1
33	3.2.	Screening Criteria	3-1
34	3.3.	Application of Screening Criteria to Potential Installation Stationing Locations.....	3-2
35	3.4.	Alternatives Carried Forward for Analysis.....	3-5
36	3.5.	Alternatives Eliminated from Further Review.....	3-7
37	4.	AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES	
38		INTRODUCTION AND SUMMARY	4-1
39	4.1.	Public Comments and Incorporation of Installations' Analyses.....	4-1
40	4.2.	VECs and Focusing the Analyses	4-2

41	4.2.1.	Valued Environmental Components	4-2
42	4.2.2.	VEC Significance Threshold	4-2
43	4.2.3.	VEC Threshold Categories	4-3
44	4.2.4.	Region of Influence.....	4-6
45	4.2.5.	Joint Basing.....	4-7
46	4.3.	Summary of Environmental Consequences by VEC	4-8
47	4.4.	Cumulative Effects Analysis.....	4-10
48	4.5.	Proposed Mitigation.....	4-11
49	4.5.1.	Specific Proposed Mitigations for CAB Stationing at the Installation	4-12
50	4.5.2.	Fort Carson and PCMS Proposed Mitigations	4-13
51	4.5.3.	JBLM and Yakima Training Center Proposed Mitigations	4-32
52	5.	FORT CARSON AND PIÑON CANYON MANEUVER SITE, COLORADO AFFECTED	
53		ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES.....	5-1
54	5.1.	Introduction.....	5-1
55	5.2.	Location and Size.....	5-1
56	5.3.	Climate.....	5-5
57	5.4.	Land Use.....	5-5
58	5.4.1.	Affected Environment.....	5-5
59	5.4.2.	Environmental Consequences	5-8
60	5.4.3.	Cumulative Effects.....	5-9

61	5.5.	Air Quality and GHG.....	5-10
62	5.5.1.	Affected Environment.....	5-10
63	5.5.2.	Environmental Consequences.....	5-15
64	5.5.3.	Cumulative Effects.....	5-20
65	5.6.	Noise.....	5-22
66	5.6.1.	Affected Environment.....	5-22
67	5.6.2.	Environmental Consequences.....	5-25
68	5.6.3.	Cumulative Effects.....	5-27
69	5.7.	Affected Environment.....	5-29
70	5.7.1.	Environmental Consequences.....	5-33
71	5.7.2.	Cumulative Effects.....	5-35
72	5.8.	Water Resources.....	5-35
73	5.8.1.	Affected Environment.....	5-36
74	5.8.2.	Environmental Consequences.....	5-41
75	5.8.3.	Cumulative Effects.....	5-42
76	5.9.	Biological Resources.....	5-42
77	5.9.1.	Affected Environment.....	5-43
78	5.9.2.	Environmental Consequences.....	5-48
79	5.9.3.	Cumulative Effects.....	5-53
80	5.10.	Cultural Resources.....	5-54

81	5.10.1.	Affected Environment.....	5-54
82	5.10.2.	Environmental Consequences	5-57
83	5.10.3.	Cumulative Effects.....	5-58
84	5.11.	Socioeconomics	5-58
85	5.11.1.	Affected Environment.....	5-58
86	5.11.2.	Environmental Consequences	5-62
87	5.11.3.	Cumulative Effects.....	5-66
88	5.12.	Transportation and Airspace	5-67
89	5.12.1.	Affected Environment.....	5-67
90	5.12.2.	Environmental Consequences	5-71
91	5.12.3.	Cumulative Effects.....	5-73
92	5.13.	Utilities	5-75
93	5.13.1.	Affected Environment.....	5-76
94	5.13.2.	Environmental Consequences	5-82
95	5.13.3.	Cumulative Effects.....	5-83
96	5.14.	Hazardous and Toxic Substances.....	5-83
97	5.14.1.	Affected Environment.....	5-83
98	5.14.2.	Environmental Consequences	5-85
99	5.14.3.	Cumulative Effects.....	5-86

100	6.	JOINT BASE LEWIS-MCCHORD, WASHINGTON AFFECTED ENVIRONMENT AND	
101		ENVIRONMENTAL CONSEQUENCES	6-1
102	6.1.	Introduction.....	6-1
103	6.2.	Location and Size.....	6-1
104	6.3.	Climate.....	6-6
105	6.4.	Land Use	6-6
106	6.4.1.	Affected Environment.....	6-7
107	6.4.2.	Environmental Consequences	6-11
108	6.4.3.	Cumulative Effects.....	6-12
109	6.5.	Air Quality and GHG.....	6-12
110	6.5.1.	Affected Environment.....	6-13
111	6.5.2.	Environmental Consequences	6-16
112	6.5.3.	Cumulative Effects.....	6-20
113	6.6.	Noise	6-21
114	6.6.1.	Affected Environment.....	6-21
115	6.6.2.	Environmental Consequences	6-24
116	6.6.3.	Cumulative Effects.....	6-26
117	6.7.	Geology and Soils.....	6-26
118	6.7.1.	Affected Environment.....	6-26
119	6.7.2.	Environmental Consequences	6-30

120	6.7.3.	Cumulative Effects.....	6-31
121	6.8.	Water Resources	6-31
122	6.8.1.	Affected Environment.....	6-31
123	6.8.2.	Environmental Consequences	6-36
124	6.8.3.	Cumulative Effects.....	6-37
125	6.9.	Biological Resources	6-38
126	6.9.1.	Affected Environment.....	6-38
127	6.9.2.	Environmental Consequences	6-43
128	6.9.3.	Cumulative Effects.....	6-45
129	6.10.	Cultural Resources.....	6-47
130	6.10.1.	Affected Environment.....	6-47
131	6.10.2.	Environmental Consequences	6-49
132	6.10.3.	Cumulative Effects.....	6-51
133	6.11.	Socioeconomics	6-52
134	6.11.1.	Affected Environment.....	6-52
135	6.11.2.	Environmental Consequences	6-55
136	6.11.3.	Cumulative Effects.....	6-59
137	6.12.	Transportation and Airspace.....	6-59
138	6.12.1.	Affected Environment.....	6-60
139	6.12.2.	Environmental Consequences	6-63

140	6.12.3.	Cumulative Effects.....	6-65
141	6.13.	Utilities	6-66
142	6.13.1.	Affected Environment.....	6-67
143	6.13.2.	Environmental Consequences	6-71
144	6.13.3.	Cumulative Effects.....	6-72
145	6.14.	Hazardous and Toxic Substances.....	6-73
146	6.14.1.	Affected Environment.....	6-73
147	6.14.2.	Environmental Consequences	6-75
148	6.14.3.	Cumulative Effects.....	6-76
149	7.	ACRONYM LIST.....	7-1
150	8.	LIST OF CONTRIBUTORS AND PREPARERS	8-1
151	9.	BIBLIOGRAPHY.....	9-1
152	Appendix A.	Valued Environmental Component General Descriptions.....	A-1
153	Appendix B.	Noise Analyses.....	B-1
154	Appendix C.	EIFS Explanation and Detailed Results for Fort Carson and JBLM Analyses	C-1
155	Appendix D.	Fort Carson Transportation Analysis for CAB PEIS	D-1
156	Appendix E.	JBLM Transportation Analysis for CAB PEIS	E-1
157	Appendix F.	Public Scoping Comments	F-1
158	Appendix G.	Response to Comments on the Draft Programmatic Environmental Impact Statement ..	G-1

LIST OF FIGURES

159

160	Figure 1. Heavy CAB Force Structure.....	2-3
161	Figure 2. Medium CAB Force Structure.....	2-3
162	Figure 3. Fort Carson CAB Development Area.....	2-8
163	Figure 4. JBLM CAB Facilities Siting Plan	2-10
164	Figure 5. Fort Carson, Colorado	5-2
165	Figure 6. Piñon Canyon Maneuver Site, Colorado	5-4
166	Figure 7. BAAF Noise Contours.....	5-23
167	Figure 8. Route Hawk	5-69
168	Figure 9. JBLM, Washington.....	6-3
169	Figure 10. YTC, Washington.....	6-5
170	Figure 11. GAAF Noise Contours	6-22
171	Figure 12. Rotary-Wing Flight Alternative Routes.....	6-62
172	Figure 13. Economic Impact Forecast System.....	C-6
173	Figure 14. Fort Carson, CO and surrounding road network	D-1
174	Figure 15. Existing traffic and congestion levels, El Paso County, CO	D-2
175	Figure 16. Fort Carson Gate Traffic Volumes	D-4
176	Figure 17. Percent of Roadway Traffic Related to Fort Carson	D-7
177	Figure 18. Arterial Peak-Hour Volumes and LOS.....	D-8
178	Figure 19. 2000 and 2030 Dwelling Units, El Paso County, CO.....	D-9
179	Figure 20. 2000 and 2030 Employment, El Paso County, CO*	D-10
180	Figure 21. 2035 Long Range Transportation Plan, Fiscally Constrained Projects.	D-17
181	Figure 22. JBLM and surrounding road network.....	E-2
182	Figure 23. Current and expected Level of Service on I-5	E-3
183	Figure 24. Traffic Volume through JBLM gates – 2009	E-6
184	Figure 25. Location of Access Points, JBLM	E-7

185

186

LIST OF TABLES

187		
188		
189	Table 1. Anticipated Impacts to VECs Under the No-Action Alternative at Each Potential Site (Baseline	
190	Condition)	vii
191	Table 2. Anticipated Direct and Indirect Impacts to VECs from a CAB stationing at Each Potential Site	
192	viii
193	Table 3. Anticipated Cumulative Impacts to VECs from a CAB stationing at Each Potential Site	ix
194	Table 4. Heavy CAB Critical Flying Hours, Full Spectrum Operations Training Strategy.....	2-4
195	Table 5. Medium CAB Critical Flying Hours, Full Spectrum Operations Training Strategy	2-4
196	Table 6. CAB Garrison Facility Requirements.....	2-6
197	Table 7. ROI of VEC	4-7
198	Table 8. Anticipated Impacts to VECs Under the No-Action Alternative at Each Potential Site (Baseline	
199	Condition)	4-9
200	Table 9. Anticipated Direct and Indirect Impacts to VECs from a CAB stationing at Each Potential	
201	Site	4-10
202	Table 10. Anticipated Cumulative Impacts to VECs from a CAB stationing at Each Potential Site	4-11
203	Table 11. Summary of Environmental Impacts and Proposed Mitigation Measures for Fort Carson and	
204	PCMS.....	4-15
205	Table 12. Estimated Annual Vehicle Emissions Generated from Increased Population brought on by a	
206	CAB Stationing.....	5-16
207	Table 13. Direct GHG Emissions from Aviation Asset Flight Operations	5-18
208	Table 14. Predicted Impacts at Fort Carson/PCMS and RTVs.....	5-63
209	Table 15. Estimated Annual Vehicle Emissions Generated from Increased Population brought on by a	
210	CAB Stationing.....	6-17
211	Table 16. Direct GHG Emissions from Aviation Asset Flight Operations	6-18
212	Table 17. Predicted Impacts at JBLM and RTVs	6-56
213	Table 18. Federal National Ambient Air Quality Standards.....	A-4
214	Table 19. Noise Limits for Noise Zones	A-11
215	Table 20. Risk of Noise Complaints by Level of Noise	A-12
216	Table 21. High travel demand (2015) traffic volume increases.....	D-6
217	Table 22. Levels of Service by V/C Ratio	D-8

218	Table 23. Recommended Roadway Improvements near Fort Carson.....	D-15
219	Table 24. CDOT Transportation Improvement Plan projects near Fort Carson	D-16
220	Table 25. Projected Level of Service at Selected Intersections	E-11
221		

222

LIST OF IMAGES

223	Image 1. Fort Carson Operational Noise Consultation, 2006.	B-2
224	Image 2. Fort Carson Operational Noise Consultation Addendum, 2008	B-33
225	Image 3. JBLM (Fort Lewis) Operational Noise Consultation, 2009	B-40
226		

227 **Final PEIS for the Realignment, Growth, and Stationing of**
228 **Army Aviation Assets**

229 **EXECUTIVE SUMMARY**

230 **ES 1. OVERVIEW**

231 This final Programmatic Environmental Impact Statement (PEIS) provides an analysis of the proposed
232 action and alternatives for the growth, realignment, and stationing of new and existing Army aviation
233 assets. To meet high operational demand for aviation units, the Army is considering forming up to two
234 new Combat Aviation Brigades (CAB) by realigning existing aviation assets to establish a CAB and
235 creating one additional new CAB to meet high operational demand for aviation units. The PEIS compares
236 and evaluates the environmental impacts associated with the stationing and training of new CABs at Fort
237 Carson, Colorado, and Joint Base Lewis-McChord (JBLM), Washington. As part of alternatives evaluated
238 in this PEIS, each location may only receive up to one additional new CAB. In addition to training at Fort
239 Carson and JBLM, training of newly stationed CABs will occur at maneuver training sites to include the
240 Piñon Canyon Maneuver Site (PCMS) and YTC if a decision is made to station CABs at either Fort
241 Carson or JBLM.

242 **ES 2. PURPOSE AND NEED**

243 The need for consolidation, growth, and stationing of aviation assets is generated by the imbalance
244 between mission requirements and available aviation forces. This imbalance is currently forcing aviation
245 units to be deployed too often, which is negatively impacting training, readiness, and Soldier and Family
246 Quality of Life for those assigned to aviation units. Aviation units must be able to execute a full range of
247 combat and stability operations, such as humanitarian relief, to ensure mission accomplishment. The
248 Army is currently meeting the demand for trained and ready aviation forces, but limited time at home
249 station is adversely impacting Quality of Life for the all-volunteer force, as units at home station spend
250 the bulk of their time training and preparing for deployment.

251 The purpose of the Army’s proposed action is to optimize aviation unit readiness by improving
252 opportunities for air-ground integration training, while increasing time between aviation unit deployments
253 and enhancing the overall Quality of Life for aviation unit Soldiers and their Families.

254 **ES 3. DECISIONS TO BE MADE**

255 The decision being sought from this National Environmental Policy Act (NEPA) process is the selection
256 of one of the proposed action alternatives described below. The decision will include identifying the
257 installations, if any, on which a CAB will be stationed, whether a CAB will be formed by realigning
258 existing aviation units or establishing new units, and whether to create a Heavy CAB or Medium CAB.
259 For purposes of impact analyses, the Army is assuming the larger of the two types of CABs. In addition,
260 there is no environmental impact differential between realignment and building a new CAB. Therefore
261 these variables (formation method and CAB type) are part of the decision to be made but not reflected in
262 the impacts analysis.

263 **ES 4. ALTERNATIVES**

264 **Alternative 1 – Realign, Consolidate, and Station Existing Aviation Elements of Up to a Full CAB**
265 **or Grow, Station, and Activate a New CAB at Fort Carson (CO)**

266 Under this alternative, the Army will consolidate existing aviation units not currently assigned to a CAB
267 into a standard CAB structure at Fort Carson or activate a new CAB at Fort Carson. As part of this
268 alternative, aviation units will conduct training on existing land at PCMS in order to maintain training
269 proficiency and support integrated training with ground units. Land acquisition is not being considered as
270 part of this action.

271 **Alternative 2 - Realign, Consolidate, and Station Existing Aviation Elements of Up to a Full CAB or**
272 **Grow, Station, and Activate a New CAB at Joint Base Lewis-McChord (WA)**

273 Under this alternative, the Army will either consolidate existing aviation units not currently assigned to a
274 CAB into a standard CAB structure at JBLM, or activate a new CAB at JBLM. As part of this alternative,
275 aviation units will conduct training on existing training land at YTC in order to maintain training
276 proficiency and support integrated training with ground units. Land acquisition is not being considered as
277 part of this action.

278 **Alternative 3 –Implement Alternative 1 and 2 (Preferred)**

279 Under this alternative, the Army will implement both Alternatives. Under this alternative, the
280 consolidated units forming a CAB would be stationed at one installation, and the new CAB would be
281 activated and stationed at the other installation. Fort Carson and JBLM would each gain up to one CAB.
282 As part of this alternative, aviation units would conduct training on existing training land at the
283 installations' training maneuver area (PCMS for Fort Carson and YTC for JBLM) in order to maintain
284 training proficiency and support integrated training with ground units. Land acquisition is not being
285 considered as part of this action. Alternative 3 is the Army's preferred alternative.

286 As part of this preferred alternative, the Army is considering the realignment and consolidation of
287 aviation elements from active component forces not currently in a modular configuration into a CAB at
288 JBLM. In addition, the Army would establish a new CAB under this alternative at Fort Carson. As part of
289 this alternative, Fort Carson would gain one new CAB consisting of up to 2,700 new Soldiers and 120
290 helicopters. JBLM would receive most of the realigned units required to complete a CAB to complement
291 aviation units already stationed there. The Army is considering a reduction in the number of Soldiers to be
292 stationed at JBLM from a full CAB equivalent of Soldiers and equipment to approximately 1,400 new
293 Soldiers and 44 helicopters. Units comprised of these Soldiers and equipment would provide a CAB
294 training capability and complement Active Army aviation units already stationed at JBLM. A final
295 decision on stationing will be included in the Record of Decision (ROD) for this proposal.

296 **No-Action Alternative**

297 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
298 locations. The No-Action Alternative includes Base Realignment and Closure (BRAC)-directed actions,
299 Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start
300 of Fiscal Year (FY) 2013 (October 1, 2012). The No-Action Alternative will not enable the Army to
301 increase or to realign available rotary-wing assets to meet current and future national security
302 requirements. Implementation of the No-Action alternative will not address the imbalance between
303 aviation unit deployments and time at home station, degrading Soldier and Family Quality of Life. In
304 addition, opportunities to maximize air-ground integration training will not be fully realized. The site-
305 specific Final Environmental Impact Statements (FEIS) for Fort Carson and JBLM (Fort Carson, 2009;

306 JBLM, 2010a) indicate that “no action” includes construction and other changes associated with
307 previously approved growth and transformation activities.

308 **ES 5. PUBLIC INVOLVEMENT**

309 During the preparation of the site-specific Environmental Impact Statements (EISs) for Army growth and
310 force structure realignment, both Fort Carson and JBLM analyzed CAB stationing implementation
311 options. Both determined that it was reasonable that the Army may make a decision to move forward on
312 realigning and growing the Army’s rotary-wing assets and for each to potentially be selected as a location
313 for the stationing of a CAB. The Fort Carson analysis and public comments received as part of the EIS
314 process are documented in the *Final Environmental Impact Statement for Implementation of Fort Carson*
315 *Grow the Army Stationing Decisions*, February 2009 [Fort Carson *Grow the Army* FEIS] (Fort Carson,
316 2009). The JBLM analysis and public comments are documented in the *Final Environmental Impact*
317 *Statement for the Fort Lewis Army Growth and Force Structure Realignment*, July 2010 [JBLM *Grow the*
318 *Army* FEIS] (JBLM, 2010a). These EIS efforts and the public comments received on CAB stationing as
319 part of these analyses are being considered by Army decision makers for CAB stationing. These
320 installation level EISs are incorporated into this PEIS by reference. The Army conducted multiple public
321 meetings at locations of potentially affected stakeholders as part of efforts to receive the public and
322 stakeholder comments and concerns associated with CAB stationing. Public meetings were held both as
323 part of scoping and to receive comments on the draft EIS for these analyses.

324 In addition to these CAB stationing comments, the Army published a Notice of Intent (NOI) to prepare
325 this draft PEIS in the Federal Register (FR) on September 10, 2010. The Army also published
326 advertisements (or notices) in local newspapers announcing the NOI. The NOI specified that interested
327 parties were welcome to comment on the Army’s proposal and had 30 days to submit comments to help
328 shape the Army’s environmental impact analysis.

329 Members of the public, including local communities and federally recognized Native American tribes,
330 and Federal, State, and local agencies are invited to submit written comments on the environmental
331 analysis contained in the draft PEIS. Interested parties have a 45-day comment period within which to
332 submit comments to this draft PEIS. The draft PEIS can be viewed at:
333 <http://aec.army.mil/usaec/nepa/topics00.html>.

334 Comments may be sent by e-mail to APGR-USAECNEPA@conus.army.mil, by fax to (410) 436-1693,
335 or mailed to the address below.

336 Public Affairs Office,
337 U.S. Army Environmental Command
338 1835 Army Boulevard, Bldg 2000/Rm 2001
339 Fort Sam Houston, TX 78234-2686

340 The Notice of Availability (NOA) for the Final PEIS will be published in the FR and local news media,
341 announcing both its availability and where copies of the document may be obtained. A final decision on
342 the Proposed Action will be documented in a ROD. The Army will issue the ROD after a 30-day waiting
343 period following publication of the final PEIS. The NOA of the ROD will then be published in the FR
344 and local media.

345 **ES 6. PUBLIC INVOLVEMENT**

346 The draft PEIS describes the potential environmental and socioeconomic impacts of constructing new
347 facilities, utilizing training ranges, and conducting aviation maneuvers and flight operations training as
348 part of the Proposed Action. The PEIS evaluates whether and to what extent implementing these actions
349 will impact the environment and surrounding community. Knowledge of these impacts will help the
350 Army make an informed decision. For each environmental resource analyzed in this PEIS, a threshold
351 level of significance is defined. The use of the term “significant” (and derivations thereof) in this
352 document is consistent with the definition and guidelines in the Council on Environmental Quality (CEQ)
353 regulations (40 Code of Federal Regulations [CFR] 1508.27), which require consideration of both the
354 context and intensity of impacts. The draft PEIS does not recapitulate the proposed mitigation measures
355 listed in more detailed installation level EIS analyses, but incorporates these EISs and the mitigations
356 proposed for CAB stationing by reference. Mitigation measures to be implemented as part of the decision
357 will be listed in the final ROD along with those that the Army will not be able to implement as part of the
358 decision.

359 Environmental impacts associated with the implementation of the proposed action include significant
360 impacts to transportation on the Interstate Highway (I-) 5 corridor near JBLM and to fish and water

ES-v

361 quality in Puget Sound. At JBLM, there are also significant socioeconomic impacts as well as
362 disproportionate impacts of aviation noise on the Nisqually Indian Reservation population when
363 compared to demographics of the JBLM area as a whole. At JBLM, there are also significant impacts
364 from aviation noise. There are potentially significant impacts to biological resources at YTC from
365 increased potential for wildfire and habitat degradation associated with aviation training. Impacts will also
366 include significant but mitigable impacts to soils at Fort Carson, PCMS, and YTC, as well as significant
367 but mitigable impacts to water resources at YTC. Impacts to air quality at Fort Carson are significant but
368 mitigable. At PCMS, cumulative impacts to soils are predicted to be manageable with current dust control
369 mitigation techniques. Impacts to cultural resources, air quality, noise levels, and public land use were all
370 determined to be less than significant. Table 1 below provides a summary of the No-Action Alternative
371 impacts and Table 2 provides an overview and summary of the direct and indirect environmental impacts
372 that are anticipated if a new CAB were stationed at Fort Carson or JBLM.

373 **Table 1. Anticipated Impacts to VECs Under the No-Action Alternative at Each Potential Site**
 374 **(Baseline Condition)**

375

VEC	Fort Carson	PCMS	JBLM	YTC
Land Use	Less than significant	Less than significant	Less than significant	Less than significant
Air Quality and GHG	Mitigable to less than significant	Less than significant	Less than significant	Less than significant
Noise	Less than significant	Less than significant	Significant	Less than significant
Geology and Soils	Less than significant	Less than significant	Less than significant	Mitigable to less than significant
Water Resources	Less than significant	Less than significant	Mitigable to less than significant	Mitigable to less than significant
Biological Resources	Less than significant	Less than significant	Significant	Significant
Cultural Resources	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Socioeconomics	Less than significant	Less than significant	Significant	Less than significant
Transportation and Airspace	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Utilities	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Hazardous and Toxic Substances	Less than significant	Less than significant	Less than significant	Less than significant

376

377

378

379

380 **Table 2. Anticipated Direct and Indirect Impacts to VECs from a CAB stationing at Each Potential**
 381 **Site**

VEC	Fort Carson	PCMS	JBLM	YTC
Land Use	Less than significant	Less than significant	Less than significant	Less than significant
Air Quality and GHG	Mitigable to less than significant	Less than significant	Less than significant	Less than significant
Noise	Less than significant	Less than significant	Significant	Less than significant
Geology and Soils	Mitigable to less than significant	Mitigable to less than significant	Less than significant	Mitigable to less than significant
Water Resources	Less than significant	Less than significant	Mitigable to less than significant	Mitigable to less than significant
Biological Resources	Less than significant	Less than significant	Significant	Significant
Cultural Resources	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Socioeconomics	Less than significant	Less than significant	Significant	Less than significant
Transportation and Airspace	Less than significant	Less than significant	Significant	Less than significant
Utilities	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Hazardous and Toxic Substances	Less than significant	Less than significant	Less than significant	Less than significant

382
 383 Cumulatively, environmental impacts associated with CAB stationing, when considered along with other
 384 past, present, and foreseeable future actions, include significant impacts regarding noise, biological
 385 resources, transportation networks, and socioeconomics at JBLM. Significant cumulative impacts to
 386 biological resources from wildfire risks at YTC are assessed. A summary of cumulative impacts is
 387 provided in Table 3.

388
 389

390 **Table 3. Anticipated Cumulative Impacts to VECs from a CAB stationing at Each Potential Site**

VEC	Fort Carson	PCMS	JBLM	YTC
Land Use	Less than significant	Less than significant	Less than significant	Less than significant
Air Quality and GHG	Less than significant	Less than significant	Less than significant	Less than significant
Noise	Mitigable to less than significant	Less than significant	Significant	Less than significant
Geology and Soils	Mitigable to less than significant	Mitigable to less than significant	Less than significant	Mitigable to less than significant
Water Resources	Less than significant	Mitigable to less than significant	Mitigable to less than significant	Mitigable to less than significant
Biological Resources	Mitigable to less than significant	Mitigable to less than significant	Significant	Significant
Cultural Resources	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Socioeconomics	Less than significant	Less than significant	Significant	Less than significant
Transportation and Airspace	Less than significant	Less than significant	Significant	Less than significant
Utilities	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Hazardous and Toxic Substances	Less than significant	Less than significant	Less than significant	Less than significant

391

(This page was intentionally left blank)

393 **PEIS for the Realignment, Growth, and Stationing of Army**
394 **Aviation Assets**

395 **1. PURPOSE, NEED, AND SCOPE**

396 **1.1. Introduction**

397 This PEIS provides an analysis of the proposed action and alternatives for the growth, realignment, and
398 stationing of new and existing Army aviation assets. To meet high operational demand for aviation units,
399 the Army is considering forming up to two new CABs by realigning existing aviation assets to form a
400 CAB and creating one additional new CAB to meet high operational demand for aviation units. The
401 proposed action matches aviation force structure requirements with increasing global and national
402 security threats as outlined in the Quadrennial Defense Review (QDR), February 2010 (DoD, 2010), and
403 allows the Army to organize existing aviation assets to promote more effective force training and
404 management. The PEIS will provide a top-tier perspective that will provide decision makers, regulatory
405 agencies, and the public with information on the potential environmental and socioeconomic effects
406 resulting from the implementation of aviation stationing decisions. This information will allow the Army
407 to evaluate installations for the potential stationing of aviation assets and to assess environmental and
408 socioeconomic impacts associated with the related stationing.

409 The Army is in a period of critical transition. On October 12, 1999, the Secretary of the Army and the
410 Army's Chief of Staff presented a vision for the Transformation of the Army to ensure it remained an
411 effective and relevant operational force in the 21st century. The leadership of the Army recognized the
412 emerging need to shift away from a Cold War focus to meet new unconventional threats to national
413 security. A decision was made to begin the 30-year process of transforming the Army as described in the
414 2002 ROD for the PEIS for Army Transformation. Since this decision, the Army has continued to
415 implement actions necessary to field a force that is best configured to meet the emerging national security
416 requirements of the 21st century.

417 The Army continues to conduct detailed planning to carry out Transformation and Modularity
418 (standardization of the organization of its forces) by addressing capability shortfalls of the Cold War force
419 and is in the process of implementing the guiding recommendations of the QDR. The Army's guiding

420 document for the implementation of this plan is the Army Campaign Plan (ACP). The ACP directs the
421 detailed planning, preparation, and execution of a full range of Transformation tasks that are underway to
422 ensure the synchronization of Transformation activities across all facets of the Army.

423 As part of the overall Army Transformation effort, the Army continues to transition to a modular, or
424 standardized, force structure. The implementation of the proposed action will further Army
425 Transformation and Modular force objectives by consolidating and further standardizing the Army's
426 aviation force structure around standard CABs. This in turn will improve efficiencies and enhance the
427 Army's ability to manage its aviation forces.

428 The Army's proposed action will better match aviation force structure assets with increasing global
429 national security threats that require more aviation units than are currently in the existing force. Growth,
430 realignment, and consolidation of aviation units will allow the Army to meet current mission
431 requirements and give Soldiers and Families more time between deployments. Adding aviation force
432 structure will increase time available for home station training and provide more stability for Soldiers and
433 Families. In accordance with (IAW) the Army's goals and vision, a CAB will typically deploy once every
434 three years. Currently CABs are deploying after only a little more than one year at home station. In the
435 future, it is hoped that a sustainable rate of one year of deployment per two years of home stationing
436 training can be attained as part of the Army Force Generation (ARFORGEN) deployment cycle.

437 This PEIS is structured to enable the public and the Army to understand the need for and purpose of the
438 action, be aware of factors that helped determine the development of alternatives, obtain an understanding
439 of the alternative actions being considered, and be aware of the environmental and socioeconomic
440 consequences of each alternative, all of which are to enable an informed decision.

441 **1.2. Purpose and Need of the Proposed Action**

442 This section of the document presents and discusses the Army's need and purpose for taking action to
443 realign, station, and grow the Army's rotary-wing assets. The manner in which Army growth and
444 restructuring is implemented must be considered in the context of Army Transformation and should align
445 with Department of Defense (DoD) and Department of Army strategies, such as the QDR, *Grow the*
446 *Army*, and ACP.

447 **1.3. Need for Army Aviation Growth and Realignment**

448 The need for the proposed action is generated by the imbalance between current mission requirements and
449 available aviation forces. This imbalance is currently forcing aviation units to be deployed too often. This
450 imbalance was recognized in the February 2010 QDR, which stated that in order to better enable mission
451 success, the DoD must “increase the availability of rotary-wing assets” (DoD, 2010). The 2010 QDR
452 identified increasing the availability of rotary-wing assets as a key enhancement required to meet a
453 capability that has been consistently in high demand and has proven to be one of the key enablers of
454 tactical and operational success. Specifically, the QDR states that the Army will reorganize remaining
455 separate Active Component (AC) units by forming a twelfth AC CAB from existing aviation structure
456 and creating a thirteenth AC CAB to help meet global demand for these assets (DoD, 2010). There are
457 currently 11 AC CABs. Establishing two additional aviation brigades will more effectively support
458 current and future missions.

459 As reported to the House Appropriations Committee – Defense Subcommittee (HAC-D) in March 2010,
460 “the addition of CABs to the Army force structure allows the Army to meet demands for combat while
461 relieving stress on Army Aviation Soldiers and Families” (Headquarters, Department of the Army
462 [HQDA], 2010b). Army aviation is among the most frequently deployed assets within the Army with
463 dwell times (periods of time between deployments) of 1.1 to 1.3 years. The Army goal for active units is
464 two years of dwell time for each year deployed (HQDA, 2010b).

465 The need for this action is to efficiently add aviation force structure so as to address the imbalance
466 between aviation unit deployments and time at home station. While addressing this shortfall in aviation
467 force structure, the Army has a need to station aviation units where readiness through air-ground
468 integration training can be optimized, while enhancing Quality of Life for Soldiers and their Families.

469 Aviation units must be able to execute a full range of combat and stability operations, such as
470 humanitarian relief, to ensure mission accomplishment. The Army is currently meeting the demand for
471 trained and ready aviation forces, but limited time at home station is adversely impacting Quality of Life
472 for the all-volunteer force as units at home station spend the bulk of their time training and preparing for
473 deployment.

474 Readiness is a critical factor for stationing aviation units. Readiness includes CAB supporting ground
475 forces through air-ground integration training. Locations selected for the stationing of aviation units must
476 possess or be able to accommodate the construction of range facilities so that the unit can adequately train
477 to meet doctrinal training readiness standards. Range specifications and standard designs are based on
478 Army Training Circular (TC) 25-8 *Army Training Ranges*, which serves as the definitive source
479 document for training range requirements. Range requirements for CAB stationing are presented in
480 Section 2.5. CAB units must have adequate maneuver training land, including controlled airspace, to
481 conduct and rehearse training operations.

482 Stationing of an Army unit requires garrison operations and facilities support, which include dedicated
483 administrative office space for its Soldiers, motor pools, vehicle and aircraft maintenance facilities and
484 hangars, weapons armories, and the appropriate utility services. Sites considered for the stationing of new
485 aviation units must also provide housing and living space, schools, medical facilities, and recreational
486 opportunities for Soldiers and their Families.

487 Although some installations have available ranges and training areas, few have existing facilities that can
488 accommodate a CAB now or within the next few years. Accommodating these CABs quickly is
489 imperative to balancing the force structure and improving Quality of Life for Soldiers and Families.
490 Stationing locations must have adequate existing facilities to accommodate the rapid stationing of a CAB
491 in the near term, while allowing the Army to subsequently improve and expand facilities in the long term.

492 **1.4. Purpose of the Proposed Action**

493 The purpose of this action is to efficiently add aviation force structure so as to address the imbalance
494 between aviation unit deployments and time at home station. While addressing this shortfall in aviation
495 force structure, the Army has a need to station aviation units to optimize readiness through air-ground
496 integration training while enhancing Quality of Life for Soldiers and their Families.

497 **1.5. Scope of the Analysis**

498 This PEIS has been developed IAW the NEPA, the NEPA regulations issued by the CEQ, 40 CFR Parts
499 1500-1508 and the Army's implementing procedures published in 32 CFR Part 651 *Environmental*

500 *Analysis of Army Actions.* This PEIS addresses the proposed Army realignment and growth of aviation
501 force composition into CABS, as well as the suitability of stationing locations for these brigades.

502 The Army intends to comply with the requirements of Global Defense Posture Review (GDPR) decisions,
503 which focuses on an expeditionary Army with units stationed at installations in the United States (U.S.)
504 that deploy to locations around the world. Therefore, overseas installations are outside the scope of this
505 action.

506 Installations carried forward for analysis in this PEIS are those sites that meet the Army's screening
507 criteria (see Section 3). For the reasons stated in Section 3, the two installations under consideration for
508 CAB stationing are Fort Carson, Colorado, and JBLM, Washington. Included are each installation's
509 satellite training area, PCMS for Fort Carson and YTC for JBLM.

510 This PEIS assesses the environmental capacity of Army installations to accommodate the stationing of a
511 consolidated or new CAB. It conducts a broad, programmatic analysis to examine the potential
512 environmental and socioeconomic impacts associated with the stationing of additional aviation units on
513 Army installations. Therefore, this document is intended to inform senior Army Leadership at the
514 Headquarters (HQ) level and decision makers of environmental impacts from proposed alternatives rather
515 than serving as the NEPA documentation to support local installation-level actions. In addition, this
516 programmatic environmental analysis is intended to inform the public and interested stakeholders.

517 Normally site specific analysis will follow the decisions made at the end of this PEIS. In this case,
518 however, installations anticipated the potential requirements for a CAB because they recognized their
519 requirements shortfalls and the likelihood that they could be chosen for a CAB stationing. Fort Carson
520 prepared an EIS in 2009 for growth and transformation that included a CAB. JBLM issued a Final EIS in
521 2010 that also analyzes a CAB. This PEIS incorporates the analyses in these site-specific EISs, to include
522 their proposed mitigations for CAB stationing. This PEIS also looks at whether there have been changes
523 to the affected environment or expected impacts since the site specific documents were completed. Before
524 implementing a stationing decision, further site-specific NEPA analysis may be necessary at either or
525 both installations based on any such changes.

526 The comparison of current training activities, current environmental and socioeconomic climates, and
527 proposed stationing activities will provide decision makers with the appropriate tools and information to
528 make an informed decision. Information on each element is presented in the sections that follow.

529 The scope of this PEIS analysis also factors in four major groups of Army activity:

530 **Garrison Construction:** This activity group involves all types of construction activities including
531 construction and/or modification of buildings and garrison infrastructure. The construction activity group
532 includes construction, repair and maintenance, and demolition of buildings and facilities.

533 **Training Infrastructure Construction:** This activity group involves training infrastructure construction
534 activities needed to support unit training activities. This includes construction of firing ranges,
535 simulations facilities, and training support facilities. The training infrastructure construction activity
536 group includes new construction, repair, and maintenance of existing ranges and facilities, and demolition
537 of buildings and facilities.

538 **Live-Fire Training:** This activity group involves achieving and maintaining readiness to perform
539 assigned missions through weapons qualification and coordinated live-fire activities. Live-fire training
540 includes everything from individual small arms to crew-served weapons systems such as tanks and
541 artillery to aviation weapons such as missiles. Live-firing requires ranges and large safety zones around
542 them. Army doctrine for individual and collective (unit) training is based on Mission-Essential Task Lists
543 (METLs). These lists identify all types of training activities that are needed by individuals and units to be
544 ready to perform their missions.

545 **Maneuver and Flight Operations Training:** Units conduct maneuver training IAW Army doctrine for
546 individual and collective (unit) training based on METLs. Maneuver training allows units to effectively
547 coordinate and integrate force capabilities in a simulated operational environment. This activity group
548 includes the management of the Army's inventory of maneuver areas and controlled airspace. For the
549 purposes of this PEIS, maneuver training includes aerial maneuvers by helicopters and aviation units, and
550 maneuver areas include the controlled airspace in which aviation forces train. Maneuver training also
551 includes the use of the CAB's wheeled vehicles to support aviation operations such as logistics and field
552 maintenance.

553 **1.6. Public Involvement**

554 Under NEPA, the public is afforded the opportunity to comment and is encouraged to participate at
555 various stages during the analysis and decision-making process. Public participation provides for open
556 communication between the Army and interested parties and the identification of important issues of
557 environmental concern, enabling more informed decision making. IAW the CEQ (40 CFR Parts 1500-
558 1508) and Army regulations (AR) (32 CFR Part 651), the Army issued NOI to prepare a PEIS (Published
559 in the FR) on September 10, 2010). The NOI announced the Army's intent to prepare this PEIS and desire
560 to receive public comment. Local announcements were published in local newspapers at potentially
561 affected installations and training sites.

562 During the public scoping period for this PEIS, the Army received a number of comments from the public
563 and other potentially affected stakeholders. Before any final decision is made, Army decision makers will
564 consider these comments along with comments received as part of the Fort Carson and Fort Lewis *Grow*
565 *the Army* site-specific EIS efforts, which pertained to CAB stationing.

566 Public scoping comments received as part of the PEIS process included:

- 567 • Concerns of how flight operations and noise will impact local residents, wildlife, and sensitive
568 species
- 569 • Concerns over the potential increased traffic impacts and increased traffic congestion on major
570 thoroughfares surrounding stationing locations
- 571 • Concerns that flight routes and noise might negatively impact residents along the transit corridor
572 from stationing sites to satellite installations and requests that air corridor maps be included in the
573 draft PEIS
- 574 • Concerns pertaining to air quality and requests that the draft PEIS include information on air
575 quality, environmental justice for disadvantaged populations, and include a projection of school-
576 aged children that will accompany the stationing action
- 577 • Request that the Army work with local planners on issues such as schools and roads

-
- 578 • Concerns over potential damage to cultural resources
 - 579 • Concerns over the potential impacts to I-5 and other State roads near JBLM and requests for an
580 appropriate level of traffic analysis over a long-term time horizon
 - 581 • Questions regarding public meetings and opportunities for comment
 - 582 • Concerns about the impact of CAB stationing on renewable energy generation potential

583 Appendix F includes the comments received by the Army during the public scoping period for this PEIS.

584 **1.7. Army Decision Making Process**

585 The Army’s decision makers will consider all relevant environmental information and stakeholder issues
586 of concern raised as part of the PEIS process. Decision makers will also give serious consideration to
587 many non-environmental factors including the professional judgment of senior military leaders,
588 maximizing air-ground integration training opportunities, and the Quality of Life of Soldiers and their
589 Families. After thoroughly evaluating this information, decision makers will document the decision in a
590 ROD, selecting one of the proposed action alternatives, which will be signed no earlier than 30 days from
591 the publication of the NOA of the Final PEIS. The ROD will articulate the decision made, provide a
592 supporting explanation, and identify mitigation measures. It will explain both the pertinent factors relied
593 on in making a selected decision and why the final alternative best meets the purpose and need. Decision
594 makers will also acknowledge the comparative environmental impacts and benefits resulting from the
595 decision, particularly if the alternative chosen is not the environmentally preferred alternative. Once the
596 ROD is finalized, the Army will forward an NOA to the FR, making the ROD available for public review.

597 **1.8. Assumptions Regarding Ability to Execute the Decision**

598 Installations must have existing facilities and ranges to support the stationing of new CABs or have
599 buildable space to construct such facilities in a timely manner within reasonable cost parameters. Section
600 1.3 discusses the need for specific activity groups, which include facilities and ranges, to support Soldier
601 training, operations, maintenance, and Quality of Life. With cost considerations being a factor in the
602 decision, the Army assumes that applicable appropriations will be programmed and budgeted to execute
603 the stationing decision.

604 If facilities do not currently exist at the installation to accommodate a new CAB, facilities construction
605 will be required. Facilities for training, garrison operations, and Soldier and Family Quality of Life are
606 critical for supporting the operations of new units that will be stationed at installations as part of Army
607 growth and force realignment. Not having the adequate facilities or the ability to construct them will not
608 adequately support the needs of the proposed action.

609 **1.9. Decision to be Made**

610 The decision being sought from this NEPA process is the selection of one of the proposed action
611 alternatives described in Section 3. The decision will include identifying the installations, if any, on which
612 a CAB will be stationed, whether a CAB will be formed by realigning existing aviation units or
613 establishing new units, and whether to create a Heavy CAB or Medium CAB. For purposes of impact
614 analyses, the Army is assuming the larger of the two types of CABs. In addition, there is no
615 environmental impact differential between realignment and building a new CAB. Therefore these
616 variables (formation method and CAB type) are part of the decision to be made but not reflected in the
617 impacts analysis.

618

620 2. DESCRIPTION OF THE PROPOSED ACTION

621 2.1. Introduction

622 This section provides a description of the proposed action and those supporting steps the Army will
623 undertake to implement the proposed action. The proposed action addresses the need for Army aviation
624 growth, realignment, and stationing. As described in Section 1.3, activities the Army will implement that
625 are anticipated to have an environmental or socioeconomic impact at stationing locations are garrison
626 construction, training infrastructure construction, live-fire training, and flight and maneuver training. This
627 section describes the proposed action and site-specific activities that will be associated with CAB
628 stationing actions.

629 2.2. Proposed Action

630 The proposed action is to realign existing aviation units into a CAB and/or grow another CAB and use a
631 combination of existing and new facilities to support their stationing and operations.

632 2.3. CAB Force Structure

633 Currently the Army has established 11 AC CABs within its force structure. Of these CABs, nine are
634 consolidated with HQ units and supported elements at U.S.-based stationing locations. The primary
635 mission of the CAB is to deploy to support Mission Commander aviation needs in the operational theater,
636 and when at home station, to train on critical tasks to enhance readiness. A key component of CAB
637 readiness is training with ground units to integrate air and ground operations. In training with ground
638 units on complex maneuver and live-fire tasks, aviation Soldiers and leaders also enhance their
639 effectiveness in understanding the requirements and expectations for ground unit support. Training
640 together, units are able to enhance each other's readiness and reach optimal effectiveness as a combined
641 arms team.

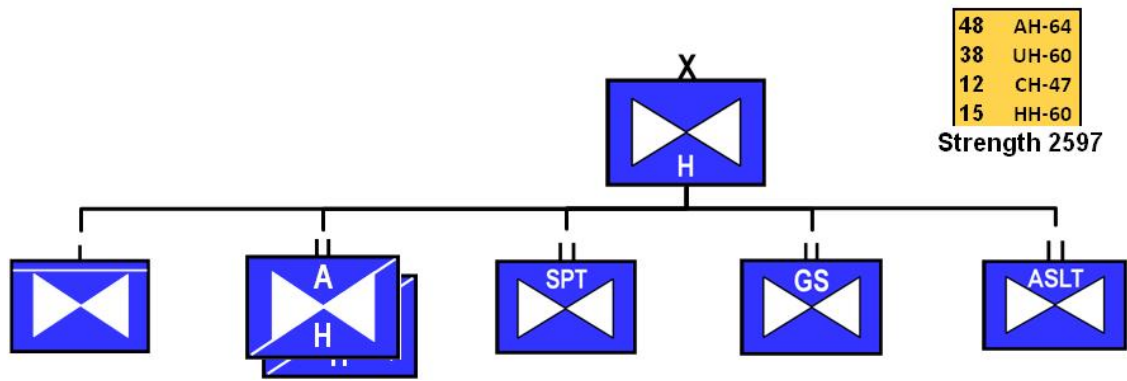
642 The vast majority of Army aviation forces are organized into two standard CAB unit configurations. CAB
643 designations are the Medium CAB and the Heavy CAB. The difference between a Medium CAB and
644 Heavy CAB is that a Heavy has more attack helicopters (i.e., the AH-64D), giving it more fire-power.
645 Standardization of aviation assets into these two types of aviation brigades ensures that ground
646 commanders know which aviation assets are under their command without the need to assess the forces

647 within each CAB attachment. Standardization into two CAB designs also ensures the Army can more
648 easily supply, equip, deploy, and provide logistics support without having to assess needs and evaluate
649 logistics requirements for various aviation units.

650 Configurations of Medium CAB and Heavy CAB units are similar. Both the Medium CAB and Heavy
651 CAB consist of between 110 to 120 helicopters. Units consist of either 2,597 or 2,670 Soldiers and have
652 between 600 to 700 wheeled vehicles and trucks to support aviation operations, such as logistics and
653 troop transport, maintenance, and supply. In addition, each CAB utilizes the same types of aircraft to
654 include the UH-60 Black Hawk, AH-64 Apache, OH-58 Kiowa, and CH-47 Chinook helicopters.

655 The primary difference between standardized CAB units is the fact that the Heavy CAB consists of two
656 AH-64 attack aviation battalions (total of 48 AH-64 Apaches) and the Medium CAB consists of one
657 reconnaissance and attack battalion of 30 OH-58 Kiowa aircraft and one attack aviation battalion of 24
658 AH-64 Apaches. The Medium CAB therefore has a different combination of aircraft within the brigade, a
659 total of six more airframes, and a slightly increased number of vehicles and Soldiers to support its
660 operations. Currently the Medium CAB consists of 2,670 Soldier authorizations, while the Heavy CAB
661 has 2,597. Actual numbers fluctuate through time as force management decisions are made to account for
662 mission requirements. In addition to more Soldiers, the Medium CAB also has a total of 119 helicopters,
663 while the Heavy CAB has 113 aircraft. Figures 1 and 2 below provide a summary of the force structure of
664 the CAB. Each CAB consists of five battalions and a HQ company. Battalions include two attack
665 reconnaissance battalions per CAB, an assault battalion, a support battalion, and a general support
666 aviation battalion. This PEIS uses a baseline assumption of approximately 2,700 Soldiers for the purposes
667 of analysis as it represents the larger of the two types of CABs that could be stationed and to account for
668 minor fluctuations and variations in force structure in the future.

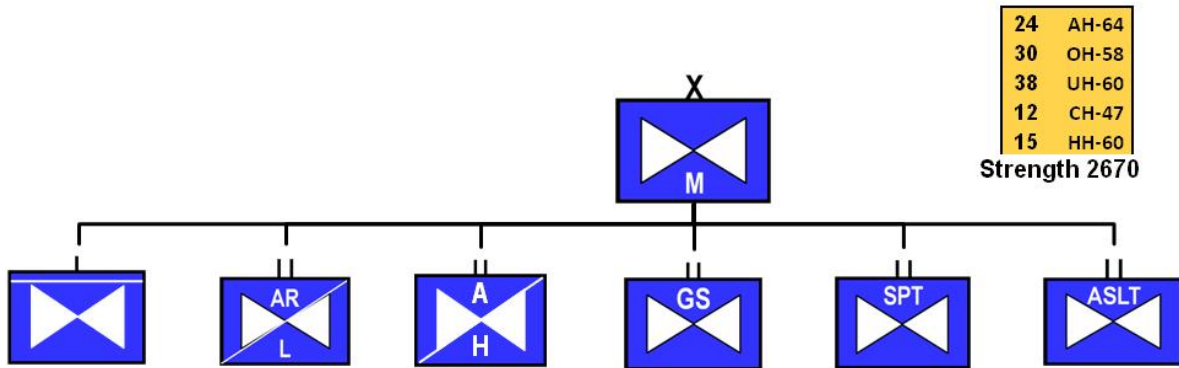
669



670

671 **Figure 1. Heavy CAB Force Structure**

672



673

674 **Figure 2. Medium CAB Force Structure**

675 There are also differences in the number of flight hours required for each CAB to maintain proficiency.
 676 Flight hours are based upon a model that assumes all aviation training required to meet individual aviator
 677 qualification training, aircrew training, and collective training at the flying company and battalion level.
 678 These differences are noted in Tables 4 and 5.

679

680 **Table 4. Heavy CAB Critical Flying Hours, Full Spectrum Operations Training Strategy**

Combat Aviation Brigade (H) Critical Flying Hours, Full Spectrum Operations Training Strategy				
Unit (aircraft)	ARFORGEN Training Year			Average
	Year 1	Year 2	Year 3	
AHB (UH-60)	4,422	6,017	5,726	5,388
ARB (AH-64D)	8,718	11,568	10,972	10,419
GSAB-CAC (UH-60)	1,343	1,831	1,739	1,638
GSAB-Hvy Hel Co (CH-47)	1,940	2,651	2,518	2,370
GSAB-MEDEVAC (15 UH-60)	2,524	3,551	3,352	3,142
Total	18,947	25,618	24,307	22,957

681

682 **Table 5. Medium CAB Critical Flying Hours, Full Spectrum Operations Training Strategy**

Unit (aircraft)	ARFORGEN Training Year			Average
	Year 1	Year 2	Year 3	
AHB (UH-60)	4,422	6,017	5,726	5,388
ARB (AH-64D)	4,359	5,784	5,486	5,210
GSAB-CAC (UH-60)	6,109	7,712	7,302	1,638
GSAB-Hvy Hel Co (CH-47)	1,940	2,651	2,518	2,370
GSAB-MEDEVAC (15 UH-60)	2,524	3,551	3,352	3,142
Total	20,697	27,546	26,123	24,789

683

684 **2.4. Introduction to Brigade Training**

685 This section provides an introduction to Brigade Training. This information is provided in order to
 686 facilitate an understanding of the need (Section 1.2) and primary activities (Sections 1.3 and 2.5) as
 687 related to environmental effects of CAB stationing.

688 Training is the Army’s number one priority for units, and commanders train their units to be combat
 689 ready. “Battle Focus” is a concept used to derive training requirements, and units train according to their
 690 METL. This is derived from wartime operational plans (why they fight), specific (to unit) combat
 691 capabilities (how they fight), the operational environment (where they fight), directed missions (what they
 692 must do) and any external guidance. The Army trains Soldiers in individual skills, units on collective

693 tasks, and different levels of units through multi-echelon training. The Army trains as it fights, as a
694 combined arms team. Combined arms training is a doctrinal approach to training, which seeks to integrate
695 critical combat forces, ensuring they are trained together as a single team to accomplish mission
696 objectives

697 Training ranges, training lands, and training airspace are the Army’s classroom, and “Commanders take
698 every opportunity to move Soldiers out into the field, to fire weapons, maneuver as a combined arms team
699 and incorporate protective measures against enemy actions.” (Field Manual [FM] 7-1, Battle Focused
700 Training).

701 All Soldiers qualify with their individual weapon (rifle or pistol) at least twice annually; crew-served
702 weapons qualification varies by type of unit. This training is usually accomplished at the company level
703 on fixed ranges described in TC 25-8. Weapons system training consists of a series of “tables” and occurs
704 on large range complexes.

705 All units train in “field-craft,” which includes establishing logistical and command and control operations
706 in the installation’s maneuver areas. Aviation units will establish Forward Arming and Refuel Points
707 (FARP) to service their helicopters during field training exercises. From those maneuver area locations
708 the units will train on their METL.

709 **2.5. Installation Specific Activities Required to Implement the Proposed Action**

710 Alternatives to station CABs will ultimately involve four installation-specific activities (garrison
711 construction, training infrastructure construction, live-fire training, and maneuver and flight operations
712 training) that must be integrated and synchronized by the Army to support the execution of the proposed
713 action. These activities, described in Section 1.3, are necessary components of the proposed unit
714 stationing action. This section provides the details of CAB-specific requirements related to each activity
715 group in order to provide an understanding of the direct, indirect, and cumulative environmental effects
716 that may result from CAB stationing decisions. For the reasons stated in Section 3, the two installations
717 under consideration for CAB stationing are JBLM and Fort Carson. Requirements specific to those
718 installations are set out in the following sections.

719 **2.6. Garrison Construction**

720 Administrative offices, housing, vehicle and aircraft parking and maintenance facilities, equipment
 721 storage, recreational facilities, roads, and other infrastructure is required to support a CAB. Critical
 722 facilities required by Army CABs include office space for brigade, battalion, and company HQ units;
 723 barracks space for single enlisted Soldiers; Family housing; dining facilities; maintenance shops for both
 724 helicopters and vehicles; hangars for helicopters; rotary runway parking aprons; parking for vehicles; and
 725 storage space. CAB readiness capabilities and Soldier and Family Quality of Life will be negatively
 726 impacted at garrisons unable to provide appropriate and adequate infrastructure and services.

727 Army facilities planners and the U.S. Army Corps of Engineers (USACE) are each involved in setting
 728 policy and guidance related to Army facilities requirements. In support of improving quality and
 729 efficiencies, USACE has developed standard design sets for many facilities needed to support garrison
 730 operations, unit operations, and Soldiers and Families. Army facilities planners determined the specific
 731 number of buildings and square footage/yardage for modular CABs. Standard garrison facilities and
 732 square footage requirements, excluding Family housing, are detailed in Table 6 below.

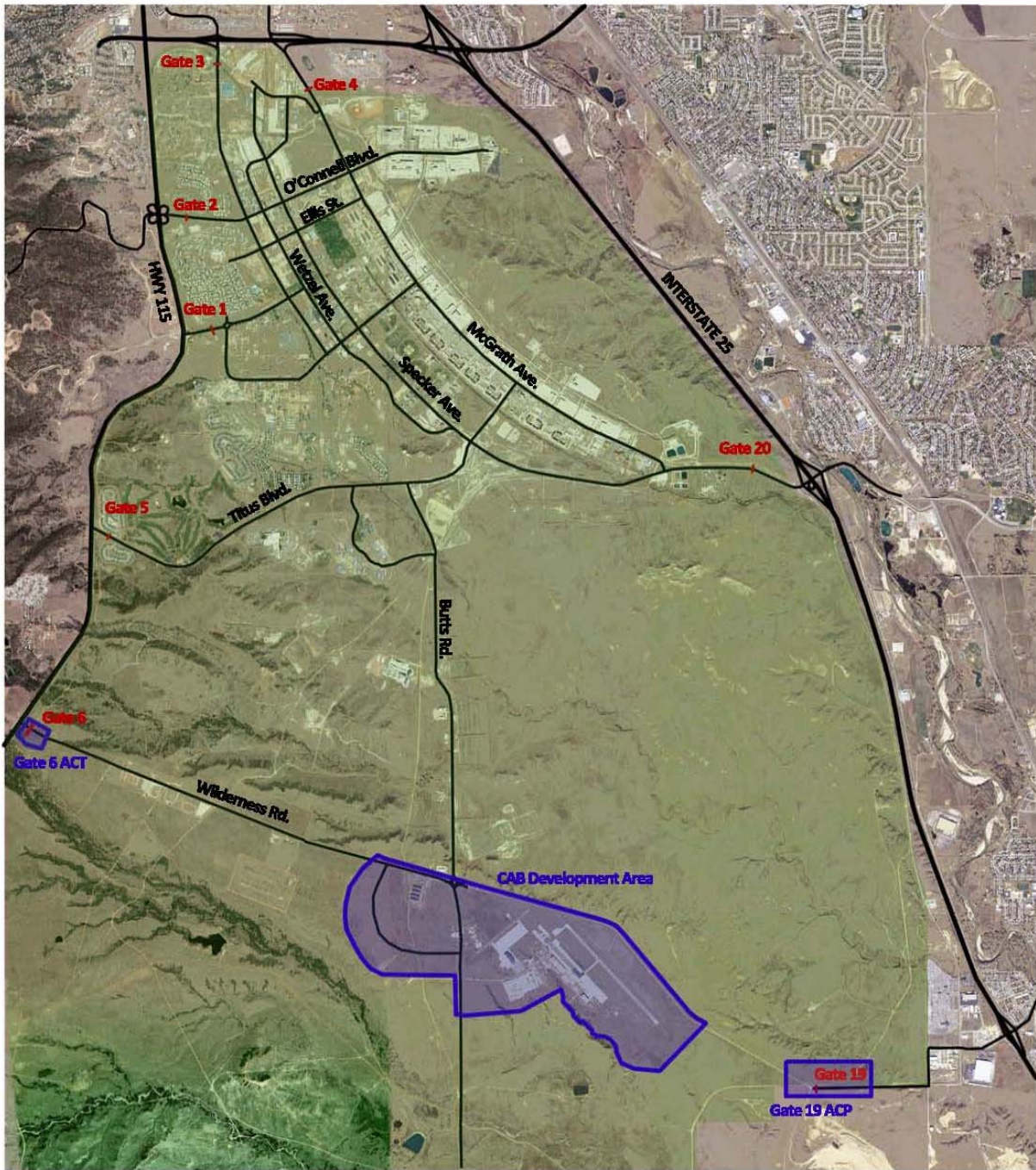
733 **Table 6. CAB Garrison Facility Requirements**

Garrison Facility	CAB Requirement
Rotary Runway Parking Apron Surfaced	224,134 SY
Aircraft Maintenance Apron Surfaced	14,000 SY
Aviation Unit Company Operations Buildings	34,038 GSF
Brigade HQ	20,656 GSF
Battalion HQ	63,305 GSF
Company HQ	302,623 GSF for 32 companies
Battalion Classrooms	22,925 GSF
Aircraft Maintenance Hangar	295,370 GSF
Vehicle Maintenance Shops	84,265 GSF
Unit Storage	34,050 SF
Unaccompanied Enlisted Housing	346,602 GSF (947 spaces)
Enlisted Dining Facility	27,505 SF
Organizational Vehicle Parking	164,090 SY
NOTE: SY = square yards SF = square feet GSF = gross square feet	

734 Source: USACE COS, 2010

735 Requirements for other facilities, such as medical facilities, recreation, and shopping will be based on the
736 available capability of the existing facilities to accommodate the increased population on the installations
737 being considered for the stationing of a CAB. Specific construction requirements will be determined at
738 the installation depending on these factors and what facilities are available to support CAB stationing.

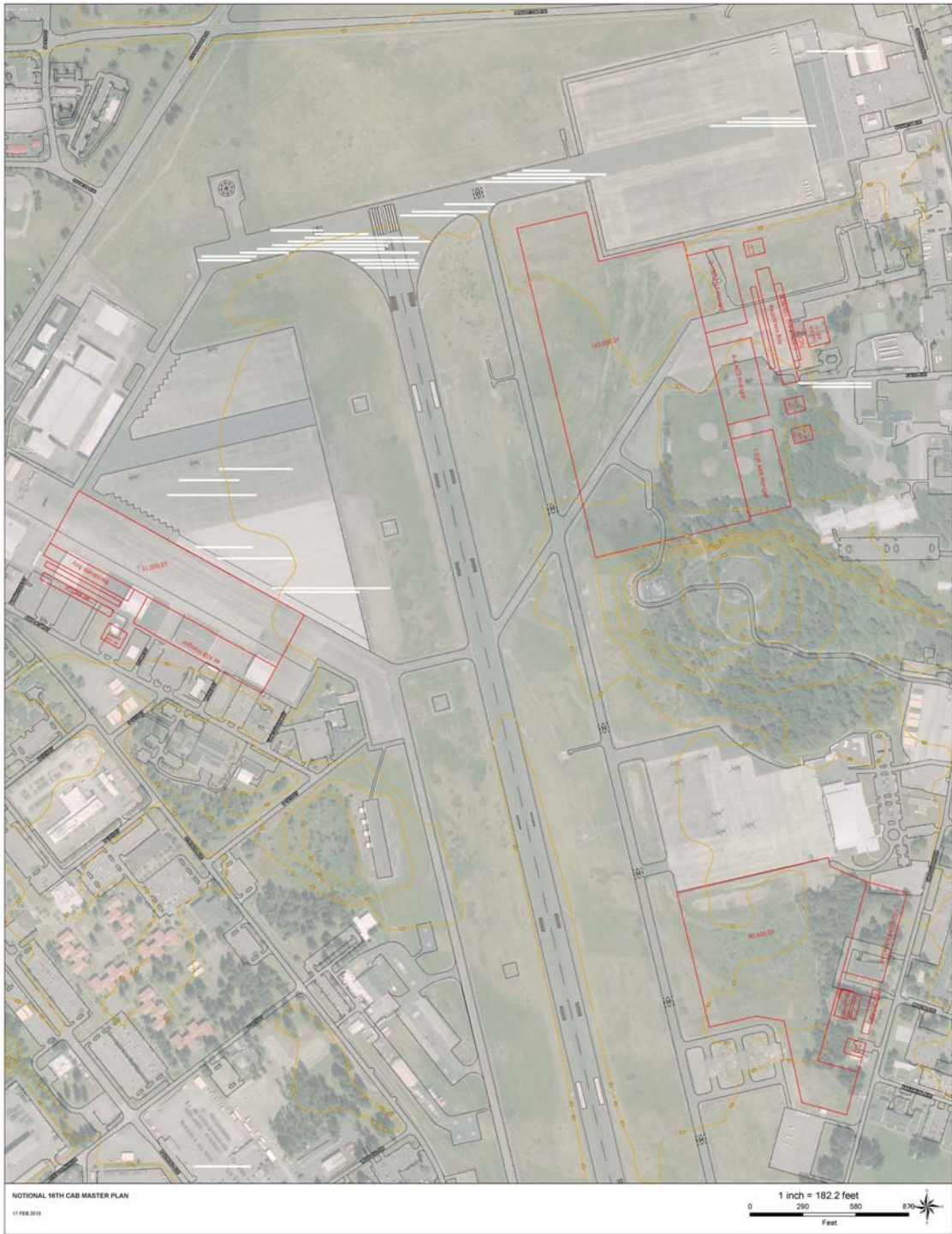
739 At Fort Carson, CAB facilities will be located at Wilderness Road near Butts Army Airfield (BAAF), the
740 site selected in the 2009 EIS (Figure 3). Of the facilities in Table 6, Fort Carson will need to build a
741 runway extension, aviation unit company operations facilities, additional aircraft maintenance hangars,
742 vehicle maintenance shops, and unaccompanied enlisted housing (barracks). This proposed action will
743 also require the construction of an additional fire station. Existing facilities at Fort Carson include BAAF
744 runway, helipads, motor pools, hangars, wash racks, and administrative space. For family housing, as
745 identified in the Fort Carson *Grow the Army* FEIS, although new on-post construction is needed to meet
746 housing requirements, the off-post market has the capacity to absorb the additional housing needs. No
747 CAB facilities construction is planned or needed at PCMS.



748

749 **Figure 3. Fort Carson CAB Development Area**

750 At JBLM, the Final EIS showed Gray Army Airfield (GAAF) and East Division Area Development Plan
751 (ADP) areas as the location for these facilities as the preferred alternative. A plan for CAB facilities siting
752 is provided in Figure 4. JBLM will have to build additional aircraft maintenance hangars, brigade HQ,
753 battalion HQ, additional aviation unit company operations facilities, and additional unaccompanied
754 enlisted housing. Existing facilities at JBLM include GAAF runway, helipads, control tower, motor pools,
755 wash racks, aviation unit company operations facilities, and unaccompanied enlisted housing or family
756 housing, as identified in the JBLM *Grow the Army* FEIS. A limited number of on-post family housing
757 units will be constructed with the balance of new Soldiers with Families living in the local community,
758 which has the capacity to absorb the additional housing needs.



759

760 **Figure 4. JBLM CAB Facilities Siting Plan**

761 **2.7. Training Infrastructure Construction**

762 Per Section 1.3, (TC) 25-8 guides Army range specifications, standard designs, and maneuver land
763 training and airspace requirements. A suite of ranges is required to meet all predeployment training
764 requirements. Some ranges are required to support small arms training of CAB support units and some
765 ranges are needed to support aviation gunnery and integrated air/ground live-fire training. Access to the
766 proper training range infrastructure is a critical need for the proposed action.

767 In order to meet the needs of the proposed action, the permanent stationing location for CABs must either
768 have the following training ranges in operation or suitable substitute ranges that meet training
769 requirements, or they must be able to accommodate the construction of required new ranges.

770 **2.8. Individual/Crew Qualification Ranges**

771 The following describes the difference in individual and crew qualification ranges.

772 **25-Meter Zero Range:** This range is used to train Soldiers in basic marksmanship. This range teaches
773 Soldiers techniques to engage stationary targets and sighting adjustment techniques. It can support M16
774 or M4 rifle firing, as well as that of crew served machine guns.

775 **Modified Record Fire Range:** This range is used to train support unit Soldiers in basic marksmanship
776 tasks. The range teaches Soldiers to quickly aim and engage stationary infantry targets.

777 **Combat Pistol Qualification Course:** This range is used to train Soldiers to identify, engage, and defeat
778 an array of targets using the 9 millimeter (mm), .38-caliber or .45-caliber pistol.

779 **Multi-purpose Machine Gun Range:** This range is designed to train Soldiers to engage stationary
780 infantry and mobile vehicular targets with the full range of Army machine guns to include the M249,
781 M60, M240, and .50-caliber arms. Both Fort Carson and JBLM have the above required ranges.

782 **2.9. Aerial Gunnery and Integrated Aviation/Ground Maneuver Qualification Ranges**

783 The following describes the types of training that occurs on the aerial gunnery and integrated aviation and
784 ground maneuver qualification ranges.

785 **Multi-Purpose Range Complex or Digital Multi-Purpose Range Complex:** This range is used to train
786 and test aviation, armor and infantry crews, sections, squads, and platoons on skills necessary to detect,
787 identify, engage, and defeat stationary and moving infantry and armor targets in a tactical array. This
788 complex also accommodates training with sub-caliber and/or laser training devices. All targets are fully
789 automated, utilizing event-specific, computer-driven target scenarios during scoring.

790 **Aerial Gunnery Range or Digital Air to Ground Integration Range:** This range is used to train
791 aviation crews, teams, platoons, and companies on skills necessary to detect, identify, and effectively
792 engage stationary and moving infantry and/or armor targets in a tactical array. Company combined arms
793 live fire exercises (CALFEX) and fully integrated advanced gunnery tables may also be conducted on this
794 facility.

795 **Combined Arms Collective Training Facility or Urban Operations Training Range:** This range is
796 used to train aviation units on skills necessary to detect, identify, and engage targets in an urban setting in
797 support of ground maneuver operations.

798 Fort Carson has the above required ranges. JBLM also has the necessary ranges to support CAB
799 stationing in order to adequately train a CAB. The Army has considered construction of a DAGIR at YTC
800 as a potential future range modernization project. This need has not been validated and is not currently a
801 funded project. If and when validation and funding of this project occurs, environmental impacts will be
802 considered.

803 **2.10. Live-Fire Training**

804 Live-fire training is an essential component of Army training and of the implementation of the proposed
805 action. To be operationally effective, Soldiers must have the skills and experience necessary to operate
806 and maintain their weapons. Live-fire involves both munitions and explosives that will be used in combat
807 and non-explosive training rounds designed to meet Soldiers' training needs. Soldiers must "train as they
808 fight" in order to properly prepare for combat situations. At a minimum, all Soldiers must qualify on
809 individual and crew weapons per their METL at least twice a year. In addition, platoons, companies, and
810 battalions of CABs must conduct collective live-fire training exercises on firing ranges to ensure they
811 have rehearsed and coordinated battle procedures and are prepared to deploy to support wartime
812 operations. Various weapons systems use different types of munitions. Live-fire training of CAB units

813 primarily includes small arms weapons to include the use of M-4 rifles with 5.56mm munitions, 9mm
814 pistols, and M240 machine guns loaded with 7.62mm munitions. The CAB must also fire larger caliber
815 weapons systems as part of live-fire training to include the M2 .50mm and M230 .30mm weapons
816 systems. In addition, attack aviation units, such as Apache longbow helicopters, fire 2.75-inch rockets and
817 Hellfire guided missiles as part of live-fire training activities. Depending on ammunition availability and
818 deployment cycles, the actual use of training ammunition for a CAB fluctuates from year to year.

819 CAB units must conduct live-fire training in a variety of settings to ensure unit readiness for deployment.
820 Reconnaissance and attack aviation must conduct integrated training with combat maneuver ground units
821 in both urban and open terrain settings, and attack aviation units of the CAB must execute specific
822 “diving-fire” tasks to engage ground targets in support of ground maneuver units.

823 **2.11. Maneuver and Flight Operations Training**

824 Army units regularly conduct collective training to prepare for operations. Collective training is done at
825 the team or aircrew level up through the highest levels of Army tactical organizations and normally at the
826 brigade or CAB level. When Army combat arms units (such as infantry, armor, and aviation) conduct
827 collective training that involves the movement of troops and the use of firing (live or simulated), it is
828 termed “maneuver training.” When collective training is conducted in concert with two or more types of
829 combat arms units, it is termed “combined-arms” training and is done to ensure that all of the units’
830 capabilities can be integrated and synchronized to execute missions under stressful operational conditions.

831 By definition, combined-arms training is a type of maneuver training. Aviation maneuver training
832 consists of collective training of the constituent units of the CAB working together to integrate their
833 combined capabilities and skills. It is a critical component of the unit collective training plan to train units
834 on how to synchronize the execution of battle tasks and shoot, move, and communicate on the battlefield.
835 CABs must conduct and rehearse maneuver training at every echelon from platoon through brigade level
836 to ensure they can accomplish their mission-critical tasks.

837 Units of a CAB are normally employed in support of ground maneuver Brigade Combat Teams (BCT) as
838 a part of the combined arms team. The CAB must train regularly with ground maneuver BCTs at home
839 station prior to deploying in support of operations. Such training is termed “air-ground integration
840 training”. Air-ground integration training with CAB units and ground units allows each type of unit to

841 more effectively maneuver with the other, understanding key limitations and requirements, while
842 promoting increased training readiness and effectiveness. Large-scale battalion and brigade maneuver
843 training events that conduct air-ground integration operations are often the capstone training exercise that
844 tests and certifies units for operational deployments abroad.

845 CAB units stationed at Fort Carson or JBLM will utilize associated maneuver training areas (PCMS and
846 YTC) to conduct some aviation unit training. A majority of flight hours conducted at these locations will
847 be associated with training in support of air-ground integration training exercises at the battalion and
848 brigade levels.

849 For the purposes of this analysis, it has been reasonably assumed that an aviation task force consisting of
850 approximately one third of the CAB (900 Soldiers, 40 helicopters, and 250 wheeled support vehicles) will
851 deploy from its home station to satellite maneuver training areas once per year for each BCT stationed
852 there. This aviation task force will provide approximately two weeks of support for each BCT brigade-
853 level maneuver rotation. There are four AC BCTs stationed at Fort Carson and three AC BCTs stationed
854 at JBLM. Accordingly, eight weeks of aviation task force support of BCT level maneuvers at PCMS and
855 6 weeks support at YTC have been assumed to support air-ground integration operations at the brigade
856 level. Training assumptions are based on doctrinal training requirements.

857 In addition to supporting brigade-level training, the CAB will support some battalion-level ground unit
858 training with smaller aviation elements. This training will consist of up to 10 aircraft deploying to PCMS
859 or YTC five to six times per year for up to 10 days each time. Aviation support at PCMS and YTC will
860 also include flights to these sites to support special forces and infantry unit insertions and equipment
861 sling-loading operations at the team and squad level.

862 CAB units will also conduct aviation unit collective training at Fort Carson, PCMS, JBLM and YTC to
863 maintain proficiency of flight skills.

864 In total it is estimated that up to one third of total estimated CAB flight time (see Tables 3 and 4) may
865 occur at PCMS or YTC respectively. The stationing of a CAB at Fort Carson or JBLM will not result in a
866 significant increase in use or scheduling of PCMS or YTC. Training by a CAB will not exceed
867 historically authorized levels unless and until new levels are analyzed under NEPA, and authorized by

868 appropriate decision-makers. A majority of aviation operations at these maneuver sites will be conducted
869 to support ground operations that will have otherwise occurred without aviation support.

870 CAB training at PCMS and YTC will also involve deployment of wheeled vehicles by convoy from Fort
871 Carson and JBLM. When deployed to these sites, aviation unit ground elements will conduct rearm and
872 refuel operations in the cantonment areas of PCMS and YTC and at designated improved sites in the
873 maneuver areas. Wheeled vehicles at these sites will not be expected to conduct cross-county maneuvers
874 and will mainly operate within the cantonment areas and on approved roads and trails in training areas to
875 access designated arming and refuel points.

876 None of these actions will require expansion of PCMS or YTC.

877

(This page was intentionally left blank.)

879 3. ALTERNATIVES AND SCREENING CRITERIA

880 3.1. Introduction

881 The primary purpose of this section is to discuss the alternatives the Army is considering for
882 implementing the proposed action. Alternatives were developed according to criteria based upon the
883 purpose and need described in Section 1. The purpose and need defines necessary elements of the
884 proposed action and allows consideration of a broad range of alternatives for potential stationing
885 decisions. The screening criteria are used to assess whether an alternative is “reasonable” and will be
886 carried forward for evaluation in the Draft PEIS. The screening criteria were developed based on the
887 purpose and need for the proposed action.

888 3.2. Screening Criteria

889 The Army established four criteria for the implementation of the proposed action that are being evaluated
890 as a part of the decision-making process. These criteria focused the Army’s analysis of alternatives to
891 those installations where aviation growth and realignment will be viable and support the Army’s need.
892 These criteria are:

893 **Training Ranges:** Installations must possess a majority of the training ranges and infrastructure required
894 to maintain the training readiness of a CAB.

895 **Existing Infrastructure and Cost Feasibility:** To effectively station the CAB, installations carried
896 forward for consideration must have existing airfields, helipads, runways, and some administrative
897 facilities and garrison support facilities (e.g., office space and barracks) to support the stationing of a
898 CAB. Building a new airfield and all new garrison infrastructure to support CAB stationing will not be
899 feasible to implement from a cost perspective. Stationing locations must have adequate existing facilities
900 to accommodate the rapid stationing of a CAB in the near term while allowing the Army to subsequently
901 improve/expand facilities in the long term.

902 **Training Land and Airspace:** Installations’ current acreage and airspace approved for military use must
903 support CAB training and be capable of supporting brigade-level integrated training events of CAB and
904 BCT ground units. Installations incapable of supporting the training land and military special use airspace
905 (SUA) requirements for an additional CAB were not considered in the decision making process.

906 **Installations Capable of Maximizing Air-Ground Integration Training Opportunities:** CABs are
907 often employed in support of ground maneuver BCTs; therefore, air-ground integration training
908 opportunities are essential for readiness. In all cases, the Army will optimize training opportunities for
909 CABs to train with ground maneuver BCTs. Stationing CABs at locations with multiple BCTs allows the
910 Army to maximize air-ground integration training time and minimize cost and time away from Families.
911 The Army has a limited number of CAB units that must support operations abroad and maintain their
912 training readiness and the training readiness of the ground BCT units they support. The most effective
913 places to do this are locations that have a high concentration of BCTs at an installation. Locations that
914 have a high concentration of BCTs will ensure air-ground integration training opportunities can be
915 maximized. Because of the importance of conducting integrated aviation-ground unit combined arms
916 training, installations that do not have at least three AC BCTs to ensure training availability of ground
917 units are not viable alternatives. Installations with fewer than three BCTs do not have the ground combat
918 unit-to-aviation unit ratio necessary to ensure maximized air-ground integration opportunities. Therefore,
919 installations considered for the stationing of a CAB must provide home-station training for three or more
920 active component BCTs to support integrated air/ground maneuver and live-fire training to maximize the
921 potential for integrated training. Conversely, installations considered for CAB stationing must not have an
922 existing CAB already stationed there. At these locations, the ratio of aviation unit to ground maneuver
923 units is already supporting integrated training, and therefore stationing another CAB at these locations
924 will not serve to distribute aviation assets optimally to promote air-ground integration training across the
925 Army.

926 **3.3. Application of Screening Criteria to Potential Installation Stationing Locations**

927 The first screening criterion applied is the Training Ranges criteria. The Army initially considered all
928 Army installation stationing locations as alternatives for implementing the proposed action. In order to
929 support aviation training requirements of CAB units, however, only installations that have undergone
930 considerable amounts of range modernization and construction, and can support integrated aviation and
931 ground BCT training have been carried forward as viable alternatives. Installations carried forward are
932 defined as the Army's Tier 1 training sites, which meet screening criteria for CAB training. The Army's
933 Tier 1 training sites are:

- 934 1) Fort Irwin, California

-
- 935 2) Fort Polk, Louisiana
- 936 3) Fort Bragg, North Carolina
- 937 4) JBLM & YTC, Washington
- 938 5) Fort Hood, Texas
- 939 6) Fort Benning, Georgia
- 940 7) Fort Bliss and Biggs Army Airfield, Texas
- 941 8) Fort Drum, New York
- 942 9) Fort Campbell, Kentucky
- 943 10) Fort Stewart and Hunter Army Airfield (HAAF), Georgia
- 944 11) Fort Carson and the PCMS, Colorado
- 945 12) U.S. Army Garrison (USAG) Hawaii, Schofield Barracks, and Wheeler Army Airfield, Hawaii
- 946 13) USAG Alaska and Fort Wainwright, Alaska
- 947 14) Fort Riley, Kansas
- 948 After considering the training ranges, those which have existing airfields and necessary infrastructure to
949 support near term CAB stationing actions were considered. In applying the existing infrastructure and
950 cost feasibility criterion, sites carried forward include:
- 951 1) JBLM and YTC
- 952 2) Fort Hood
- 953 3) Fort Bliss and Biggs Army Airfield
- 954 4) Fort Stewart and HAAF

955 5) Fort Carson and PCMS

956 6) USAG Alaska and Fort Wainwright

957 7) Fort Riley

958 After considering cost feasibility and availability of existing airfields and necessary infrastructure to
959 support near term CAB stationing actions, suitable training land and SUA were considered as screening
960 criteria for viable alternatives. Sites carried forward for analysis must have access to SUA and accessible
961 sites for battalion and brigade air-ground integration training. Sites carried forward include:

962 1) JBLM and YTC

963 2) Fort Hood

964 3) Fort Bliss and Biggs Army Airfield

965 4) Fort Stewart and HAAF

966 5) Fort Carson and PCMS

967 6) USAG Alaska and Fort Wainwright

968 As stated in Section 1, air-ground integration training opportunities is essential for effective Army
969 operations. Sites with three or more active component BCTs enable maximized air-ground integration
970 training opportunities in a cost effective manner. Sites remaining which have three or more BCTs and
971 don't currently have a CAB to support integrated ground-air operations include:

972 1) JBLM and YTC

973 2) Fort Carson and PCMS

974 These two installations are the only ones, along with their respective satellite maneuver training sites,
975 which meet the screening criteria for the proposed action.

976 **3.4. Alternatives Carried Forward for Analysis**

977 In addition to the No-Action alternative, three action alternatives have been formulated that take into
978 account the Army's need to realign and/or grow aviation assets. All alternatives consider BRAC-directed
979 actions and those stationing actions that will occur prior to the start of FY 2013 (October 1, 2012) as part
980 of the baseline condition for analysis. The Army has determined that the alternatives below meet the
981 foregoing criteria and are therefore reasonable. Alternatives carried forward for full analysis are:

982 **Alternative 1 – Realign, Consolidate, and Station Existing Aviation Elements of Up to a Full CAB**
983 **or Grow, Station, and Activate a New CAB at Fort Carson (CO)**

984 Under this alternative, the Army will consolidate existing aviation units not currently assigned to a CAB
985 into a standard CAB structure at Fort Carson, or activate a new CAB at Fort Carson. As part of this
986 alternative, aviation units will conduct training on existing land at PCMS in order to maintain training
987 proficiency and support integrated training with ground units. Land acquisition is not being considered as
988 part of this action.

989 **Alternative 2 - Realign, Consolidate, and Station Existing Aviation Elements of Up to a Full CAB or**
990 **Grow, Station, and Activate a New CAB at Joint Base Lewis-McChord (WA)**

991 Under this alternative, the Army will either consolidate existing aviation units not currently assigned to a
992 CAB into a standard CAB structure at JBLM, or activate a new CAB at JBLM. As part of this alternative,
993 aviation units will conduct training on existing training land at YTC in order to maintain training
994 proficiency and support integrated training with ground units. Land acquisition is not being considered as
995 part of this action.

996 **Alternative 3 – Implement Alternative 1 and 2 (Preferred)**

997 Under this alternative, the Army will implement both Alternatives. Under this alternative, the
998 consolidated units forming a CAB will be stationed at one installation, and the new CAB will be activated
999 and stationed at the other installation. Fort Carson and JBLM will each gain up to one CAB. As part of
1000 this alternative, aviation units will conduct training on existing training land at the installations' training
1001 maneuver satellite area (PCMS for Fort Carson, and YTC for JBLM) in order to maintain training

1002 proficiency and support integrated training with ground units. Land acquisition is not being considered as
1003 part of this action. Alternative 3 is the Army's preferred alternative.

1004 As part of this preferred alternative, the Army is considering the realignment and consolidation of
1005 aviation elements from active component forces not currently in a modular configuration into a CAB at
1006 JBLM. In addition, the Army will establish a new CAB under this alternative at Fort Carson. As part of
1007 this alternative, Fort Carson will gain one new CAB consisting of up to 2,700 new Soldiers and 120
1008 helicopters. JBLM will receive most of the realigned units required to complete a CAB to complement
1009 aviation units already stationed there. The Army is considering a reduction in the number of Soldiers to be
1010 stationed at JBLM from a full CAB equivalent of Soldiers and equipment to approximately 1,400 new
1011 Soldiers and 44 helicopters. Units comprised of these Soldiers and equipment will provide a CAB training
1012 capability and complement Active Army aviation units already stationed at JBLM. A final decision on
1013 stationing will be included in the ROD for this proposal.

1014 **No-Action Alternative**

1015 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
1016 locations. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing
1017 decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1,
1018 2012). The No-Action Alternative will not enable the Army to increase or to realign available rotary-wing
1019 assets to meet current and future national security requirements. Implementation of the No-Action
1020 alternative will not address the imbalance between aviation unit deployments and time at home station,
1021 degrading Soldier and Family Quality of Life. In addition, opportunities to maximize air-ground
1022 integration training will not be fully realized. The No-Action Alternative at Fort Carson and PCMS is
1023 represented by Alternative 1 in the 2007 HQDA *Final Programmatic Environmental Impact Statement*
1024 *for Army Growth and Force Structure Realignment*, where impacts are defined for the stationing of 1,000
1025 additional Combat Support Soldiers. With the cancellation of the Grow the Army Infantry BCT
1026 stationing, announced in the updated ROD for Army Growth and Force Structure Realignment (2010),
1027 this alternative best reflects the actual number of additional Soldiers stationed at Fort Carson as part of the
1028 2007 stationing decision. The No-Action Alternative at JBLM and YTC is represented by Alternative 2 of
1029 the 2010 JBLM *Grow the Army* FEIS, which include an analysis of impacts of units stationed as part of
1030 Grow the Army 2007 stationing decisions. The No-Action Alternative includes construction and other

1031 changes associated with previously approved growth and transformation activities. The No-Action
1032 Alternative in site-specific *Grow the Army* FEISs incorporated existing aviation units and their training
1033 activities as part of the baseline condition. As part of the No-Action Alternative, Fort Carson and JBLM
1034 will retain the Army aircraft currently stationed at each installation and will continue to conduct existing
1035 aviation operations and training activities. Fort Carson currently has 30 Army aircraft assigned and JBLM
1036 currently has 99 Army aircraft assigned. The No-Action Alternative provides baseline conditions and a
1037 benchmark from which to compare environmental impacts from the proposed action.

1038 **3.5. Alternatives Eliminated from Further Review**

1039 **Station CABs at installations with fewer than three active component BCTs, but deploy them to**
1040 **other locations to support training**

1041 Stationing CABs at locations with a reduced number of BCTs and deploying CABs to other locations will
1042 result in lost training time for units and equipment to travel, and increased costs to drive, fly, or rail
1043 equipment to other locations. This alternative will not implement the proposed action in a cost-effective
1044 manner and will reduce the availability of CAB units to support operations. It will also unacceptably
1045 increase the time Soldiers spend away from their Family members during the limited times the CAB isn't
1046 deployed overseas.

1047 **Permanently station new CABs at installations that already have a CAB**

1048 As part of this alternative, CABs will be stationed at installations that already have or are scheduled to
1049 receive a CAB. This alternative will not promote effective integrated training of air-ground units and has
1050 therefore not been considered for further analysis. Active Component installations that currently have or
1051 are scheduled to receive a full modular CAB include Fort Bliss, Texas; Fort Bragg, North Carolina; Fort
1052 Campbell, Kentucky; Fort Drum, New York; Fort Hood, Texas; and Fort Riley, Kansas.

1053 **Station the CAB at a National Guard or Reserve installation**

1054 This alternative will not allow the Army to fully utilize and train its units and complete air-ground
1055 integration training as well as the CAB to support ground operations. Deployments to Active Component
1056 installations will be required and will result in lost training time and increased cost of operations as

1057 discussed above. National Guard and Reserve installations are not currently equipped or manned to
1058 support AC unit stationing.

1059

1060 **4. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**
1061 **INTRODUCTION AND SUMMARY**

1062 The subsequent sections consolidate the baseline information (the affected environment) and the
1063 environmental and socioeconomic impacts (environmental consequences) of the proposed action.
1064 Subsections divide analyses for the potential stationing locations, Fort Carson/PCMS (Section 5) and
1065 JBLM/YTC (Section 6), which resulted from the application of the screening criteria (see Section 3.3).
1066 The baseline for the proposed action is considered the installation's current condition through FY 2010.

1067 The Army's CAB stationing analyses includes input from environmental and Army professionals familiar
1068 with CAB operations and Valued Environmental Component (VEC) resources, including installation staff
1069 at Fort Carson and JBLM. In addition to technical environmental analysis, the Army will consider those
1070 issues identified by the public and other organizations during the NEPA process.

1071 **4.1. Public Comments and Incorporation of Installations' Analyses**

1072 Although HQDA had not initiated this PEIS, both installations determined that it was reasonable that
1073 HQDA may make a decision to move forward on realigning and growing the Army's rotary-wing assets
1074 and for each to potentially be selected as a location for the stationing of a CAB. Therefore, both included
1075 CAB stationing implementation options when they developed their respective environmental impact
1076 analyses for Army growth and force structure realignment to ensure HQDA awareness of environmental
1077 impacts. As part of these site-specific EIS's, public meetings were held and comments received on CAB
1078 stationing. Another public comment period has been opened for this EIS process as well to ensure
1079 maximum public participation. For additional discussion of scoping comments received as part of this EIS
1080 process, see Section 1.4. Comments received as part of the scoping period for this PEIS are captured in
1081 Appendix F. Although this PEIS is programmatic in nature and the two installations' analyses were site-
1082 specific, this PEIS leverages appropriate information from each, to include proposed mitigations. The Fort
1083 Carson analysis is documented in the *Final Environmental Impact Statement for Implementation of Fort*
1084 *Carson Grow the Army Stationing Decisions*, February 2009 (Fort Carson, 2009) and is available at
1085 http://aec.army.mil/usaec/nepa/carson-feis_feb09.pdf. The JBLM analysis is documented in the *Final*
1086 *Environmental Impact Statement for the Fort Lewis Army Growth and Force Structure Realignment*, July
1087 2010 (JBLM, 2010a) and is available at

1088 http://www.lewis.army.mil/publicworks/sites/envir/eia_gta_final.htm. These installation level EISs are
1089 incorporated into this PEIS by reference.

1090 **4.2. VECs and Focusing the Analyses**

1091 To enable a managed and systematic analysis of environmental and socioeconomic effects at a
1092 programmatic level, these resources are categorized into VECs.

1093 **4.2.1. Valued Environmental Components**

1094 VEC categories are listed below. Appendix A provides VEC descriptions and regulatory drivers and
1095 standards.

- | | | | |
|------|---|------|------------------------------------|
| 1096 | 1. Land Use | 1102 | 7. Cultural Resources |
| 1097 | 2. Air Quality and Greenhouse Gas (GHG) | 1103 | 8. Socioeconomics |
| 1098 | 3. Noise | 1104 | 9. Transportation and Airspace |
| 1099 | 4. Geology and Soils | 1105 | 10. Utilities |
| 1100 | 5. Water Resources | 1106 | 11. Hazardous and Toxic Substances |
| 1101 | 6. Biological Resources | | |

1107 **4.2.2. VEC Significance Threshold**

1108 To maintain consistent evaluation of impacts in the PEIS, thresholds of significance were used for each
1109 VEC resource area evaluated. Army resource specialists and NEPA staff developed these thresholds as
1110 part of this and/or site-specific installation EIS analyses. Although some thresholds have been so
1111 designated based on legal or regulatory limits or requirements, other thresholds were determined through
1112 consultation with regulatory agencies or reflect discretionary judgment on the part of the Army in
1113 accomplishing their primary mission of military readiness, while also fulfilling their conservation
1114 stewardship responsibilities. Quantitative and qualitative analyses have been used in this PEIS or in
1115 supporting EIS analyses, if appropriate, in determining whether, and the extent to which, a threshold is

1116 exceeded. Based in part on the results of this analysis, Army environmental subject matter experts
1117 determined whether a particular impact will be significant, mitigable to less than significant, or less than
1118 significant. Some ratings terminology presented in this PEIS are slightly different than impacts
1119 terminology presented in installation *Grow the Army* site specific EIS analyses that previously evaluated
1120 CAB stationing. The Army has recategorized some impacts, where necessary, to ensure a consistent
1121 comparison of environmental impacts is presented in this PEIS despite use of different impacts
1122 terminology in past EIS analyses. The following terms will be used throughout this EIS as a convention to
1123 indicate the relative degree of severity of predicted environmental impacts:

1124 **Less than Significant:** The term used to indicate the relative degree of severity of an environmental
1125 impact that is not significant, but even so may be readily apparent. The level of anticipated impacts may
1126 range from minor to moderate in scope and intensity. Mitigating predicted consequences of implementing
1127 an action may require additional care in following standard procedures, employing best management
1128 practices (BMPs), or applying precautionary measures to minimize adverse impacts, however, significant
1129 impacts are not predicted in association with implementation of the proposed action.

1130 **Significant but Mitigable:** A measure of either adverse or beneficial impact, in terms of the degree of
1131 severity of the environmental impact reflecting the context and intensity of the impact, as defined in the
1132 CEQ Regulations (40 CFR §1508.27). Predicted consequences of implementing an action will be
1133 significant without the implementation of mitigation measures that may take the form of standard
1134 operating procedures (SOP), employing BMPs, implementing specific mitigation measures and applying
1135 precautionary measures to minimize impacts that will otherwise be “significant” adverse impacts.

1136 **Significant:** A measure of either adverse or beneficial impact, in terms of the degree of severity of the
1137 environmental impact reflecting the context and intensity of the impact, as defined in the CEQ
1138 Regulations (40 CFR §1508.27).

1139 **4.2.3. VEC Threshold Categories**

1140 Thresholds of significance for VECs include the following categories, which are broken out by each
1141 resource area.

1142 1. Land Use

1143 • Incompatible land use with existing military land uses/land use designations, or major conflicts
1144 with Army land use plans, policies, or regulations.

1145 • Requirement to change current installation recreational or agricultural land use policies or loss of
1146 the ability to use large amounts of acreage used for agricultural purposes designated as Prime
1147 Farmland because of implementation of the military proposal.

1148 2. Air Quality and GHG

1149 • Increase in ambient air pollutant concentrations above Clean Air Act (CAA) National Ambient
1150 Air Quality Standard (NAAQS) causing a change to “nonattainment” status.

1151 • Produce emissions of hazardous air pollutants (HAP) exceeding State or Federal emission levels.

1152 • Violation of Title V or Synthetic Minor Operating Permits.

1153 3. Noise

1154 • Noise impacts causing reclassification of noise zones (NZ) to zone 2 or 3 around sensitive
1155 receptors (i.e., school, hospital, church or daycare).

1156 4. Geology and Soils

1157 • Result in loss of soil (through increased erosion) that exceeds the amount of soil loss at which the
1158 quality of a soil can be maintained to sustain existing vegetation.

1159 • Impacts conflict with existing Federal, State, or local statutes or regulations.

1160 5. Water Resources

1161 • Exceedance of total maximum daily loads for sediments causing a change in surface water
1162 impairment status.

1163 • Unpermitted direct impacts to waters of the U.S.

1164 6. Biological Resources

- 1165 • A long-term loss or degradation or loss of diversity within unique or high-quality plant
1166 communities.
- 1167 • Unpermitted “take” of Federally listed species.
- 1168 • Local extirpation of rare or sensitive species not currently listed under the Endangered Species
1169 Act (ESA).
- 1170 • Unacceptable loss of critical habitat as determined by the U.S. Fish and Wildlife Service (FWS).
- 1171 • Noncompliance with policies, regulations, and permits related to wetlands conservation and
1172 protection (including Executive Order [EO] 11990, Protection of Wetlands and Section 404 of the
1173 Clean Water Act [CWA]).
- 1174 • High probability of increasing the frequency and intensity of wildfires, especially in sensitive
1175 ecological areas.

1176 7. Cultural Resources

- 1177 • Irretrievable or irreversible damage to a prehistoric or historic site (exclusive of data recovery)
1178 that is listed or is eligible/potentially eligible for listing on the National Register of Historic
1179 Places (NRHP).
- 1180 • Violation of compliance with American Indian Religious Freedom Act (AIRFA) regulations by
1181 creating conditions that prevent the traditional use of sacred or ceremonial sites or resources, such
1182 as restricting access to times that conflict with their traditional use.

1183 8. Socioeconomics

- 1184 • Disproportionate environmental economic, social, or health impacts on minority or low-income
1185 populations (EO 12898).

1186 • Input or loss of economic activity to the local region that exceeds the “Rational Threshold
1187 Value.”

1188 9. Transportation and Airspace

1189 • Reduction in State or Federal highway function by more than two levels of service.

1190 • Reduction in Level of Service (LOS) of State and Federal Highways from level D to Level E or
1191 below as a direct result of the proposed action.

1192 • Construction, lane closures, or impediments will disrupt local traffic circulation patterns and
1193 cause exceptional delays, based on engineering judgment.

1194 • Cause considerable reduction in access to or affect the use of airports or airfields available for
1195 public use, or affect commercial or private airfield or airport arrival and departure traffic flow.

1196 10. Utilities

1197 • The Proposed Action directly results in an increase in demand beyond the capacity of the utilities
1198 to the point that substantial expansion and additional facilities will be necessary.

1199 11. Hazardous and Toxic Substance

1200 • Causes considerable risk to human health or safety.

1201 **4.2.4. Region of Influence**

1202 The VECs, in turn, each have an identified region of influence (ROI) that narrows or widens the scope of
1203 analysis (see Table 7). The ROI for the affected environment includes a geographic area reflecting direct,
1204 indirect, and cumulative impacts.

1205

1206

1207

1208 **Table 7. ROI of VEC**

VEC	Region of Influence of Resource
Land Use	Community, County, Region, or State
Air Quality and GHG	Metropolitan Area, Air Shed, Global Atmosphere
Noise	Metropolitan Area
Geology and Soils	Cantonment and Range Areas
Water Resources	Streams, River Basin, Estuaries; Watershed-Based
Biological Resources	Habitat, Ecosystem; Wetland Watershed-Based Areas; For Migratory Birds, Includes Breeding Grounds, Wintering Areas, Migratory Routes, Total Range
Cultural Resources	Historic Properties or Districts/Prehistoric Areas
Socioeconomics	Community, Metropolitan Area, County or State (U.S. Census)
Transportation and Airspace	Metropolitan Area, County, or Region
Utilities	Community, County, Region, or State
Hazardous and Toxic Substances	Metropolitan Area

1209

1210 **4.2.5. Joint Basing**

1211 On February 1, 2010, Fort Lewis and McChord Air Force Base (AFB) officially became JBLM and
 1212 started the process of merging base operations management. Full operating capability was achieved on
 1213 October 1, 2010. However, the U.S. Army and U.S. Air Force (USAF) continue to each be responsible for
 1214 the management of their respective units' mission training activities. Even though the installation now is
 1215 officially a joint base, the stationing, construction, and training for any future Army units, to include a
 1216 CAB, will occur on the former Fort Lewis land base. When this document assesses the impacts from the
 1217 stationing of a CAB, these impacts are largely limited to the former Fort Lewis land base and are reflected
 1218 in the analyses. Additionally, because Joint Basing is still relatively new, airfield, administrative offices,
 1219 and vehicle and aircraft parking and maintenance facilities needed to support a potential CAB will be on
 1220 former Fort Lewis lands. As such, the potential impacts of a CAB stationing are largely limited to the
 1221 former Fort Lewis and YTC, not the former McChord AFB. This will be reflected in the scope of the
 1222 analyses of VECs.

1223 **4.3. Summary of Environmental Consequences by VEC**

1224 Table 8 depicts the No-Action Alternative and Table 9 depicts a summary of the results of the
1225 environmental consequences by VEC of a CAB stationing at each potential stationing site and the
1226 associated maneuver training site (Anticipated Direct and Indirect Impacts to VECs from a CAB
1227 stationing at Each Potential Site). The No-Action Alternative impacts summary reflects the baseline
1228 condition. For anticipated impacts other than “less than significant,” the impact may be related to only
1229 one factor of a VEC (e.g., only to vegetation, a subset of biological resources). For specific details, see the
1230 write-ups under the applicable section above. Even further details can be found in each installation’s
1231 *Grow the Army* FEIS documents. As mentioned in Section 4.1, the Fort Carson (and PCMS)
1232 environmental consequences are documented in the *Final Environmental Impact Statement for*
1233 *Implementation of Fort Carson Grow the Army Stationing Decisions*, February 2009 (Fort Carson, 2009),
1234 and the JBLM (and YTC) environmental consequences is documented in the *Final Environmental Impact*
1235 *Statement for the Fort Lewis Army Growth and Force Structure Realignment*, July 2010 (JBLM, 2010a).

1236 This summary is a tool to help the Army (including the decision maker), regulatory agencies, and the
1237 public understand the relative impacts of the proposed action to the different VECs at a programmatic
1238 level.

1239

1240 **Table 8. Anticipated Impacts to VECs Under the No-Action Alternative at Each Potential Site**
 1241 **(Baseline Condition)**
 1242

VEC	Fort Carson	PCMS	JBLM	YTC
Land Use	Less than significant	Less than significant	Less than significant	Less than significant
Air Quality and GHG	Mitigable to less than significant	Less than significant	Less than significant	Less than significant
Noise	Less than significant	Less than significant	Significant	Less than significant
Geology and Soils	Less than significant	Less than significant	Less than significant	Mitigable to less than significant
Water Resources	Less than significant	Less than significant	Mitigable to less than significant	Mitigable to less than significant
Biological Resources	Less than significant	Less than significant	Significant	Significant
Cultural Resources	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Socioeconomics	Less than significant	Less than significant	Significant	Less than significant
Transportation and Airspace	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Utilities	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Hazardous and Toxic Substances	Less than significant	Less than significant	Less than significant	Less than significant

1243
 1244

1245 **Table 9. Anticipated Direct and Indirect Impacts to VECs from a CAB stationing at Each Potential**
 1246 **Site**

VEC	Fort Carson	PCMS	JBLM	YTC
Land Use	Less than significant	Less than significant	Less than significant	Less than significant
Air Quality and GHG	Mitigable to less than significant	Less than significant	Less than significant	Less than significant
Noise	Less than significant	Less than significant	Significant	Less than significant
Geology and Soils	Mitigable to less than significant	Mitigable to less than significant	Less than significant	Mitigable to less than significant
Water Resources	Less than significant	Less than significant	Mitigable to less than significant	Mitigable to less than significant
Biological Resources	Less than significant	Less than significant	Significant	Significant
Cultural Resources	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Socioeconomics	Less than significant	Less than significant	Significant	Less than significant
Transportation and Airspace	Less than significant	Less than significant	Significant	Less than significant
Utilities	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Hazardous & Toxic Substances	Less than significant	Less than significant	Less than significant	Less than significant

1247

1248 **4.4. Cumulative Effects Analysis**

1249 The site-specific FEISs for Fort Carson and JBLM include lists of past, present, and reasonably
 1250 foreseeable future actions. The one change is that the 5th BCT, anticipated to be added at Fort Carson, has
 1251 been cancelled. The cumulative impact analysis sections in Sections 5 and 6 are based on the combination
 1252 of the impacts of proposed CAB stationing and the other actions proposed or identified as past, present or
 1253 reasonably foreseeable in the installation FEISs. Table 10 provides a summary of the results of the

1254 cumulative impacts to VEC of a CAB stationing at each potential stationing site and the associated
 1255 maneuver training site.

1256 **Table 10. Anticipated Cumulative Impacts to VECs from a CAB stationing at Each Potential Site**

VEC	Fort Carson	PCMS	JBLM	YTC
Land Use	Less than significant	Less than significant	Less than significant	Less than significant
Air Quality and GHG	Less than significant	Less than significant	Less than significant	Less than significant
Noise	Mitigable to less than significant	Less than significant	Significant	Less than significant
Geology and Soils	Mitigable to less than significant	Mitigable to less than significant	Less than significant	Mitigable to less than significant
Water Resources	Less than significant	Mitigable to less than significant	Mitigable to less than significant	Mitigable to less than significant
Biological Resources	Mitigable to less than significant	Mitigable to less than significant	Significant	Significant
Cultural Resources	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Socioeconomics	Less than significant	Less than significant	Significant	Less than significant
Transportation and Airspace	Less than significant	Less than significant	Significant	Less than significant
Utilities	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Hazardous and Toxic Substances	Less than significant	Less than significant	Less than significant	Less than significant

1257

1258 **4.5. Proposed Mitigation**

1259 The proposed mitigations to minimize the impacts of a CAB stationing at Fort Carson and/or JBLM have
 1260 been identified as part of site specific environmental analyses performed by the installations (Fort Carson,
 1261 2009; JBLM, 2010a). Proposed mitigations identified in these analyses are also being proposed in this

1262 PEIS impact analysis to off-set CAB stationing impacts. Detailed discussion of these mitigations can be
1263 obtained from each installations' *Grow the Army* FEIS. In addition to those mitigations, the Army will
1264 consider the following types of mitigation to minimize the impacts of CAB stationing.

1265 **Adherence to the “sustainable environment” ethic**

1266 The Army will continue to implement sustainability principles in both its extant and future infrastructure
1267 and environment and with respect to actions that affect natural resources.

1268 **Use of Best Management Practices (BMPs)**

1269 The Army will apply BMPs in site- and project-specific planning and execution in order to avoid or
1270 minimize adverse impacts to the environment and socioeconomic conditions.

1271 **4.5.1. Specific Proposed Mitigations for CAB Stationing at the Installation**

1272 The following sub-sections list specific mitigations measures proposed and discussed in the 2009 Fort
1273 Carson and 2010 JBLM site-specific *Grow the Army* FEISs. Environmental analysis in these documents
1274 included environmental impact analysis of CAB stationing, as well as proposed site-specific mitigations
1275 to address the impacts. Discussion of proposed mitigations for Fort Carson and PCMS can be found in
1276 Chapter 6 (Table 6-1) of the 2009 Fort Carson *Grow the Army* FEIS, which is available at
1277 http://aec.army.mil/usaec/nepa/carson-feis_feb09.pdf. Discussion of proposed mitigation for JBLM and
1278 YTC can be found in Chapters 4 (Tables 4-41 and 4-42) and 6 (Table 6-33 and 6-34) respectively, of the
1279 2010 JBLM *Grow the Army* FEIS which is available at
1280 www.lewis.army.mil/publicworks/sites/envir/EIA_2.htm. These FEISs present a comprehensive list of
1281 mitigations for all stationing actions proposed in each installation's FEIS, including CAB stationing.
1282 Proposed mitigations from these EISs that mitigate the impacts of CAB stationing and training are
1283 included below. Only mitigations related to a potential CAB stationing and training contained in each
1284 installation's *Grow the Army* FEIS are carried forward for consideration in this PEIS; mitigations related
1285 to other *Grow the Army* actions are not carried forward for consideration in this PEIS. These proposed
1286 mitigations, along with on-going environmental programs and BMPs, will reduce environmental impacts
1287 of CAB stationing and training.

1288 **4.5.2. Fort Carson and PCMS Proposed Mitigations**

1289 Fort Carson employs the following primary mitigation processes throughout the installation (Fort Carson
1290 and PCMS) to minimize current and future environmental impacts caused by Army actions: (1)
1291 implementation of *25 Year Sustainability Goals in 2002*, implementation of the Sustainability and
1292 Environmental Management System (SEMS); and (2) environmental impact analysis.

1293 **Sustainability (25-Year Sustainability Goals):** Fort Carson adopted 12 of the *25 Year Sustainability*
1294 *Goals in 2002*. These goals address training lands, energy and water use, procurement, transportation,
1295 land use, site and building design, solid and hazardous waste, and air emissions. These goals, by nature,
1296 are intended to mitigate current and future impacts of Army actions through strategic planning principles.
1297 The Garrison Commander supports these goals through incorporation into the Fort Carson Strategic Plan,
1298 which directs subordinate commands and directorates to support sustainability initiatives. The goals of the
1299 plan steer all Fort Carson sustainability initiatives towards achievement of 25-year goals.

1300 **Sustainability and Environmental Management System:** Fort Carson adopted the International
1301 Organization for Standardization, Environmental Management Standard 14001 (ISO 14001) in 2002 and
1302 declared conformance in November 2007. IAW ISO 14001, the installation maintains an Environmental
1303 Management System (EMS) that includes a multitude of plans, policies, and procedures that support
1304 continual improvement. Fort Carson's EMS goes beyond conformance with ISO 14001 by incorporating
1305 sustainability principles, and is therefore appropriately titled SEMS. As part of the SEMS, Fort Carson
1306 sustainability and environmental professionals routinely analyze the installation's environmental aspects
1307 for significant impacts and ensure operational controls are in place to appropriately mitigate these
1308 impacts. Fort Carson's key operational controls are implemented through regulations, management plans,
1309 and permits of which are discussed more extensively in Appendix A of the 2009 Fort Carson *Grow the*
1310 *Army* FEIS.

1311 **Environmental Impact Analysis:** Fort Carson Environmental Staff use the internal 2008 *NEPA SOPs*
1312 *for Fort Carson and the Piñon Canyon Maneuver Site* to assess environmental impacts of Army actions.
1313 In general, proposed projects are routed through Fort Carson NEPA coordinators to determine the level of
1314 NEPA analysis required. There are basically three levels of NEPA. Based on specific criteria, a project
1315 may be categorically excluded and documented with a Record of Environmental Consideration. If the
1316 action does not meet the criteria, an Environmental Assessment (EA) or an EIS will be performed (based

1317 on the magnitude and/or potential significant impacts of the project). Fort Carson NEPA coordinators
1318 prepare the appropriate level of analysis and documentation for recordkeeping, Army review, and public
1319 review.

1320 **Proposed Mitigations:** Proposed mitigations at Fort Carson and PCMS that will help to offset the
1321 impacts of CAB stationing at Fort Carson are presented below in Table 11 As noted in Section 4.5.1,
1322 these proposed mitigations are derived from Table 6-1 of the 2009 Fort Carson *Grow the Army* FEIS.

1323 **Table 11. Summary of Environmental Impacts and Proposed Mitigation Measures for Fort Carson and PCMS**

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
Land Use – Fort Carson – CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Adding more units and troops will create more demand for already limited training areas. Increased training may result in reduced hunting opportunities. 	<ul style="list-style-type: none"> Continue to support Goal 11 – Training Lands objectives and targets of Fort Carson’s 25 Year Sustainability Goals in 2002. Units, G-3, and Range Control facilitate training area workarounds to meet training and mission requirements. 	<ul style="list-style-type: none"> Consult with the public and Colorado Division of Wildlife (CDOW) to maximize public hunting opportunities.
Air Quality and GHG – Fort Carson– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Increased vehicular emissions on-post and off-post associated with additional personnel traveling around the installation and in the surrounding region. 	<ul style="list-style-type: none"> Continue pursuing alternative transportation methods through collaboration with the City of Colorado Springs Mountain Metropolitan Transit, Pikes Peak Area Council of Governments (PPACG), and other organizations to encourage transit ridership and carpooling to reduce vehicle travel miles. Continue to support Goal 5 – Zero HAP objectives and targets of Fort Carson’s 25 Year Sustainability Goals in 2002. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Emissions associated with the Annual Prescribed Burn Program. (Prescribed Burn Program is influenced by environmental conditions and the level of training conducted.) 	<ul style="list-style-type: none"> Comply with the Fort Carson Prescribed Fire Management Plan to limit adverse effects of prescribed burns. Continue to support Goal 5 – Zero HAPs objectives and targets of Fort Carson’s 25 Year Sustainability Goals in 2002. 	<ul style="list-style-type: none"> In concert with prescribed burning, use alternate fuel reduction methods such as mowing, and use of reseeded mixtures that produce reduced biomass in comparison to current practices.
<ul style="list-style-type: none"> Additional training could result in impacts to air quality from increased fugitive dust from more frequent off-road vehicle travel and aviation operations. 	<ul style="list-style-type: none"> All training activities are subject to Fort Carson’s Fugitive Dust Control Plan. Military convoys must comply with a lower speed limit than regular traffic. Fort Carson applies chemical stabilizer (dust palliative) to tank trails parallel to I-25 and State Highway (SH) 115, as well as to unpaved areas within the cantonment and downrange areas. 	<ul style="list-style-type: none"> Collect additional data to determine impacts of fugitive dust generation and investigate need for additional dust control measures to control fugitive dust generation. Investigate and, if appropriate and affordable, use dust palliatives with longer effective life spans than currently used chemical stabilizers.
<ul style="list-style-type: none"> Construction of facilities would result in impacts to air quality 	<ul style="list-style-type: none"> All construction activities are subject to Fort Carson’s Fugitive Dust Control Plan. Site-specific dust control plans 	<ul style="list-style-type: none"> As available, practical, and affordable, use ultra low sulfur diesel fuel to further reduce SO_x emissions in

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
<p>from exhaust emissions from construction equipment, fugitive dust from construction activities, and additional vehicle trips by construction workers. Construction impacts would be short-term and limited to the duration and area of construction activities.</p>	<p>are required for all projects greater than 25 acres or disturbed for six months or longer (State permit) and an El Paso County permit is required for disturbed land greater than one acre (.40 ha). Implementation of BMPs, including dust suppression and establishment of speed limits in construction areas. Use of low sulfur diesel fuel to reduce sulfur oxide (SO_x) emissions.</p> <ul style="list-style-type: none"> Continue to support Goal 5 – Zero HAPs objectives and targets of Fort Carson’s 25 Year Sustainability Goals in 2002. 	<p>equipment engines.</p> <ul style="list-style-type: none"> Update Title V Permit within 12 months of finalizing construction permits.
<ul style="list-style-type: none"> Increased fugitive emissions from facility construction could impact Fort Carson’s status as an area source for HAP and trigger major source status. 	<ul style="list-style-type: none"> Track all construction products including paints, thinners, sealers, coatings, adhesives, and similar to determine insignificant source contributions. Continue to support Goal 5 – Zero HAPs objectives and targets of Fort Carson’s 25 Year Sustainability Goals in 2002. 	<ul style="list-style-type: none"> If feasible, have contracts include language for contractors to submit Material Safety Data Sheets (MSDS) for all construction products used, with amounts and units to Fort Carson’s Air Program to determine emissions estimates. Encourage use of Leadership in Energy and Environmental Design (LEED®) system to limit HAP and volatile organic compound (VOC) emissions by specifying Green Seal certification or similar product rating. Investigate and, if appropriate and affordable, use dust palliatives with longer effective life spans than chemical stabilizers currently in use.
<ul style="list-style-type: none"> Operation of additional external combustion sources has the potential to result in impacts to air quality emissions from proposed stationary sources. 	<ul style="list-style-type: none"> Installation of low nitrogen oxide (NO_x) burner systems for all boilers and hot water heaters to reduce emissions. 	<ul style="list-style-type: none"> Limit the use of indirect fired Make-Up Air Unit for stationary source heating, ventilating, and air conditioning (HVAC). Prior design and construction consideration and coordination with the Fort Carson Air Program will be required before specifying these units to ensure Prevention of Significant Deterioration (PSD) limits are not exceeded. Include similar coordination language in construction contracts as feasible.
<ul style="list-style-type: none"> Increased GHG emissions generated as a result of CAB stationing 	<ul style="list-style-type: none"> Continue to support Goal 5 – Zero HAPs objectives and targets of Fort Carson’s 25 Year Sustainability Goals in 2002. 	

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
	<ul style="list-style-type: none"> IAW the Energy Policy Act of 2005, EO 13423, the National Defense Authorization Act (NDAA) of 2007, and DoD policy, continue to reduce energy consumption and reliance on fossil fuels while increasing the amount of energy derived from renewable sources 	
Noise – Fort Carson– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Aircraft noise generated from helicopters. 	<ul style="list-style-type: none"> Continue to implement the installation “Fly Neighborly” program, which works to lessen the noise aircraft produce when flying in developed areas. Continue to implement Army Compatible Use Buffer (ACUB) Program to maximum extent possible to reduce, or limit increases in, development around Fort Carson that would be incompatible with aircraft noise. Adhere to Installation Environmental Noise Management Plan guidelines and procedures. 	<ul style="list-style-type: none"> Installation G-3 and Range Control schedule and coordinate aviation training to reduce noise impacts. Army aviators will adhere to Fort Carson’s flight regulations, which outline policies and procedures for noise abatement and minimum altitudes. Flight regulations will be re-evaluated to identify external sensitive noise receptors.
<ul style="list-style-type: none"> Increased munitions use by CAB units to support aviation gunnery and individual qualifications. 	<ul style="list-style-type: none"> Continue to implement ACUB Program to maximum extent possible to reduce, or limit increases in, development around Fort Carson that will be incompatible with weapons noise. Adhere to Installation Environmental Noise Management Plan guidelines and procedures. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Increased exposure to NZ II in barracks, and other noise-sensitive receptors. 	<ul style="list-style-type: none"> Adhere to Installation Environmental Noise Management Plan guidelines and procedures. 	<ul style="list-style-type: none"> Integrate, to the extent practical and affordable, noise mitigation techniques into construction of noise sensitive facilities (examples: brick/masonry construction, increased thermal insulation, sealing cracks, and spaces between wall layers). Noise mitigation techniques for construction are described in the Installation Environmental Noise Management Plan. Installation G-3 and Range Control schedule and coordinate aviation training to reduce noise impacts to installation facilities.

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
Geology/Soils – Fort Carson– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Potential construction site instability. Constructing facilities outside of known geologically stable areas. 	<ul style="list-style-type: none"> Site-specific geotechnical analyses, in conjunction with area research and additional borings conducted. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Temporary increase in potential for sedimentation and erosion due to ground disturbance associated with construction and demolition projects. 	<ul style="list-style-type: none"> Adhere to stormwater pollution prevention plan (SWPPP) and Municipal Separate Storm Sewer System (MS4) requirements, which include BMPs to maintain drainages and restore vegetative cover on the construction site as quickly as will be practicable. Continue methods described in the Integrated Natural Resources Management Plan (INRMP) and Section 404 regional permit for erosion control methods. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Accelerated soil erosion in training areas from increased flight activity and ground support units. 	<ul style="list-style-type: none"> Fund and implement land management practices and procedures described in the Integrated Training Area Management (ITAM) annual work plan to reduce erosion and geologic impacts. Adhere to MS4 requirements. 	<ul style="list-style-type: none"> Increase funding of the ITAM program to address additional erosion.
<ul style="list-style-type: none"> Erosion of range access roads. 	<ul style="list-style-type: none"> Maintain range roads and tank trails to minimize erosion IAW ITAM and facilities management program requirements. Adhere to MS4 requirements. 	<ul style="list-style-type: none"> Increase levels of installation sustainment funding to address increased levels of wear and tear on roads and trails.
Water Resources – Fort Carson– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Construction of facilities could result in stormwater runoff from land disturbance, hazardous substances storage, and discharges of non-stormwater from the site. Construction impacts would be short-term and limited to the duration of construction activities; however, the extent of impacts may go 	<ul style="list-style-type: none"> Pursuant to provisions in the CWA, work being performed at Fort Carson that disturbs one acre (.40 ha) or more is subject to coverage under the U.S. Environmental Protection Agency’s (EPA) Construction General Permit number COR10000F. IAW permit conditions, project proponents must submit a NOI to EPA and develop and implement a SWPPP for each project that includes mitigation strategies to reduce impacts associated with stormwater runoff during construction. 	<ul style="list-style-type: none"> Use of Low-Impact Development practices.

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
beyond the project site boundary.	<ul style="list-style-type: none"> Continue use of BMPs. Continue to manage hazardous materials IAW applicable Fort Carson regulations and management plans. These include: Fort Carson Regulation 200-1, Pollution Prevention (P2) Plan, Spill Prevention Control and Countermeasures Plan (SPCCP), Hazardous Waste Management Plan (HWMP). 	
Biological Resources – Fort Carson– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Loss of habitat due to construction. 	<ul style="list-style-type: none"> Minimize construction site footprint. Adhere to SWPPP and MS4 requirements, which include BMPs to maintain drainages and restore vegetative cover on the construction site as quickly as will be practicable. Continue recommendations outlined in management plans and the INRMP. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Increase in nuisance species in vicinity of CAB facility sets. 	<ul style="list-style-type: none"> Limit construction of administrative and operational facilities in natural wildlife corridors. Continue to educate Soldiers and civilians through venues such as Mayor and Town Hall meetings, EPO course, National Night Out, and Safety Days. Use solid waste disposal practices that limit access by wildlife. 	<ul style="list-style-type: none"> Use design mitigation techniques in facilities in order to minimize nuisance species habitat; use xeriscaping, or other habitat denial techniques. Use wildlife-proof dumpsters where necessary.
<ul style="list-style-type: none"> Increase in bird airstrikes in/around BAAF and from increased aviation training. 	<ul style="list-style-type: none"> Limit nuisance species habitats in vicinity of airfields. Exclude and/or relocate nuisance species from BAAF vicinity. 	<ul style="list-style-type: none"> Conduct wildlife hazard assessment and prepare Bird Air Strike Hazards (BASH) Plan. Implement appropriate mitigation measures as indicated in the plan. Reduce nuisance wildlife habitat through design mitigation and wildlife-proofing dumpsters.
<ul style="list-style-type: none"> Increased disturbance of breeding raptors. 	<ul style="list-style-type: none"> Continue to implement INRMP and Bald Eagle Management Plan. Continue to prevent breeding season fires from encroaching on breeding habitat by burning adjacent areas in late winter or early spring. 	<ul style="list-style-type: none"> Study the impacts of aircraft training on breeding raptor populations and develop and implement mitigation strategies based on results, as appropriate. Establish buffer zones around nests in which human activity is curtailed or reduced.

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
	<ul style="list-style-type: none"> Continue to retrofit utility systems with avian protection devices and follow practices outlined in the Avian Protection Plan Guidelines. 	
<ul style="list-style-type: none"> Increased vehicular collisions with deer and other wildlife. 	<ul style="list-style-type: none"> Limit construction of administrative and operational facilities within vicinities of natural wildlife corridors. Use lower speed limits in downrange areas to reduce safety and environmental hazards. 	<ul style="list-style-type: none"> Adjust speed limit on Wilderness Road as appropriate to minimize collisions. Increase speed limit enforcement efforts on Wilderness Road. Erect deer hazard signage.
<ul style="list-style-type: none"> Increase in hazardous wildlife such as black bear, mountain lions, coyotes, and venomous snakes, as well as the potential spread of plague and hanta virus. 	<ul style="list-style-type: none"> Limit construction of administrative and operational facilities within vicinities of natural wildlife corridors. Limit Soldier exposure to areas known to be frequented by hazardous wildlife or identified to potentially contain the plague and/or hanta virus. Continue BMPs (land restrictions and habitat restoration based upon identifying and prioritizing critical areas and resources, maintain ecologically healthy grasslands, and development of water resources). Continue to educate Soldiers and civilians on wildlife and their inherent risks. 	<ul style="list-style-type: none"> Use bear resistant trash containers to eliminate food sources for hazardous wildlife. Use native vegetation that is not attractive to wildlife in landscaping.
<ul style="list-style-type: none"> Increased impacts to big game populations from aviation training and other disturbance. 	<ul style="list-style-type: none"> Repair and maintenance of existing water sources and development of new sites on Fort Carson providing a water source for deer, pronghorn, and elk temporarily displaced. Prescribed fire to rejuvenate habitat. Seeding with native species/food sources. 	<ul style="list-style-type: none"> None Identified.
<ul style="list-style-type: none"> Damage to vegetation and subsequent increase in noxious weed infestations due to more frequent tactical vehicle use and aviation training. 	<ul style="list-style-type: none"> Continue to manage training lands IAW ITAM, INRMP, Fort Carson Invasive Species Management Plan, and program requirements. Continue to employ integrated weed management strategies (biological, chemical, cultural, and physical/mechanical control techniques). 	<ul style="list-style-type: none"> Authorize and hire additional staff necessary to accomplish increased field survey work, mapping, preventive education and awareness activities, record-keeping, and reporting requirements resulting from the addition of Soldiers, and their equipment and training requirements.

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
	<ul style="list-style-type: none"> Continue to eradicate all Colorado A-list species when found. Conduct mission activities in a manner that precludes the introduction or spread of invasive species. Continue procedures for cleaning vehicles and equipment prior to shipment from one location to another, deployment, and/or redeployment. 	<ul style="list-style-type: none"> Increased herbicide and biocontrol agents will be used when and where appropriate, as determined by the installation Noxious Weed Management Team.
<ul style="list-style-type: none"> Impacts on sensitive species from construction, maintenance, and training activities. 	<ul style="list-style-type: none"> Survey and monitor sensitive species habitat and conduct construction, maintenance, and training activities IAW the INRMP, which describes appropriate species management and impact mitigation techniques. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Accidental wildfires caused by live-fire and maneuver training. 	<ul style="list-style-type: none"> Continue prescribed burning to create buffer areas and reduce fuel loads. Continue to update the annual Fort Carson Fire and Emergency Services Prescribed Fire Plan. Fort Carson fire response teams will continue to be available to respond to wildland fires. The Army will continue to comply with cooperative agreements with the Colorado Springs Fire Department and U.S. Forest Service (USFS). Continue with Burned Area Emergency Response/Rehabilitation (BAER) efforts. 	<ul style="list-style-type: none"> Investigate the feasibility of constructing an additional fire station downrange.
Cultural Resources – Fort Carson– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Potential adverse impacts to cultural properties from renovation or new construction. 	<ul style="list-style-type: none"> Fort Carson’s cultural resource program will continue to maintain cultural resources sustainability through existing management and procedures and policies (Integrated Cultural Resources Management Plan [ICRMP] and Programmatic Agreement [PA]) in coordination and development with the Colorado State Historic Preservation Office (COSHPO). Current procedures include evaluation of all historic properties for NRHP eligibility and continued consultations with Native American tribes to identify and evaluate traditional cultural properties (TCP) and Sacred 	<ul style="list-style-type: none"> None identified.

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
	<p>Sites.</p> <ul style="list-style-type: none"> BMPs are used during project design and planning to avoid or minimize effects to all cultural sites. If a potential impact cannot be avoided, consultation with the COSHPO, Native American tribes, and other interested parties will be initiated. 	
<ul style="list-style-type: none"> Potential loss of unrecorded archeological resources during construction and training activities. 	<ul style="list-style-type: none"> Unsurveyed areas required for military use will be surveyed, and resources identified during survey will be evaluated for NRHP eligibility according to the Secretary of the Interior's Standards for Archaeology and Historic Preservation, as well as applicable Colorado standards. Fort Carson will continue development and implementation of the cultural resources education and awareness programs for Army personnel, Families, civilians, and the public to enhance the conservation of historic properties on Fort Carson lands. If cultural resources are discovered or disturbed during any undertaking, Fort Carson's Inadvertent Discovery of Archaeological Resources or Burials SOPs will be implemented. Continued implementation of the ICRMP. 	<ul style="list-style-type: none"> If subsurface cultural resources are discovered or disturbed during construction, Fort Carson's Inadvertent Discovery of Archaeological Resources or Burials SOPs or Native American Graves Protection and Repatriation Act (NAGRPA) SOPs and appropriate Section 106 consultation will be implemented.
<ul style="list-style-type: none"> Accidental wildfires caused by live-fire and maneuver training. 	<ul style="list-style-type: none"> The Army will continue to comply with cooperative agreements with the Colorado Springs Fire Department and USFS. Continue with BAER efforts. 	<ul style="list-style-type: none"> Investigate the feasibility of constructing an additional fire station downrange.
Socioeconomics – Fort Carson– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Minor temporary economic benefits to ROI associated with construction expenditures and employment. Minor long-term economic benefits associated with population increases such as 	<ul style="list-style-type: none"> Mitigation is not required as these impacts are favorable but not significant. 	<ul style="list-style-type: none"> None identified.

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
increased sales volume, employment, and income in the ROI.		
<ul style="list-style-type: none"> Increased housing demand for Fort Carson personnel. 	<ul style="list-style-type: none"> Construct additional on-post housing. Private construction is taking place in the off-post housing market to satisfy the increased demand. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Increased student population in area school districts. 	<ul style="list-style-type: none"> Federal impact aid is provided on a per-student basis as an offset for the costs incurred by civilian school districts. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Increased demand for hospital space and medical professionals. 	<ul style="list-style-type: none"> Increase capacity of Evans Hospital to accommodate additional staff and patients. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Additional Soldiers and their Families would require more on-post services. 	<ul style="list-style-type: none"> The Army is continuing to plan for additional facilities to support Soldier services. 	<ul style="list-style-type: none"> Installation will receive increased funding to maintain facilities.
<ul style="list-style-type: none"> Additional Soldiers and their Families would generate additional demand for off-post recreation and services. 	<ul style="list-style-type: none"> The services provided through the private sector can be expected to respond to the increased demand by increasing supply. 	<ul style="list-style-type: none"> The demand for facilities may be moderated by use of new on-post facilities.
<ul style="list-style-type: none"> Potential increase in safety risk to children at construction sites. 	<ul style="list-style-type: none"> Continue safety measures outlined in 29 CFR Part 1926, "Safety and Health Regulation for Construction" and follow other applicable regulations and guidance. 	<ul style="list-style-type: none"> Barriers and no trespassing signs will be placed around construction sites to deter children from playing in these areas and construction vehicles, equipment, and materials stored in fenced areas and secured when not in use.
Transportation and Airspace – Fort Carson– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Increased demand at access control points and additional traffic congestion throughout major roadway networks on the installation. Increased use of airspace to and from PCMS. 	<ul style="list-style-type: none"> Alternative transportation modes are being explored in traffic demand management and low impact vehicle studies. Continue to support Goal 2 – Sustainable Transportation objectives and targets of Fort Carson’s 25 Year Sustainability Goals in 2002. Installation G-3 and Range Control schedule and coordinate aviation training to reduce noise impacts. 	<ul style="list-style-type: none"> Use the Fort Carson Comprehensive Transportation Study 2008 Update Action Plan, as amended and updated, to review and implement necessary roadway improvements. Activate and expand gates, as appropriate, to absorb additional traffic entering and leaving the installation. Coordinate with Colorado Department of

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
	<ul style="list-style-type: none"> Army aviators will adhere to Fort Carson's flight regulations, which outline policies and procedures for noise abatement, minimum altitudes, and designate routes to and from PCMS. 	<p>Transportation (CDOT) to try to include SH 115 intersection improvements at Fort Carson gates.</p> <ul style="list-style-type: none"> Implement alternative transportation modes as appropriate. Provide additional bus routes and more frequent bus service.
<ul style="list-style-type: none"> On-post roadway closure due to construction activities. 		<ul style="list-style-type: none"> Use of traffic control procedures, including flaggers and posted detours to minimize impacts to traffic flow. Minimize construction vehicle movement during peak rush hours on the installation and placing construction staging areas in optimal locations to minimize traffic within administrative, housing, and school areas.
Hazardous and Toxic Substances – Fort Carson– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Demolition of existing facilities would require proper removal and disposal of asbestos containing materials (ACMs), lead-based paints (LBPs), and polychlorinated biphenyls (PCB). 	<ul style="list-style-type: none"> Continue to comply with asbestos and lead national emission standard for HAPs as well as Toxic Substances and Control Act (TSCA) requirements by adhering to applicable permits and the following Fort Carson management plans; Lead Management Plan, Asbestos Management Plan, Fugitive Dust Control Plan, PCB Management Plan. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Exposure to petroleum contaminated soil at BAAF (1986 release of unleaded fuel, est. at 10,500 gallons) may occur as a result of construction adjacent to the footprint of the former hot refueling pad and former Building 9648. 	<ul style="list-style-type: none"> Site closure has been requested through the Colorado Division of Oil and Public Safety. 	<ul style="list-style-type: none"> Quarterly groundwater monitoring and reporting of contaminant concentrations in groundwater until closure is completed.
<ul style="list-style-type: none"> Hazardous materials use and potential releases would increase commensurately with personnel and equipment. 	<ul style="list-style-type: none"> Continue to manage hazardous materials IAW Hazardous Materials Control Center (HMCC) and applicable Fort Carson regulations and management plans. These include: the installation's Regulation 200-1, P2 Plan, SPCCP, HWMP. 	<ul style="list-style-type: none"> None identified.

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
	<ul style="list-style-type: none"> Continue to implement the Ammunition Supply Point (ASP) SOP for storage and transportation of additional munitions. Designated installation Explosives Ordnance Detachment will continue to respond to discoveries of unexploded ordnance (UXO) for safe open detonation either in place or at Range 121. 	
<ul style="list-style-type: none"> Increased UXO generation as a result of additional live-fire training CAB units. 	<ul style="list-style-type: none"> Continue to implement management plans and SOPs for munitions handling, UXO removal, and maintenance and management of vegetation in impact areas to preclude surface water or wind transport. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Potential exposure to elevated radon levels in buildings. 	<ul style="list-style-type: none"> Install radon mitigation systems in buildings with radon levels 4pCi/L or higher. Retest to confirm radon values are at an acceptable level. 	<ul style="list-style-type: none"> Construct new facilities to incorporate design mitigation techniques in areas with elevated radon levels IAW the Fort Carson Radon Management Plan.
Utilities – Fort Carson– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Increased personnel and Family members at Fort Carson and in Colorado Springs would increase pressure on current water supplies from Colorado Springs Utilities. 	<ul style="list-style-type: none"> Implement planned upgrades to existing water lines. Continue cooperative efforts with the surrounding communities. Continue to implement water use reduction measures such as low-flow toilets and waterless urinals, xeriscaping, and use of gray water for irrigation. Continue to support Goal 1 – Energy and Water, objectives and targets of Fort Carson’s 25 Year Sustainability Goals in 2002. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Additional wastewater generation from administrative and operational activities. 		<ul style="list-style-type: none"> Upgraded capacity and extend existing sanitary sewer lines are part of the proposed action. Implement recommendations of the 2006 Wastewater Treatment Plant (WWTP) Capacity Evaluation, which includes aeration system and equalization basin channel improvements.
<ul style="list-style-type: none"> Increased production of industrial wastewater. 		<ul style="list-style-type: none"> New industrial wastewater lines will be installed along Butts Road and along the southern portion of the

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
		Operational Readiness Training Center (ORTC), as part of the proposed action.
<ul style="list-style-type: none"> Construction of facilities could result in stormwater runoff from land disturbance, hazardous substances storage, and discharges of non-stormwater from the site. Construction impacts would be short-term and limited to the duration of construction activities; however, the extent of impacts may go beyond the project site boundary. 	<ul style="list-style-type: none"> Pursuant to provisions in the CWA, work being performed at Fort Carson that disturbs one acre (.40 ha) or more is subject to coverage under the U.S. EPA's Construction General Permit number COR10000F. IAW permit conditions, project proponents must submit a NOI to EPA and develop and implement a SWPPP for each project that includes mitigation strategies to reduce impacts associated with stormwater runoff during construction. Continue use of BMPs Continue to manage hazardous materials IAW applicable Fort Carson regulations and management plans. These include: Fort Carson Regulation 200-1, P2 Plan, SPCCP, HWMP. 	<ul style="list-style-type: none"> Use of Low-Impact Development practices.
<ul style="list-style-type: none"> Design and construction of facilities could result in impacts to Fort Carson's stormwater drainage system from sediment and other non-stormwater discharges and inadequate design of permanent stormwater controls. 	<ul style="list-style-type: none"> Fort Carson is an MS4 permitted facility. Therefore, any land disturbance on Fort Carson is subject to the terms of Fort Carson's Final Stormwater Management Plan in order to help mitigate negative impacts to water quality. Continue to support Goal 1 – Energy and Water objectives and targets of Fort Carson's 25 Year Sustainability Goals in 2002. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Solid waste generation would increase with additional personnel. 	<ul style="list-style-type: none"> Solid wastes and recyclable materials will continue to be managed IAW the existing Integrated Solid Waste Management Team (ISWMP) and P2 Plan. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Increased peak electrical and natural gas demands. 	<ul style="list-style-type: none"> Follow Installation Design Guide for construction. Require the achievement of LEED® Silver on all new construction. Continue to provide energy management training to Soldiers through the Building Energy Manager course. Continue to inspect units, directorates and tenants in regard to energy use and conformance with the installation's Regulation 200-1. Continue to support Goal 1 – Energy and Water, and Goal 7 	<ul style="list-style-type: none"> Construction of utilities infrastructure to satisfy the increased demand is part of the proposed action. Require all facilities be connected to the Energy Management Control System to allow for remotely controlling HVAC systems to the extent practical and affordable. Investigate and implement the use of renewable resources in new construction to reduce the demand

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
	– Platinum Buildings objectives and targets of Fort Carson’s 25 Year Sustainability Goals in 2002.	for natural gas and electricity and increase use of renewable energy.
<ul style="list-style-type: none"> Construction of electrical, gas and fiber optic line upgrades would disturb soil and vegetation within construction footprint in vicinity of the ORTC site. 	<ul style="list-style-type: none"> All new electric and gas lines are buried underground, and disturbed areas are graded and reseeded after construction to stabilize the soil. 	<ul style="list-style-type: none"> None identified.
Land Use – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Increased training may result in reduced hunting opportunities. 		<ul style="list-style-type: none"> Consult with the public and CDOW to maximize public hunting opportunities.
Air Quality and GHG – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Increased fugitive dust emissions from increased training. 	<ul style="list-style-type: none"> All training activities are subject to Fort Carson and PCMS Fugitive Dust Control Plan. Military convoys must comply with a lower speed limit than regular traffic. Fort Carson applies chemical stabilizer to tank trails. 	<ul style="list-style-type: none"> Collect additional data on impacts of fugitive dust generation and implement additional control measures as required. Investigate and, if appropriate and affordable, use dust palliatives with longer effective life spans than currently used chemical stabilizers.
Noise – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Noise from increased use of small arms ranges and live-fire ranges and increased aviation training of potential CAB. 	<ul style="list-style-type: none"> Continue to implement Installation “Fly Neighborly” program, which works to lessen the noise aircraft produce when flying in developed areas. Adhere to Installation Environmental Noise Management Plan guidelines and procedures. 	<ul style="list-style-type: none"> Installation G-3 and Range Control schedule and coordinate aviation training to reduce noise impacts to installation facilities. Army aviators will adhere to Fort Carson’s flight regulations, which outline policies and procedures for noise abatement and minimum altitudes. Flight regulations will be re-evaluated to identify external sensitive noise receptors.
Geology and Soils – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Increased soil erosion from maneuver and increased helicopter training of potential CAB. 	<ul style="list-style-type: none"> Continue to fund and implement the ITAM annual work plan and INRMP to reduce soil erosion and maintain sustainable use of its training areas. ITAM will continue to implement erosion management measures, site restoration, and continue to monitor training areas to mitigate damage 	<ul style="list-style-type: none"> Fund additional land rehabilitation projects necessary to control erosion impacts of additional training. Create hardened designated landing areas, as necessary and appropriate, to limit soil erosion and sedimentation impacts.

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
	<p>from unit training.</p> <ul style="list-style-type: none"> • Continue to limit soil erosion by designating no-dig areas around drainages feeding the Purgatoire River and restricting mounted maneuver in areas susceptible to water erosion in the canyon drainage and northern training areas. • Continue to take measures to reduce the potential for wild fires. Prescribed burning and other measures will continue to be used to prevent fires and limit their severity when they do occur. • Continue to educate Soldiers on fire prevention procedures prior to conducting maneuver training at PCMS and require Soldiers to have a minimum amount of firefighting equipment on hand to extinguish small fires during maneuver training. • Maintain range roads and tank trails and continued use of dust palliatives to minimize erosion. 	
Water Resources – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> • Increased impacts to stormwater runoff from land disturbance. 	<ul style="list-style-type: none"> • Continued use of erosion control dams, reseeding, and other BMPs as required in the ITAM Annual Work Plan and INRMP. 	<ul style="list-style-type: none"> • Conduct a Watershed Assessment of River Stability and Sediment Supply (WARSSS) assessment to aid in determining the health and stability of the major waterways within the western-most watersheds at PCMS (that were previously modeled). WARSSS is a geomorphology-based procedure for quantifying the effects of land uses on sediment relations and channel stability. The results of the WARSSS assessment will reveal any significant adverse influences of land use on stream channel stability, sediment sources, and sediment yield that may affect the material and beneficial uses of rivers and streams. WARSSS data can be used for watershed planning, TMDL assessments for non-point source pollution, and stability analysis for river restoration. • Develop a Stormwater Management Plan for PCMS.
Biological Resources – Piñon Canyon Maneuver Site		

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
<ul style="list-style-type: none"> Impacts to Biological Resources, including destruction of sensitive species habitat, wetlands, and noxious weed infestation, from military training. Impacts on sensitive species from training activities. Damage to vegetation and subsequent increase in noxious weed infestations due to more frequent tactical vehicle use. Increased impacts to big game populations from disturbance/training 	<ul style="list-style-type: none"> Continue to comply with all laws, regulations and Army policies governing natural resource protection. Continue to comply with Fort Carson/PCMS regional permit (or other permit as necessary), identified by the Section 404 process. Continue to manage training lands IAW ITAM, INRMP, and Fort Carson Invasive Species Management Plan and program requirements. Survey and monitor sensitive species habitat and conduct maintenance and training activities IAW the INRMP. Continue the practice of installing all new and replacement electric lines underground. Buffer areas around raptor nesting sites. Disturbance activities (e.g., mowing, prescribed burns) are restricted during nesting seasons. Repair and maintenance of existing water sources and development of new sites on Fort Carson providing a water source for deer, pronghorn, and elk temporarily displaced. Prescribed fire to rejuvenate habitat. Seeding with native species/food sources. 	<ul style="list-style-type: none"> Install a central vehicle wash facility to reduce the potential spread of weed seed. Authorize and hire additional personnel necessary to accomplish increased field survey work, mapping, preventive education and awareness activities, record-keeping and reporting requirements. Increased herbicide and biocontrol agents will be used when and where appropriate, as determined by the installation Noxious Weed Management Team. Authorize and hire additional personnel necessary to monitor wildlife and vegetation. Augmentation of, as appropriate, permanent environmental and/or ITAM staff at PCMS. Additional on-site staff will facilitate coordination of increased training activities as well as the protection of natural and cultural resources. Study the impacts of aircraft training on breeding raptor populations and develop mitigation strategies based on results.
<ul style="list-style-type: none"> Accidental wildfires caused by live-fire and maneuver training. 	<ul style="list-style-type: none"> The Army will continue to comply with cooperative agreements with the USFS and other agencies. Continue with BAER efforts. 	<ul style="list-style-type: none"> None identified.
Cultural Resources – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Potential loss of unrecorded archaeological resources during training activities. Potential impacts to archeological resources during increased training activities. 	<ul style="list-style-type: none"> Fort Carson’s cultural resource program will continue to maintain cultural resources sustainability through existing management and procedures and policies (ICRMP and PA) in coordination and development with the COSHPO. Current procedures include evaluation of all historic properties for NRHP eligibility and continued consultations with Native American tribes to identify and evaluate TCPs and Sacred Sites. 	<ul style="list-style-type: none"> Increase awareness and education of Soldiers and the public by developing a plan for a Heritage Resource Center that will entail curation, scientific education, and construction of a heritage awareness facility located at PCMS. Explore making a select number of historic ranch sites more accessible to the public as examples of ranching heritage in Southeast Colorado.

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
	<ul style="list-style-type: none"> BMPs during project design and planning will be used to avoid or minimize effects to all cultural sites. If a potential impact cannot be avoided, consultation with the COSHPO, Native American tribes, and other interested parties will be initiated. 	<ul style="list-style-type: none"> The Fort Carson Public Affairs Office and Morale, Welfare, and Recreation office will work to establish a tourism program for Fort Carson Soldiers and Families, focusing on selected historic points in and around PCMS. Augmentation of, as appropriate, cultural resources staff at PCMS to help ensure the coordination of activities and protection of cultural resources.
Socioeconomics – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Potential economic benefit to ROI. 	<ul style="list-style-type: none"> Mitigation is not required as these impacts are favorable but not significant. 	<ul style="list-style-type: none"> Investigate ways to further enhance favorable economic benefit such as increase spending locally, and educate local businesses in government contracting processes. Additionally, explore contractual methods to buy locally whenever possible and feasible.
Transportation and Airspace– Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Increased convoy traffic. Increased use of flight corridors to and from PCMS. 	<ul style="list-style-type: none"> Continue to schedule convoys to PCMS during off-peak road usage times. Continue to break larger convoys into smaller numbers of vehicles travelling together to facilitate traffic flow. Installation G-3 and Range Control schedule and coordinate aviation training to reduce noise impacts. Army aviators will adhere to Fort Carson’s flight regulations, which outline policies and procedures for noise abatement and minimum altitudes; Flight regulations will be re-evaluated to identify external sensitive noise receptors. 	<ul style="list-style-type: none"> None identified.
Hazardous and Toxic Substances – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Increased use of hazardous materials. 	<ul style="list-style-type: none"> Continue to follow Federal, State and AR for the use, removal, and disposal of regulated materials. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Increased accumulation of lead 	<ul style="list-style-type: none"> Continue to implement ITAM and re-vegetation programs 	<ul style="list-style-type: none"> None identified.

<i>Impact by Resource</i>	<i>Existing Mitigation Measure</i>	<i>Proposed Additional Mitigation Measure</i>
in soils on firing ranges.	following maneuver and live fire training activities at PCMS to reduce the ability of lead to migrate from firing ranges. Re-vegetation will occur with grasses and vegetation that will stand up to small arms range use and also minimize the impact of range fires.	
Utilities – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
<ul style="list-style-type: none"> Increased water usage. 	<ul style="list-style-type: none"> Continue to monitor main water line from the city of Trinidad for necessary repairs. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Increased impacts to stormwater runoff from land disturbance. 	<ul style="list-style-type: none"> Continued use of erosion control dams, reseeding, and other BMPs as required in the ITAM Annual Work Plan and INRMP. 	<ul style="list-style-type: none"> Conduct a WARSSS assessment to aid in determining the health and stability of the major waterways within the western-most watersheds at PCMS (that were previously modeled). [See Water Resources mitigation above for further detail on WARSSS.] Develop a Stormwater Management Plan for PCMS.
<ul style="list-style-type: none"> Increased solid waste generation with additional training activities. 	<ul style="list-style-type: none"> Continued waste pickup will be managed via private contractor and disposed of in permanent disposal facilities. Continue to support Goal 10 – Zero Waste objectives and targets of Fort Carson’s 25 Year Sustainability Goals in 2002. 	<ul style="list-style-type: none"> None identified.
<ul style="list-style-type: none"> Increased use of heating fuel and propane due to increased facilities use. 	<ul style="list-style-type: none"> Continue to support Goal 1 – Energy and Water objectives and targets of Fort Carson’s 25 Year Sustainability Goals in 2002. IAW the Energy Policy Act of 2005, EO 13423, the NDAA of 2007, and DoD policy, continue to reduce energy consumption and reliance on fossil fuels while increasing the amount of energy derived from renewable sources. 	<ul style="list-style-type: none"> None identified.

1324

1325

1326 **4.5.3. JBLM and Yakima Training Center Proposed Mitigations**

1327 JBLM is committed to sustaining and preserving the environment at JBLM and YTC. If selected for CAB
1328 stationing, JBLM will implement its environmental programs, BMPs, and mitigations IAW the
1329 installation's Regulation 200-1, *Environmental Protection and Enhancement*, and the installation's
1330 overarching long-range sustainability goals. JBLM implements a comprehensive environmental
1331 protection program as part of its standard operations. JBLM and YTC staff will continue to apply existing
1332 plans, programs, and BMPs during construction and training to avoid or minimize adverse environmental
1333 and socioeconomic impacts.

1334 Proposed mitigations at JBLM and PCMS that will help to offset the impacts of CAB stationing at JBLM
1335 are presented below. As noted in Section 4.5.1, these proposed mitigations are derived from Tables 4-41,
1336 4-42, 6-33, and 6-34 of the 2010 JBLM *Grow the Army* FEIS

1337 **Existing BMPs, Plans, and Programs at JBLM:** Existing environmental programs, plans, and BMPs at
1338 JBLM that will mitigate the impacts of CAB stationing include:

- 1339 1. Continue to follow resource protection practices required by the installation's Regulation 200-1,
1340 *Environmental Protection and Enhancement*, during field training, including but not limited to:
- 1341 • Avoiding maneuver, digging, or establishing assembly areas or bivouac sites in Seibert staked
1342 areas.
 - 1343 • Using only established roads and trails during movement to and from maneuver areas and firing
1344 ranges.
 - 1345 • Crossing rivers/streams only at approved, designated hardened crossing sites.
 - 1346 • Staying at least 164.04 feet (50 meters [m]) from rivers/streams, wetlands, or other water bodies
1347 unless a maintained road or designated crossing exists for traversing the restricted area.
 - 1348 • Conducting water purification training only at approved sites, and ensuring that wastewater and
1349 excess product water is discharged to a dug sump at least 164.04 feet (50 m) from the water
1350 source.

-
- 1351 • Obtaining a permit for digging, and conducting digging only in the area specified in the permit;
- 1352 • Locating assembly areas and bivouac sites at least 328.08 feet (100 m) from any water body.
- 1353 • Establishing field refueling sites, field maintenance sites, field kitchens, and field showers at least
- 1354 328.08 feet (100 m) from any water body.
- 1355 • If authorized, the use of field latrines should be established at least 328.08 feet (100 m) from any
- 1356 water body, and should be closed and marking them per FM 21-10, *Field Sanitation and Hygiene*.
- 1357 • Conducting vehicle washing only at installation designated wash facilities.
- 1358 • Establishing hazardous material storage sites at least 328.08 feet (100 m) from any wetland or
- 1359 water body.
- 1360 • Following requirements for accumulating and managing hazardous waste, and ensuring all
- 1361 hazardous waste is returned to the cantonment area for disposal.
- 1362 2. Continue implementing the requirements of the installation's Regulation 420-5, *Procedures for the*
- 1363 *Protection of State and Federally Listed, Threatened, Endangered, Candidate Species, Species of*
- 1364 *Concern, and Designated Critical Habitat*. Current species and management include:
- 1365 • Bald Eagle
- 1366 · Avoid construction of buildings, roads, trails, or power lines in primary zones (within
- 1367 1,312.34 feet [400 m radius] of nesting sites) and secondary zones (within 2,624.67 feet [800
- 1368 m radius] of nesting sites).
- 1369 · Avoid timber harvest in the primary zone unless enhancements are made to improve stand
- 1370 characteristics for the benefit of nesting eagles.
- 1371 · Avoid bivouacs in the primary zone during the nesting season (exception is Halverson Marsh
- 1372 where bivouac can occur east of the railroad tracks).
- 1373 · Avoid training in the primary zone during the nesting period.

-
- 1374 · Avoid blasting and use of firearms during the nesting period.
- 1375 · Avoid the use of pyrotechnics during 1 June to 31 October.
- 1376 · Aircraft will fly no lower than 1,200 feet (365.76 m) above mean sea level (MSL) in the
1377 primary zone (no lower than 300 feet (91.44 m) above MSL for Nisqually Bluff, and any
1378 deviation in the approach zone to McChord Airfield over Spanaway Marsh will require
1379 consultation with the FWS); and avoid landing boats on Picnic Point (American Lake).
- 1380 • Water Howellia
- 1381 · See the installation’s Regulation 200–1 mitigation measures listed above.
- 1382 • Salmonids
- 1383 · See the installation’s Regulation 200–1 mitigation measures listed above.
- 1384 · Off-loading and deployment of all float bridge bays and support vehicles between March 1
1385 and June 30 will be limited to the existing boat ramp at Solo Point.
- 1386 · Avoid deploying from the native beach or altering the native beach material at Solo Point
1387 between March 1 and June 30; and during the eight days of scheduled launch training activity
1388 between March and July, limit near shore activity to three hours per day.
- 1389 • Northern Spotted Owl
- 1390 · Consult with FWS on activities such as vegetation removal and ground disturbance that affect
1391 designated critical habitat, if such activities have not been addressed in previous
1392 consultations.

-
- 1393 • Mardon Skipper
- 1394 · Training activities involving off-road maneuver and ground disturbing activities are
1395 prohibited in Johnson Prairie, Upper and Lower Weir Prairies, and limited on the 91st
1396 Division Prairie.
- 1397 • White-topped Aster
- 1398 · Training activities involving digging or other ground disturbance are prohibited within
1399 Johnson and Weir Prairies.
- 1400 3. Continue to implement management practices in line with goals and objectives identified in the
1401 ITAM program. These measures include, but are not limited to:
- 1402 • Deterring vehicle traffic from new trails and recently established roads.
- 1403 • Repairing (reseeding) maneuver damaged areas.
- 1404 • Use of existing hardened crossings in areas of riparian and wetland soils.
- 1405 • Use of Range and Training Land Assessment and other land condition maps when planning.
- 1406 • Training that may impact soils or vegetation.
- 1407 4. Continue to implement noise level reduction features in the design and construction of noise-sensitive
1408 receptors (e.g., residential housing, schools, barracks, hospitals) that are located in areas where the
1409 average C-weighted day/night sound level (CDNL) is higher than 62 decibels (dB) but less than 70 db
1410 (NZ II).
- 1411 5. Avoid locating noise-sensitive receptors (e.g., residential housing, schools, hospitals) in areas where
1412 the average CDNL is greater than 70 dB (NZ III).
- 1413 6. Continue to implement the requirements of the installation’s Regulation 360–5, *Noise and Vibration*
1414 *Complaint Procedure*, for management of noise complaints, public notification of nighttime firing,
1415 and the public notification of exceptions to firing hours.

-
- 1416 7. Aircraft will continue to follow the “Fly Friendly” program as stated in the installation’s Regulation
1417 95–1, *Flight Regulations*, when flying over congested areas.
- 1418 8. Reevaluate the need for modifications to the current Fort Lewis synthetic minor air operating permit
1419 based on final site selection and design prior to start of construction that includes new emission
1420 producing sources.
- 1421 9. Continue to comply with requirements for new permitted stationary sources of emissions,
1422 including best available control technology review for each criteria pollutant, maximum
1423 achievable control technology review for regulated HAPs and designated categories, and meeting
1424 the new source performance standards and national emissions standards for hazardous air
1425 pollutants (NESHAPs) requirements.
- 1426 10. Continue to obtain permits required by the Puget Sound Clean Air Agency (PSCAA) for
1427 demolition of structures at JBLM that contain asbestos material and/or LBP.
- 1428 11. For all new construction requiring boilers greater than 10 million BTU/hr, use New Source
1429 Performance Standards boilers that will emit no more than 9 ppm NO_x (Low NO_x boilers).
- 1430 12. Continue to conduct air quality permit compliance audits.
- 1431 13. Air emissions associated with different levels of smoke training on JBLM will not exceed the
1432 limits identified in the *Final Environmental Assessment for the Fielding of M56 and M58 Smoke*
1433 *Generators at Fort Lewis and Yakima Training Center* (Army 1999), and in the *Final*
1434 *Environmental Assessment for Training with Smoke Munitions at Fort Lewis and Yakima*
1435 *Training Center, Washington* (Army 2001).
- 1436 14. Continue to follow procedures that meet NESHAPs for all fuel storage and transfer activities and
1437 vehicle maintenance activities.
- 1438 15. Continue restrictions on where tracers, pyrotechnics, and troop fires are authorized (installation’s
1439 Regulation 350–30).

-
- 1440 16. Finalize a mutual aid agreement with the Washington Department of Natural Resources (WDNR)
1441 for firefighting support; continue mutual agreements for firefighting support with I Corps and
1442 JBLM Soldiers, JBLM Fire Departments, and mutual aid agreements with local fire districts.
- 1443 17. During high fire hazard conditions, continue to implement JBLM’s fire management program
1444 including restrictions on where tracers, pyrotechnics, and troop fires are authorized (the
1445 installation’s Regulation 350–30).
- 1446 18. Continue to time the convoys traveling between JBLM and YTC to avoid the primary rush hours
1447 of 0600 to 0900 hours and 1500 to 1700 hours on I–5, I–405, and I–90.
- 1448 19. Continue to increase utilization of renewable energy technologies in support of GHG reduction
1449 goals.
- 1450 20. Continue coordination and scheduling to balance increased training requirements with the
1451 availability of airspace at JBLM.
- 1452 21. Continue to balance training area use with area rotation schedules IAW ITAM goals for
1453 sustainable training lands.
- 1454 22. For any construction project requiring an Environmental Protection Plan (EPP), implement the
1455 pertinent resource protection measures that are part of the EPP.
- 1456 23. Incorporate water and energy conservation measures in new building and facilities designs to
1457 comply with AR 11–27, *Army Energy Program*; EO 13123, *Greening the Government through*
1458 *Efficient Energy Management*; EO 13123, *Greening the Government through Efficient Energy*
1459 *Management*; EO 13423, *Strengthening Federal Environmental, Energy, and Transportation*
1460 *Management*; and the requirements under the new Energy Independence and Security Act of
1461 2007.
- 1462 24. For any construction project requiring a storm water pollution prevention plan (SWPPP),
1463 implement the pertinent resource protection measures contained in the SWPPP. Government
1464 approval of the SWPPP is required prior to start of construction.

-
- 1465 25. Continue to implement the ISWMP at the installation.
- 1466 26. Construct all new facilities to achieve a minimum LEED® rating of Silver.
- 1467 27. Continue to implement the following programs or plans to manage hazardous materials and
1468 wastes at JBLM: The Installation Restoration Program (IRP), Military Munitions Response
1469 Program (MMRP), Compliance-Related Cleanup (CC), P2 Plan, *Installation Spill Contingency*
1470 *Plan, Facility Response Plan, and Integrated Pest Management Plan.*

1471 **Existing BMPs, Plans, and Programs at YTC:** Existing environmental programs, plans, and BMPs at
1472 YTC that will offset CAB stationing impacts include:

- 1473 1. Continue to follow resource protection practices required by the installation's Regulation 200-1,
1474 *Environmental Protection and Enhancement*, during field training, including but not limited to:
- 1475 • Avoiding maneuver, digging, or establishing assembly areas or bivouac sites in Seibert staked
1476 areas.
 - 1477 • Using only established roads and trails during movement to and from maneuver areas and firing
1478 ranges.
 - 1479 • Crossing rivers/streams only at approved, designated hardened crossing sites.
 - 1480 • Staying at least 164.04 feet (50 m) from rivers/streams, wetlands, or other water bodies unless a
1481 maintained road or designated crossing exists for traversing the restricted area.
 - 1482 • Conducting water purification training only at approved sites, and ensuring that wastewater and
1483 excess product water is discharged to a dug sump at least 164.04 feet (50 m) from the water
1484 source.
 - 1485 • Obtaining a permit for digging, and conducting digging only in the area specified in the permit.
 - 1486 • Locating assembly areas and bivouac sites at least 328.08 feet (100 m) from any water body.

-
- 1487 • Establishing field refueling sites, field maintenance sites, field kitchens, and field showers at least
1488 328.08 feet (100 m) from any water body.
- 1489 • If the use of field latrines is authorized, establishing them at least 328.08 feet (100 m) from any
1490 water body, and closing and marking them per FM 21-10, *Field Sanitation and Hygiene*.
- 1491 • Conducting vehicle washing only at installation designated wash facilities.
- 1492 • Establishing hazardous material storage sites at least 328.08 feet (100 m) from any wetland or
1493 water body.
- 1494 • Following requirements for accumulating and managing hazardous waste, and ensuring all
1495 hazardous waste is returned to the cantonment area for disposal.
- 1496 2. Continue implementing the requirements of the installation’s Regulation 420-5, *Procedures for the*
1497 *Protection of State and Federally Listed, Threatened, Endangered, Candidate Species, Species of*
1498 *Concern, and Designated Critical Habitat*. Current species and management include:
- 1499 • Bald eagle
- 1500 · From December 8 to March 24, maintain a minimum flight altitude of 300 feet above ground
1501 level (AGL) (91.44 m AGL) on the Hanson Creek Route between coordinates GG190875 and
1502 GG280842.
- 1503 · Maintain a .62 mile (1 kilometer [km]) buffer to the north and south of Hanson Creek Road
1504 from December 8 to March 24, coordinate all flights along the Columbia River Route
1505 between coordinates KB830 and KB690 with the Rattlesnake Flight Following Facility.
- 1506 · There is no minimum flight altitude restriction, but flights must maintain a .62 mile (1 km)
1507 buffer to the west of the railroad right-of-way along the Columbia River from December 8 to
1508 March 24, river crossing exercises are prohibited on the Priest Rapids Reservoir from
1509 December 8 to March 24, travel on Hanson Creek Road between coordinates GG180875 and
1510 GG280842 is prohibited without coordination and authorization from ENRD and Range
1511 Control.

-
- 1512 · Off-road vehicle traffic is prohibited in the Hanson Creek riparian zones.
- 1513 • Golden eagle
- 1514 · Maintain a 1,640.42 feet (500 m) buffer between all military activities and nest sites.
- 1515 · Maintain a minimum of 300 feet AGL (91.44 m AGL) for overflights of nest sites.
- 1516 · Air traffic is prohibited below the rim of Selah Canyon between Badger Pocket Road
1517 (GG039731) and the I-82 Bridge (FG958740).
- 1518 • Sage grouse
- 1519 · From 2400 to 0900 hours during March 1 to May 15 unless an earlier date is specified,
1520 comply with restrictions on military training and other land use within a 3,280.84 feet (1 km)
1521 radius of designated leks.
- 1522 · From 2400 to 0900 hours during March 1 to May 15 unless an earlier date is specified,
1523 aircraft overflights within a .62 mile (1 km) radius of designated leks are prohibited.
- 1524 · All off-road military activities are prohibited between March 1 and June 15 (24 hours a day)
1525 within the sage grouse protection areas. Exceptions within these areas include the following
1526 existing Firing Ranges: 4, 5, 10, 10Z, 16, 26, and 55. Vehicle travel is limited to MSR's
1527 and/or designated roads to the above Firing Ranges.
- 1528 · Bivouacs are not permitted at any time of the year in the sage grouse protection area.
- 1529 · Excavations are only permitted in the protection area on existing firebreaks. All excavations
1530 within the sage grouse protection areas are coordinated through YTC ENRD and carried out
1531 IAW the YTC dig permit process.

-
- 1532 • Ferruginous hawk
- 1533 · Military activity is prohibited within 1,640.42 feet (500 m) of the nest sites.
- 1534 · Aircraft over-flights of all active nest sites will maintain a minimum of 1,000 feet AGL
- 1535 (302.8 m AGL).
- 1536 • Salmonids
- 1537 · Protection measures in place for riparian areas on YTC provide direct protection for these
- 1538 species, and protect habitat that may be occupied.
- 1539 • Burrowing owls
- 1540 · Known nest sites are protected by Seibert stakes.
- 1541 • Columbia Milk-vetch, Basalt Daisy, Dwarf Evening-Primrose, Hoover’s Desert Parsley,
- 1542 Hoover’s Tauschia, Kalm’s Lobelia, and White Etonella
- 1543 · Known populations are protected by Seibert stakes.
- 1544 3. Continue to implement soil erosion mitigation and monitoring measures outlined in the YTC
- 1545 CNRMP/INRMP. These include, but are not limited to, the following:
- 1546 • Demarcate areas that are naturally prone to soil erosion such as creek bottoms (YTC Land Use
- 1547 Zone 1).
- 1548 • Minimize off-road maneuvers during periods of high soil moisture.
- 1549 • Rest highly-utilized maneuver areas through training area rotations.
- 1550 • Limit or exclude training in areas of steep slopes.
- 1551 • Erosion control (e.g., erosion control blankets, loose rock structures, sediment traps and weirs) of
- 1552 highly erodible sites (e.g., unimproved roads, fire suppression lines, and intermittent channels)
- 1553 following disturbance.

-
- 1554 4. Continue updating management prescriptions in various land use planning and management programs
1555 to address greater levels of stationing and training uses.
- 1556 5. Continue the implementation of the GIS program and incorporation of the program into existing land
1557 management programs to increase the effectiveness of efforts to implement specific resource
1558 mitigation and monitoring requirements by reducing conflicts and redundancy among various
1559 programs.
- 1560 6. For each new construction project (Military Construction, Army [MCA] by the USACE or military
1561 troop construction), evaluate need for air operating permit modifications based on final site selection
1562 and design prior to start of construction.
- 1563 7. Submit a required EPP for all construction projects 1 acre (.40 ha) in size or larger. The EPP includes
1564 such things as a spill control plan, solid waste management plan, contaminant prevention plan, and a
1565 pesticide treatment plan.
- 1566 8. For any construction project requiring an EPP, implement the pertinent resource protection measures
1567 that are part of the EPP.
- 1568 9. Implement BMPs for new permitted stationary sources of emissions, including review for each
1569 criteria pollutant, regulated HAPs and designated categories, and meeting the new source
1570 performance standards and NESHAP requirements.
- 1571 10. Prior to the demolition or renovation of an existing structure, a Notification of Demolition and
1572 Renovation application must be filed and the appropriate fee paid.
- 1573 11. Prior to the start of any demolition, excavation, clearing, construction, or landscaping work,
1574 contractors must file a Dust Control Plan.
- 1575 12. Conduct an annual air quality inspection.
- 1576 13. Air emissions associated with different levels of smoke training on JBLM will not exceed the limits
1577 identified in the *Final Environmental Assessment for the Fielding of M56 and M58 Smoke Generators*
1578 *at Fort Lewis and Yakima Training Center (Army 1999)*, and in the *Final Environmental Assessment*

-
- 1579 *for Training with Smoke Munitions at Fort Lewis and Yakima Training Center, Washington (Army*
1580 *2001).*
- 1581 14. Quantities (numbers, gallons, or pounds) of smoke producing devices will stay within limits
1582 identified in previous environmental impact analyses.
- 1583 15. Revegetate degraded areas to reduce the amount of dust produced during training exercises.
- 1584 16. Implement the noise control plan from the EPP required for construction projects 1 acre (.40 ha) in
1585 size or larger.
- 1586 17. Continue implementing the installation Operational Noise Management Plan, which includes noise
1587 complaint management.
- 1588 18. The populated area west of Vagabond Army Heliport (VAH) is not to be flown over as part of JBLM
1589 flight procedures and regulation.
- 1590 19. Identify potentially erosive sites that may require altered management practices such as upgrading
1591 firebreaks with gravel and water bars, and reseeding areas such as bivouac sites, dig sites, and
1592 temporary firebreaks.
- 1593 20. Continue riparian restoration and watershed protection program. Riparian restoration will improve
1594 water quality through minimizing streambed and gully erosion and will aid in holding soils in place at
1595 stream crossings. Watershed protection will be achieved by using Seibert stakes to prohibit vehicle
1596 disturbance near streams, reducing sediment runoff to streams and wetlands.
- 1597 21. Continue the practices of excluding certain type of training activities (e.g., mounted maneuvers) from
1598 sensitive areas, limiting activities near water bodies, and using inert environmentally friendly training
1599 rounds whenever possible.
- 1600 22. Continue to conduct Sustainable Range Awareness training for all units training at YTC to educate
1601 them about the importance of minimizing the amount of damage caused to vegetation by off-road
1602 travel.
- 1603 23. Continue and expand the ITAM Sustainable Range Awareness Program.

-
- 1604 24. Implement the *Integrated Wildland Fire Management Plan*; complete annual reviews and annual fire
1605 summary report.
- 1606 25. Establish Policy and Technical Committees that will oversee and implement the *Integrated Wildland*
1607 *Fire Management Plan* and monitoring and reporting of all fire related mitigation measures. Continue
1608 use of Fire Technical Team.
- 1609 26. BMP - Awareness level training for Training Units: Add wildland fire emphasis to the SRA brief, fire
1610 emphasis during unit scheduling and during the daily 1500 Range Brief. Develop outreach products
1611 (posters and other products); recommend increasing education/awareness efforts at home station and
1612 during all local points of unit contact with variety of outreach methods/products.
- 1613 27. BMP - Maximize YTC Fire Department Personnel down range: There is a need to maximize presence
1614 of YTC Fire Department Personnel down range (e.g., seasonal staff for roaming patrols, full time
1615 equivalent positions to conduct training and issuing of equipment, increased number of seasonal staff,
1616 improved hiring practices, and adjust work schedules). Accept and implement proposed
1617 recommendations to maximize fire department personnel downrange according to identified fire risk.
- 1618 28. BMP - Mutual Aid Practice Review: Evaluate mutual aid practices and make adjustments to ensure
1619 adequate coverage is available at YTC during training activities; retain current mutual aid agreements
1620 that allows for dedicated wildland fire suppression response on YTC and ability to obtain additional
1621 suppression assets if needed.
- 1622 29. BMP – Accountability: Consistent enforcement of laws and regulations for acts of negligence. Utilize
1623 existing process for acquiring funds to address damage to equipment, structures, and resources as a
1624 result of negligence or disregard for established procedures, policies, or laws.
- 1625 30. The Army will continue to time the convoys traveling between JBLM and YTC to avoid the primary
1626 rush hours of 0600 to 0900 hours and 1500 to 1700 hours on I-5 and I-405.
- 1627 31. New building and facilities will incorporate water and energy conservation measures in facilities
1628 designs to comply with AR 11–27, EO 13123, EO 13423, EO 13514, and the requirements under the
1629 new Energy Independence and Security Act of 2007.

-
- 1630 32. For any construction project requiring a SWPPP, implement the pertinent resource protection
1631 measures contained in the SWPPP. Government approval of the SWPPP is required prior to start of
1632 construction.
- 1633 33. Continue to implement the ISWMP at the installation.
- 1634 34. Conduct more frequent waste pick up due to the increase in waste streams.
- 1635 35. Prior to demolishing any structures, an asbestos survey must be done by a certified asbestos building
1636 inspector. Any asbestos found must be removed by a licensed asbestos abatement contractor prior to
1637 demolition. Disposal documentation must be provided to YTC.
- 1638 36. Continue to follow all Federal, State, Army, and JBLM regulations and programs for managing,
1639 storing, using, and disposing of hazardous materials and wastes.
- 1640 37. Continue to comply with YTC policies regarding hazardous materials inventory and hazardous
1641 materials procurement and turn-in. All YTC residents, tenants, and contractors are required to comply
1642 with these policies.
- 1643 38. Continue to implement the following programs to manage hazardous materials and wastes at YTC:
1644 the IRP, MMRP, CC, P2 plan, ICP, and Integrated Pest Management Plan (IPMP).
- 1645 39. Maintain adequate hazardous waste management capabilities (e.g., staff, supplies, and equipment) to
1646 support current and increased requirements based on training load.
- 1647 40. Construct all new facilities to achieve a minimum LEED[®] rating of Silver.
- 1648 41. IAW the Energy Policy Act of 2005, EO 13423, the NDAA of 2007, and DoD policy, continue to
1649 reduce energy consumption and reliance on fossil fuels while increasing the amount of energy derived
1650 from renewable sources.

1651 **Additional mitigations proposed for implementing Combat CAB stationing at JBLM under**
1652 **Alternatives 2 or 3.** In addition to JBLM and YTC's existing programs, plans, and BMPs, the Army also
1653 has identified the following as proposed additional mitigation measures at JBLM to protect the

1654 environment as part of the Proposed Action (Alternatives 2 or 3). At JBLM, proposed CAB stationing
1655 mitigations include:

1656 **Land Use**

- 1657 • None Identified

1658 **Air Quality and GHG**

- 1659 • Establish monitoring stations on JBLM to collect localized air quality sampling data to assess
1660 impacts of HAP including carbon monoxide (CO) monitoring at major entrance gates.

1661 **Noise**

- 1662 • Installation G-3 and Range Control schedule and coordinate aviation training to reduce noise
1663 impacts to installation facilities.
- 1664 • Adhere to Installation Environmental Noise Management Plan guidelines and procedures.
- 1665 • Continue to implement Installation “Fly Neighborly” program, which works to lessen the noise
1666 aircraft produce when flying in developed areas.
- 1667 • Restrict aircraft to a minimum of 2,000 feet AGL (609.6 m AGL) when flying over the Nisqually
1668 National Wildlife Refuge.
- 1669 • Construct sound mitigating berms on applicable firing ranges at JBLM.
- 1670 • Army aviators will continue to adhere to Federal Aviation Administration (FAA) and installation
1671 flight regulations, which outline policies and procedures for noise abatement and minimum
1672 altitudes.

1673 **Geology and Soils**

-
- 1674 • Implement ITAM program maintenance of sustainable training lands. Actions will include
1675 rehabilitating vegetation impacted by vehicle maneuvers, bivouac, digging, and other training
1676 activities. Conduct increased frequency of soil condition monitoring and reporting.
 - 1677 • Repair and maintain maneuver trails on JBLM to reduce anticipated increase in impacts to soils
1678 and vegetation due to increased travel related to CAB training.

1679 **Water Resources**

- 1680 • Construct a new WWTP to mitigate the impacts of the proposed action. The 2010 permit to be
1681 issued by the EPA for the existing WWTP will require compliance with more stringent effluent
1682 discharge limits, including the removal of biological oxygen demand (BOD) and total suspended
1683 solids (TSS) from 80 percent to 85 percent on a monthly average, and a reduction in the
1684 maximum daily concentration of chlorine in the effluent from 0.5 milligrams per liter (mg/L) to
1685 0.36 mg/L. The next permit to be issued in 2015 will further increase restrictions on effluent. The
1686 WWTP is already near the current permit effluent discharge levels and with the increased
1687 population from implementation of the proposed action, will not be able to meet the more
1688 restrictive permit limits.

1689 **Biological Resources**

- 1690 • In coordination with the FWS, develop and implement additional protective measures for prairie
1691 candidate species in the Range 74/76 area. This will include preparing a JBLM Policy Statement
1692 listing the protective measures that will be incorporated in the next revision of the installation's
1693 Regulation 420–5, *Procedures for the Protection of State and Federally Listed, Threatened,*
1694 *Endangered, Candidate Species, Species of Concern, and Designated Critical Habitat.*
- 1695 • Install aerial rope bridges at key road crossing points, and reduce vehicle speed limits within high
1696 squirrel population areas to protect western gray squirrels (Federal species of concern and State
1697 threatened species).
- 1698 • Determine and mitigate training impacts on the western gray squirrel.

-
- 1699 • Repair and maintain maneuver trails on JBLM to reduce anticipated increase in impacts to soils
1700 and vegetation due to increased travel related to CAB training.
 - 1701 • Conduct additional noxious weed control.
 - 1702 • Clean vehicles of noxious weed components from off-post training sites (YTC, National Training
1703 Center, etc.) or from deployment prior to returning to JBLM.
 - 1704 • Create and maintain suitable habitat for candidate species on JBLM (Mardon skipper, Taylor’s
1705 checkerspot, Streaked horned lark, and Mazama pocket gopher).
 - 1706 • Develop and maintain habitat and protective buffers for all identified streaked horned lark nesting
1707 colonies, and restrict low level hovering by aircraft near nesting colonies and in buffer areas
1708 during the nesting period (exceptions to this mitigation are any nesting colonies identified at
1709 GAAF; suitable habitat for these colonies will be developed downrange).
 - 1710 • Enhance adjacent habitat and conduct translocations of pocket gophers from disturbed habitat on
1711 an as-needed basis to mitigate for loss of habitat due to range construction projects.
 - 1712 • Conduct monitoring and recording of the frequency, intensity, and location of wildfires on JBLM,
1713 and as necessary, implement additional fire prevention and control measures including firebreak
1714 maintenance, prescribed burning, and fire suppression activities.

1715 **Cultural Resources**

- 1716 • Assess the condition of at least 30 archaeological sites per year to determine accumulated training
1717 damage and prioritize NRHP-eligible sites for increased protection (i.e., Seibert staking) or data
1718 recovery excavations.
- 1719 • Build and refine a GIS-based predictive model that will indicate the probability that a particular
1720 land parcel contains prehistoric archaeological resources, and will be used to avoid training and
1721 construction impacts to significant prehistoric sites and prioritize and focus future archaeological
1722 survey areas.

-
- 1723 • Conduct archaeological surveys of proposed construction footprints and downrange areas that are
1724 being impacted by CAB operations and training.

 - 1725 • Evaluate a sample of downrange archaeological sites for NRHP eligibility before ongoing
1726 military training impacts results in the destruction of currently unevaluated sites (approximately
1727 twelve archaeological sites per year). Protection measures will be put in place for sites
1728 determined to be eligible for the National Register; ineligible sites will be opened to unrestricted
1729 military training or construction.

 - 1730 • Identify those National Register eligible sites that are being impacted by CAB stationing actions
1731 and prioritize sites for data recovery excavations to salvage important scientific and historical
1732 information that will otherwise be lost to ongoing military training impacts (approximately one
1733 archaeological site per year).

 - 1734 • Include one or more public education/outreach components (i.e., brochures, non-technical reports,
1735 web sites, public tours, public archaeology, multi-media CD-ROM, etc.) in inventory, evaluation,
1736 and data recovery projects.

1737 **Socioeconomics**

- 1738 • Continue coordination with local, State, and Federal agencies to discuss on-going concerns/issues
1739 with military growth affecting local education activities, both on and off the installation, and
1740 assist with planning for infrastructure requirements/improvements.

- 1741 • Conduct enhanced outreach and coordination with surrounding school districts regarding near-
1742 and long-term potential stationing actions, which will help these districts plan for changes in
1743 enrollment.

- 1744 • Continue coordination with local, State, and Federal agencies to discuss on-going concerns/issues
1745 with military growth affecting local education activities, both on and off the installation, and
1746 assist with planning for infrastructure requirements/improvements.

1747 **Transportation and Airspace**

-
- 1748 • Install a traffic signal, construct a traffic island, and remark lanes at the intersection of DuPont-
1749 Steilacoom Road and East Drive.
 - 1750 • Construct a northbound right-turn lane on A Street at the intersection of North Gate Road and
1751 East Drive.
 - 1752 • Continue ongoing coordination with local, State and Federal agencies to assist in addressing
1753 short- and long-term solutions to traffic congestion on I-5 in the vicinity of JBLM.
 - 1754 • Restrict aircraft to a minimum of 2,000 feet AGL (609.6 m AGL) when flying over the Nisqually
1755 National Wildlife Refuge.

1756 **Utilities**

- 1757 • Require the achievement of LEED[®] Silver on all new construction.

1758 **Hazardous and Toxic Substances**

- 1759 • Provide waste storage facilities, and conduct waste pick-up and on-site waste storage for
1760 hazardous waste generated at the installation.
- 1761 • Conduct additional site surveys, development of process maps, and audit compliance with
1762 environmental operating permits.
- 1763 • To support the increase in troop strength, expand the services provided by the HMCC in
1764 managing the purchase, storage, delivery, use, and recovery of hazardous materials.

1765 **Additional mitigation proposed for implementing CAB stationing at YTC under Alternatives 2 or**
1766 **3.** In addition to YTC's existing programs, plans, and BMPs, the Army also has identified the following
1767 as proposed additional mitigation measures at YTC to protect the environment as part of the Proposed
1768 Action (Alternatives 2 or 3). At YTC, proposed CAB stationing mitigations include:

1769 **Land Use**

-
- 1770 • Increase monitoring and enforcement of land use policies and assist in controlling avoidable
1771 training impacts to natural resources by identifying policy violations (e.g., encroachment within
1772 Seibert staked areas, digging without a permit or digging in unauthorized areas, bivouacking in
1773 unauthorized areas, refueling within the protective buffer for water bodies, and violating
1774 installation wildland fire management policies).

1775 **Air Quality and GHG**

- 1776 • Appropriate site rehabilitation (e.g., revegetation, restoration, erosion control, irrigation, and
1777 landscaping) will be accomplished following all construction related projects to provide the
1778 appropriate vegetative community or landscaping (including irrigation if necessary) to protect air
1779 resources for the affected project area.

- 1780 • IAW the Energy Policy Act of 2005, EO 13423, the NDAA of 2007, and DoD policy, continue to
1781 reduce energy consumption and reliance on fossil fuels while increasing the amount of energy
1782 derived from renewable sources.

1783 **Noise**

- 1784 • Installation G-3 and Range Control schedule and coordinate aviation training to reduce noise
1785 impacts to installation facilities.

- 1786 • Adhere to installation Environmental Noise Management Plan guidelines and procedures.

- 1787 • Continue to implement Installation “Fly Neighborly” program, which works to lessen the noise
1788 aircraft produce when flying in developed areas.

- 1789 • Army aviators will continue to adhere to installation flight regulations, which outline policies and
1790 procedures for noise abatement and minimum altitudes to be maintained around designated
1791 sensitive areas. Aviators will continue to use adhere to flight restrictions when flying designated
1792 flight routes.

1793 **Geology and Soils**

1794 • Continue implementation of ITAM program components (Land Rehabilitation and Maintenance,
1795 Range and Training Land Assessment, Sustainable Range Awareness, and Training Requirements
1796 Integration) to maintain and sustain lands.

1797 • Evaluate high-use helicopter landing zones (e.g., ranges) that support CAB actions to determine if
1798 site hardening is required to prevent excessive soil erosion at these sites and where it is
1799 determined hardening is appropriate, install hover pads.

1800 • Implement erosion control measures to address the anticipated increase in sediment delivery to
1801 the Yakima and Columbia Rivers following wildfire events caused by CAB-related increases and
1802 changes in training activities.

1803 **Water Resources**

1804 • Implement erosion control measures to address the anticipated increase in sediment delivery to
1805 the Yakima and Columbia Rivers following wildfire events caused by CAB-related increases and
1806 changes in training activities.

1807 **Biological Resources (including wildfire management)**

1808 • Realign sage grouse habitat and core use area protection boundaries to mitigate for reductions in
1809 available habitat and to protect areas consisting of core areas of sage grouse use on YTC,
1810 including realigning sage grouse habitat and core use area protection boundaries in applicable
1811 training areas used by the proposed CAB to incorporate sage grouse use information not
1812 considered in the current management plan and to manage primary containment areas to early
1813 seral conditions within the current sage grouse protection area.

1814 • Provide a process to ensure that newly discovered leks (areas where male sage grouse gather for
1815 mating display behavior) receive designated area protection and that leks which may have
1816 become inactive are managed to land allocation standards in which they are contained.

1817 • Provide designated area protection to two recently discovered leks in TA 16 and TA 8, and
1818 manage two inactive leks in TA 12 and TA 5, and one active lek in the CIA to the land allocation
1819 standards of the area they are in.

-
- 1820 • Revise the sage grouse management plan to incorporate new information and mitigation measures
1821 as part of the YTC INRMP revision.
- 1822 • Revise flight restrictions related to sage grouse protection areas and leks by extending existing
1823 flight restrictions to all newly proposed sage grouse protection areas and secondary sage grouse
1824 habitat areas that contain a primary flight route and/or are within .62 miles (1 km) of a protected
1825 lek.
- 1826 • Increase West Nile Virus surveillance and control to reduce the susceptibility of sage grouse to
1827 West Nile Virus. Continue the current cooperative surveillance program and increase control
1828 efforts at all man-made sources of mosquito breeding habitat to include newly proposed aerial fire
1829 suppression water sources.
- 1830 • Install forb (herbaceous flowering plant that is not a grass) restoration/greenhouse facilities to
1831 augment sage grouse habitat restoration efforts. Install/use previously acquired greenhouses and
1832 procure additional greenhouse/restoration supplies for annual forb growing for species not
1833 commercially available.
- 1834 • Implement a genetic augmentation project to compensate for anticipated population declines
1835 caused by negative impacts from increases in military training activities.
- 1836 • Participate in and provide support to the South Central Washington Shrub-Steppe Collaborative
1837 (SCWSSC) to promote/implement the conservation strategy of the SCWSSC to include
1838 developing conservation action proposals (acquisition, easements, a Candidate Conservation
1839 Agreement with Assurances for private landholdings) within the SCWSSC focal area, a regional
1840 fire prevention/suppression strategy for the focal area, pre-incident plans for all non-fire district
1841 jurisdictional areas within the focal area, a regional habitat restoration strategy and conference,
1842 and establishment of a cooperative agreement for the development of locally adapted plant
1843 materials for use in restoration.
- 1844 • Establish a candidate conservation agreement with the FWS to ensure that YTC sage grouse
1845 management efforts to preclude the species from further listing are acknowledged. Work

-
- 1846 cooperatively with the FWS in revising and including the YTC sage grouse management plan in a
1847 Candidate Conservation Agreement with the Service.
- 1848 • Explore Candidate Conservation Agreement with Assurances for off-installation mitigation to
1849 provide added assurances and as an incentive to land owners for sage grouse and shrub-steppe
1850 conservation efforts, coordinate with the SCWSSC regarding their exploration of a Candidate
1851 Conservation Agreement with Assurances for private landowners within the Yakima Focal Area
1852 of the SCWSSC.
- 1853 • For any regional habitat restoration/protection strategy developed for *Grow the Army* training-
1854 related impacts to sage grouse that extends beyond the installation boundaries, ensure strategy
1855 incorporates CAB training-related impacts. Strategy will be to ensure that stewardship
1856 responsibilities of sage grouse and shrub-steppe habitat extend beyond YTC boundaries at spatial
1857 scales appropriate for this species and its habitat. Also develop a Regional Habitat
1858 Restoration/Protection Strategy for all Federal and State agencies within the Yakima Focal Area
1859 of the SCWSSC.
- 1860 • For any sage grouse predator assessment and management plan developed to address the negative
1861 impacts to habitat quantity and quality from *Grow the Army*-related military training and the
1862 resulting effect this has on local sage grouse predator-prey relationships, ensure strategy
1863 incorporates CAB training-related impacts.
- 1864 • Remove fences no longer required and mark required fences to increase their visibility to sage
1865 grouse to address this source of mortality.
- 1866 • Continue to implement the training land recovery program at a level that appropriately addresses
1867 impacts from CAB actions to meet a variety of resource (e.g., site repair and habitat recovery)
1868 and land use objectives (e.g., sustainable military training) for sites that have been impacted by
1869 CAB training (e.g., fire and mechanical disturbance).
- 1870 • Develop and maintain pre-incident plans for designated locations or activities (e.g., containment
1871 areas, fire exclusion areas, and high-risk activities outside of containment areas) to improve
1872 efficiencies in fire prevention and suppression.

-
- 1873 • Conduct periodic review and refinement of the wildland fire risk matrix to assist in reducing the
1874 potential fire ignition caused by training related events.

 - 1875 • Establish wildland fire containment areas where fires will be suppressed at minimal size within
1876 the containment area boundary to more effectively contain and suppress fires within areas where
1877 recurring fires are expected (e.g., established ranges and impact/dud areas).

 - 1878 • Establish fire exclusion areas on the installation that have increased fire prevention and
1879 suppression priority (e.g., land use constraints, enhanced prevention and suppression
1880 assets/capabilities) to protect high value resources (e.g., mature late seral shrub-steppe, sage
1881 grouse habitat, restoration sites, and riparian areas) and to allow restoration and rehabilitation to
1882 occur where applicable.

 - 1883 • Implement temporal constraints and other necessary training restrictions during the high fire
1884 danger period (May 15 through September 30) to reduce the risk of ignition during periods of
1885 highest potential for ignition and to minimize the occurrence of catastrophic fires, fires in
1886 exclusion areas, or fires leaving the installation.

 - 1887 • Increase support to the YTC wildland fire management program in response to increased
1888 occurrence of wildland fires resulting from CAB actions, particularly the simultaneous operation
1889 of all YTC ranges, and the need to reduce impacts to the military training mission and natural
1890 resources through effective containment of fires.

 - 1891 • Provide wildland fire suppression equipment to address the inadequacy of existing equipment to
1892 meet current requirements and projected pre-suppression and suppression requirements associated
1893 with CAB training activities.

 - 1894 • Continue aerial fire suppression capability (as described in the *2007 Modification of Aerial Fire*
1895 *Suppression Requirements Environmental Assessment*) on an annual basis and pre-positioned
1896 prior to the fire season to ensure adequate fire suppression capability, particularly in areas of YTC
1897 where ground fire suppression is impractical (54 percent of YTC lands) or ineffective.

-
- 1898 • Develop 12 additional water resources in areas where they currently do not exist or where
1899 enhancement of existing water resources is required to enable a maximum 12-minute turn-around
1900 time across the installation for fire suppression to address the lack of sufficient aerial fire
1901 suppression water resources (water storage or dip tanks at some existing sites, wells and storage
1902 tanks at new sites) to support current and increased training activities associated with CAB
1903 actions.

 - 1904 • Conduct firebreak update and maintenance to reduce fire-related impacts from increased training
1905 associated with CAB actions that result in degraded mission capabilities and natural resource
1906 conditions, and to ensure the maximum effectiveness of firebreaks.

 - 1907 • Conduct site restoration for wildland fire impacts to compensate for incremental annual loss or
1908 large-scale fire impacts to habitat and to meet increased site restoration requirements associated
1909 with fire damage from CAB related training.

1910 **Cultural Resources**

- 1911 • Archaeological re-evaluations of cultural sites that may be eligible for inclusion on NRHP as
1912 specified by Section 106 of the National Historic Preservation Act (NHPA). Conduct
1913 approximately 100 site re-evaluations per year for five years.

1914 **Socioeconomics**

- 1915 • Continue coordination with local, State, and Federal agencies to discuss on-going concerns/issues
1916 affecting local education activities, both on and off the installation, and assist with planning for
1917 infrastructure requirements/improvements.

1918 **Transportation & Airspace**

- 1919 • Army aviators will continue to adhere to installation flight regulations, which outline policies and
1920 procedures for noise abatement and minimum altitudes to be maintained around designated
1921 sensitive areas. Aviators will continue to adhere to flight restrictions when flying designated
1922 flight routes.

1923 **Utilities**

- 1924
- Require the achievement of LEED[®] Silver on all new construction.

1925 **Hazardous and Toxic Substances**

- 1926
- No additional mitigation identified.

1927

(This page was intentionally left blank.)

1929 **5. FORT CARSON AND PIÑON CANYON MANEUVER SITE, COLORADO AFFECTED**
1930 **ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

1931 **5.1. Introduction**

1932 Fort Carson is a divisional Army post that is responsible for meeting the training requirements of four
1933 active component BCTs, Special Forces, and a host of support units. Fort Carson also hosts units of the
1934 Army Reserve, Navy Reserve, and Colorado Army National Guard. Fort Carson's PCMS provides critical
1935 maneuver lands necessary to train large units from Fort Carson and other installations.

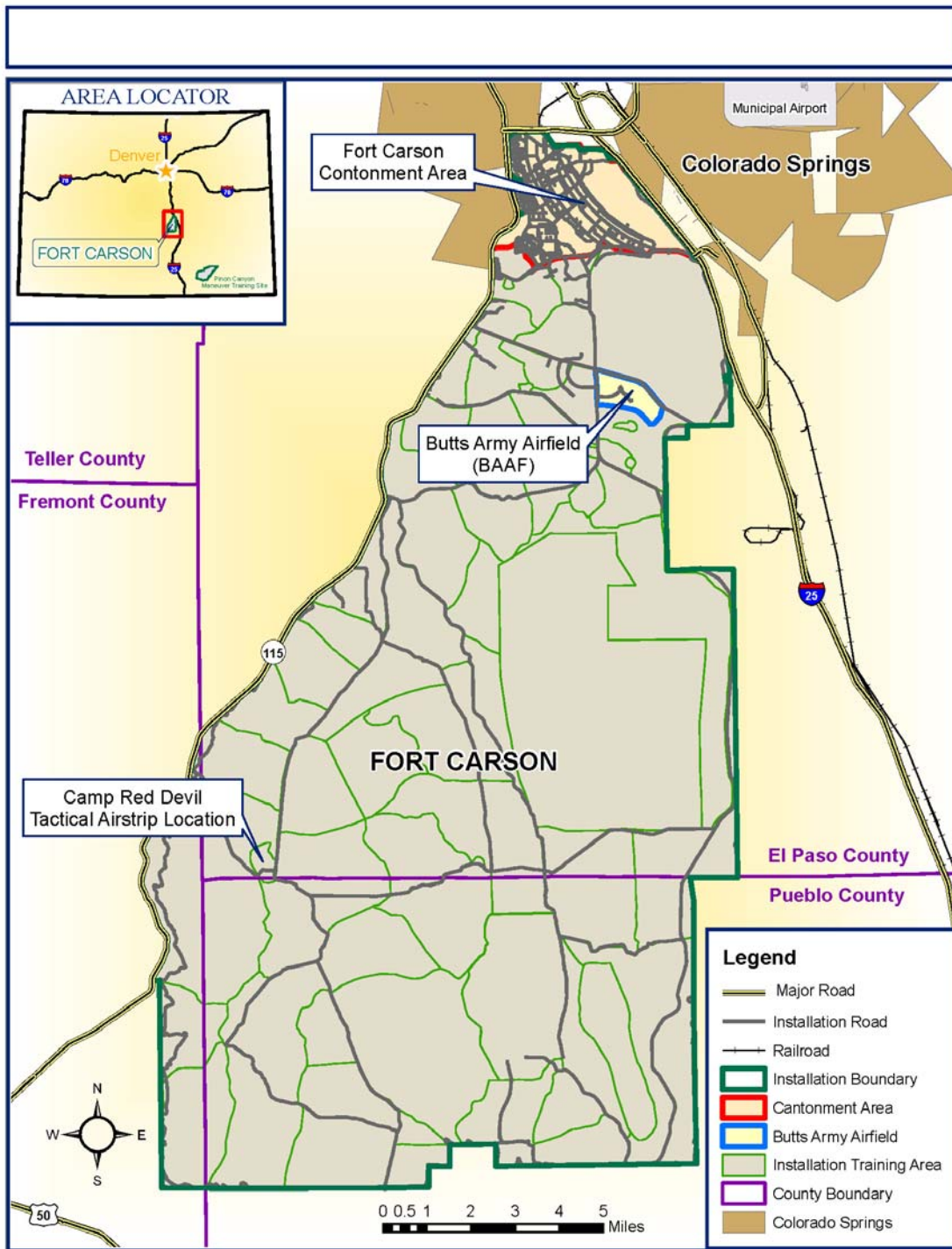
1936 Fort Carson currently has a total of 30 aircraft, down from its historic numbers due to prior re-stationing
1937 actions. For example, prior to 2006, there were over 70 aircraft consisting of AH-64s, OH-58s, and UH-
1938 60s connected with one of Fort Carson's then-assigned units containing aircraft, the 3rd Armor Calvary
1939 Regiment's Aviation Squadron.

1940 **5.2. Location and Size**

1941 The following sections outline specifics related to the location and size of Fort Carson and PCMS.

1942 **Fort Carson**

1943 Fort Carson is located in central Colorado at the foot of the Rocky Mountains and occupies portions of El
1944 Paso, Fremont, and Pueblo counties (Figure 5). The installation is bounded by SH 115 on the west and I-
1945 25 and mixed development to the east. Colorado Springs and Denver lie approximately eight miles (13
1946 kilometers [km]) and 75 miles (121 km), respectively, to the north; while the city of Pueblo is located
1947 approximately 35 miles (56 km) south of the cantonment area.



1948

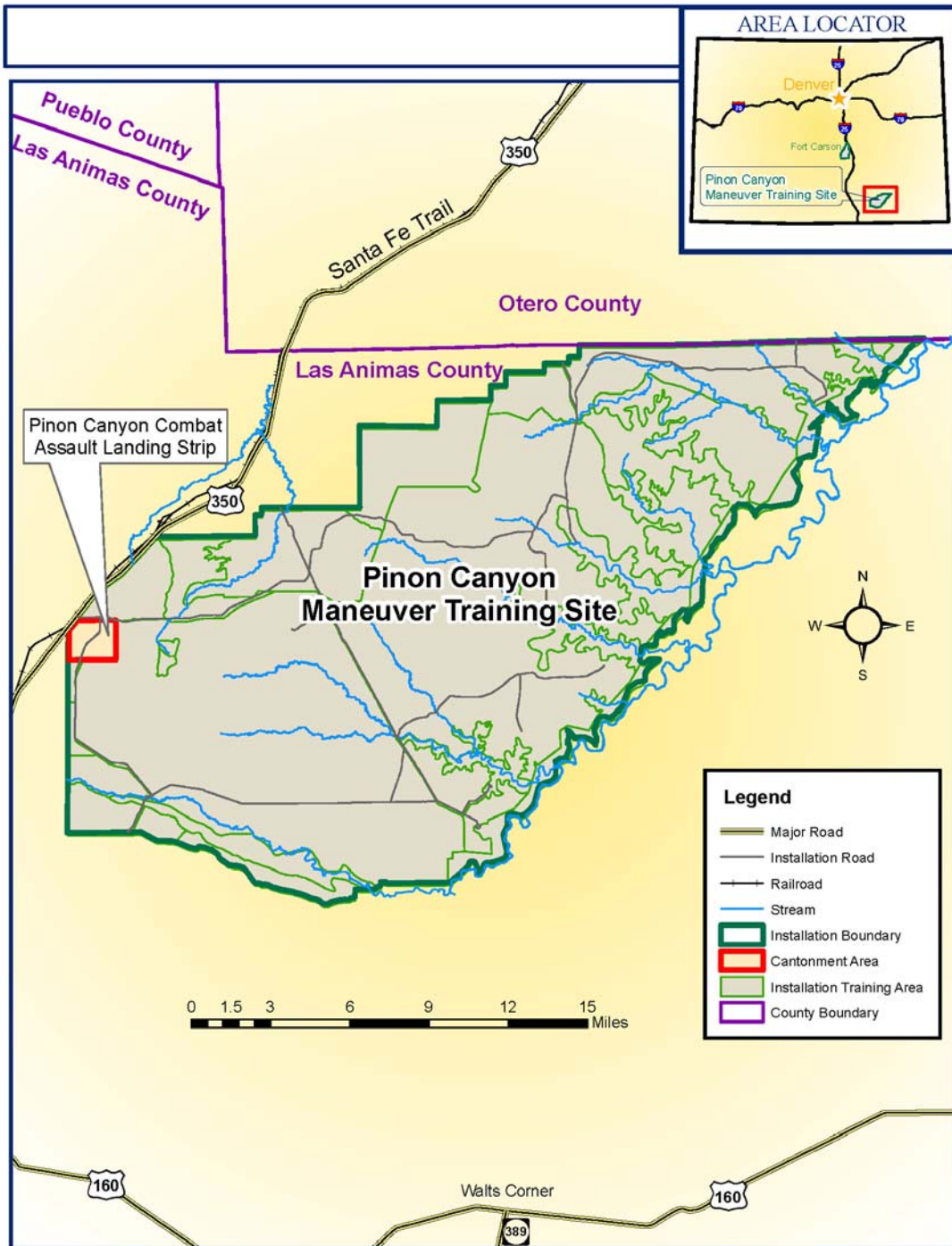
1949 **Figure 5. Fort Carson, Colorado**

1950 Fort Carson covers approximately 137,000 acres (55,442 hectares [ha]), and extends between two and 15
1951 miles, east to west, and approximately 24 miles (39 km), north to south. The cantonment area, located in
1952 the northern portion of the installation, covers approximately 6,000 acres (2,428 ha). Of Fort Carson's
1953 total acreage, more than half provides maneuver land suited for vehicle and non-vehicular military
1954 training (Fort Carson, 2010a).

1955 **Piñon Canyon Maneuver Site**

1956 PCMS is located in southeastern Colorado in Las Animas County, approximately 150 miles southeast of
1957 Fort Carson (Figure 6). It is bounded by U.S. Highway (US) 350 to the west, Purgatoire River Canyon to
1958 the east, Las Animas County Road 54 to the south, and Otero County to the north. Nearby cities include
1959 Trinidad to the southwest and La Junta to the northeast.

1960 PCMS covers approximately 235,000 acres (95,101 ha), which includes a cantonment area of
1961 approximately 1,660 acres (672 ha). Of the 235,000 acres (95,101 ha), the majority is designated as
1962 maneuver land (Fort Carson, 2010a).



1963

1964 **Figure 6. Piñon Canyon Maneuver Site, Colorado**

1965 **5.3. Climate**

1966 The following section describes specifics related to the climate at Fort Carson and PCMS.

1967 **Fort Carson**

1968 The region surrounding Fort Carson is classified as mid-latitude semi-arid and characterized by areas with
1969 hot summers, cold winters, and relatively light rainfall. The mean temperature ranges from 70° Fahrenheit
1970 (F) (21° C) in July to 28° F (-2° C) in January. Mean annual precipitation is about 17 inches (43
1971 centimeters [cm]) per year with about 80 percent falling between April 1 and Sept. 1. Average annual
1972 snowfall in the region is 42.4 inches (108 cm), usually occurring from September to May, with the
1973 heaviest snowfall registered in March. The yearly average daytime relative humidity is 39 percent and
1974 rises to 62 percent at night (Fort Carson, 2007a).

1975 **Piñon Canyon Maneuver Site**

1976 The climate around PCMS is classified as dry continental, semi-arid. The mean temperature ranges from
1977 70° F (21° C) in July to 31° F (-0.5° C) in December and January. Although the average annual
1978 precipitation is approximately 16.5 inches (41.9 cm), actual precipitation fluctuates widely from year to
1979 year and between areas of the maneuver site. Approximately 80 percent of the precipitation that occurs at
1980 PCMS is received between March and October (Fort Carson, 2007a).

1981 **5.4. Land Use**

1982 The following section details specifics related to land use for Fort Carson and PCMS.

1983 **5.4.1. Affected Environment**

1984 **Fort Carson**

1985 **On-Post Land Use**

1986 The installation is divided into 56 training areas, three impact areas, the cantonment area, and areas from
1987 which training is restricted. Those lands outside of the cantonment area are also referred to, collectively,
1988 as the downrange area. Most of the developed land uses are located within the cantonment area (5,752

1989 acres [2,328 ha]), BAAF (570 acres [231 ha]), ORTC (575 acres [233 ha]), and Camp Red Devil (1,166
1990 acres [472 ha]). The cantonment area is located in the northern portion of the installation. BAAF lies
1991 approximately four miles (6.4 km) south of the cantonment area, in the northeast quadrant of the
1992 downrange area, near the eastern boundary of the installation. ORTC lies adjacent to the west side of
1993 BAAF. Camp Red Devil is located in the southwest corner of Fort Carson. Semi-developed land uses
1994 include 1,853 acres (750 ha) for the Olympic shooting range and Turkey Creek Recreation Area.
1995 Approximately 90 percent of the installation is generally unimproved, meaning it has either no permanent
1996 facilities or very limited facilities used by troops to complete training missions. These generally
1997 unimproved land use areas include activities such as live-fire artillery training, small arms practice,
1998 maneuver operations, and bivouac training. Unimproved land use areas also include impact area buffer
1999 zones.

2000 Residential, recreational, commercial, and industrial facilities and operations occur in the developed land
2001 areas. Most are in the cantonment area such as administrative, maintenance, medical services, community
2002 support, recreation, supply and storage, classroom and simulation training, and deployment facilities;
2003 Soldier and Family housing; and utilities. Aviation-related facilities are at BAAF with a tactical airstrip
2004 also at Camp Red Devil. For the most part, industrial operations take place at the east side and north end
2005 of the cantonment area and at BAAF. As ORTC is developed per prior decisions unrelated to a CAB
2006 stationing, it will also contain some industrial operations. Principal industrial operations at Fort Carson
2007 have centered on the repair and maintenance of vehicles and aircraft.

2008 The downrange area is used for large-caliber and small-arms live fire individual and collective training;
2009 aircraft, wheeled and tracked vehicle maneuver operations; and mission readiness exercises. Additionally,
2010 BAAF is used for command and control of flight operations, as well as maintenance and repair of aircraft.
2011 Remaining land is used for recreation and other purposes, including reservoirs and a protected species
2012 area.

2013 **Surrounding Off-Post Land Use**

2014 Most of the developed land and land planned for future development borders the northern one-third of
2015 Fort Carson. These lands are part of unincorporated areas in El Paso County to the west; the city of
2016 Colorado Springs to the north and west; Security-Widefield, a census-designated place; and the city of

2017 Fountain to the east. The other developed land use area nearby is the town of Penrose, located south of
2018 Fort Carson's southwest corner.

2019 Land bordering the southern and southeastern portion of Fort Carson is generally comprised of
2020 undeveloped agricultural and ranch land. Under the ACUB Program, a collaborative effort among the
2021 Army, The Nature Conservancy (TNC), El Paso County, and the FWS, a number of conservation real
2022 estate interests have been obtained in the area. These interests minimize land use that is incompatible with
2023 Fort Carson's mission and enhance preservation of valued environmental assets associated with the land
2024 involved.

2025 Noise-sensitive land uses are discussed in more depth in Section 5.6.

2026 **Piñon Canyon Maneuver Site**

2027 **On-Post Land Use**

2028 Developed land uses are located within the cantonment area, which is at the west central edge of PCMS.
2029 The cantonment area provides limited administrative and Soldier support facilities, including the Piñon
2030 Canyon Combat Assault Landing Strip, that are primarily used during training exercises. Military training
2031 is restricted in this developed area.

2032 Undeveloped land uses are located on the rest of PCMS, otherwise referred to as the training area.
2033 Activities that occur within the training area are maneuver, dismounted, and small-arms live-fire training;
2034 recreation; and, in restricted areas, protection. Maneuver training areas comprise the majority of training
2035 land available at PCMS (Fort Carson, 2007a). To a large degree, the terrain – which varies widely from
2036 open, rolling prairies to semi-arid, basaltic hills – defines the suitability of training activities that occur
2037 within the training areas. Restricted areas protect lands that support wildlife, ecosystems, soils, facilities,
2038 and cultural resources. Varying degrees of training use are allowed in restricted areas. For example, in
2039 areas with known occurrences of buried cultural resources, digging is not permitted. Recreational uses
2040 include hunting and hunter-only camping, with some areas accessible to the public when training
2041 activities do not occur.

2042 **Surrounding Off-Post Land Use**

2043 PCMS is surrounded on three sides by land that is zoned for agricultural uses and dryland cattle grazing.
2044 The Comanche National Grassland, which is managed by the USFS, lies immediately north of PCMS and
2045 consists of undeveloped open land and recreation sites. Small communities are located near PCMS along
2046 US 350, including Model, Timpas, Thatcher, Houghton, and Delhi, all of which have populations of less
2047 than 50. Trinidad, which has a population of less than 10,000, is located approximately 40 miles
2048 southwest of PCMS, and La Junta, with a population of approximately 7,000, is located approximately 42
2049 miles northeast.

2050 **5.4.2. Environmental Consequences**

2051 **Alternatives 1 and 3**

2052 The impact from a decision to station a CAB at Fort Carson will be less than significant. Land use
2053 changes will impact internal use of military land, not use of private land. This decision will not change
2054 Fort Carson cantonment area land use, BAAF land use, or the land use at PCMS. The CAB facilities will
2055 be constructed at the ORTC site and BAAF (directly adjacent to the ORTC site) (Figure 3). No
2056 construction is planned or required at PCMS as part of this proposed alternative. Renovations to existing
2057 buildings at BAAF will also occur. The current BAAF land use and size will remain unchanged, with
2058 additional airfield-related facilities such as maintenance facilities, hangars, and office buildings for the
2059 CAB constructed within the current BAAF area. The CAB facilities footprint is planned to be
2060 approximately 574 acres (232 ha) and consists of renovated and new construction facilities. Of this total,
2061 469 acres (190 ha) is east of Butts Road and 105 acres (42 ha) is west of Butts Road. There will be no
2062 change to nonmilitary land use on Fort Carson and PCMS, such as recreation and access by tribes to
2063 cultural and natural resources. Training area land use is expected to remain unchanged; however there
2064 will be an increased frequency and intensity of use involving CAB training, including integrated training
2065 with ground maneuver BCTs. Integrated training is expected to occur on appropriate ranges at PCMS.
2066 Land acquisition is not being considered as part of this action.

2067 Effects to existing land uses will be an increase in the frequency of noise from helicopter training over
2068 current levels (see Section 5.6). An increase in the frequency of training could affect nonmilitary land
2069 uses of recreation and access by tribes to cultural and natural resources. Currently, maneuver training

2070 areas are open to recreational uses when there is no scheduled maneuver training. However, the addition
2071 of CAB training at Fort Carson and PCMS may increase the number of operating hours for maneuver
2072 training. The opportunities for access to training areas for recreation will be reduced in those areas that
2073 support recreation. Although the effect will be to reduce the availability of training areas for recreation,
2074 the increase in maneuver training will not result in conflicts with existing land use zones. Consequently,
2075 effects to land use will be less than significant. This impact to nonmilitary users will be less than
2076 significant because the primary land use of meeting the military mission will not be affected.

2077 **Alternative 2 and the No-Action Alternative**

2078 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
2079 locations. There will be no change in land use impacts due to training or construction activities associated
2080 with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the
2081 Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY
2082 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected under
2083 Alternative 2 is other than Fort Carson.

2084 **5.4.3. Cumulative Effects**

2085 Regionally, a CAB stationing at Fort Carson will not result in a change of land use or present a conflict
2086 with existing land uses in areas adjacent to the installation. The actions and construction activities
2087 resulting from stationing, if implemented, will occur within Fort Carson. Some CAB facilities will result
2088 in some training areas becoming administrative and operational use areas, a change that has no impact on
2089 the community around Fort Carson. Any reductions in undeveloped land in and around Fort Carson
2090 caused by the stationing will present minor direct, indirect, and cumulative impacts to land use. As ranch
2091 and agricultural lands within the Colorado Springs area and other communities along the Colorado Front
2092 Range continue to be sold and developed, the downrange area of Fort Carson will constitute a growing
2093 percentage of remaining open space within the region. Army programs such as ACUB both prevent land
2094 use incompatibility issues with neighboring areas, as well as slow the reduction of undeveloped or open
2095 spaces in the region. CAB stationing actions that will affect PCMS will not change existing PCMS land
2096 use classifications, and will not pose a conflict with adjacent land uses. Increased maneuver training will
2097 not result in significant cumulative impacts to land use.

2098 **5.5. Air Quality and GHG**

2099 Below contains information regarding projected air quality impacts for Fort Carson and PCMS with
2100 regards to the proposed action.

2101 **5.5.1. Affected Environment**

2102 **Fort Carson**

2103 The following paragraphs describe the NAAQS attainment status; pollutants and sources; and permits,
2104 management plans, and BMPs for Fort Carson.

2105 **NAAQS Attainment Status**

2106 Fort Carson is within the air quality control areas of El Paso, Fremont, and Pueblo counties, including the
2107 city of Colorado Springs. Both Fremont and Pueblo counties are in attainment for all criteria pollutants
2108 (EPA, 2010b). The Colorado Springs Urbanized Area in El Paso County is in attainment (meeting air
2109 quality standards) for all NAAQS criteria pollutants (PPACG, 2008a), but it was classified as a
2110 maintenance area for CO in 1999 due to a previous violation of the 8-hour CO standard in 1988. This CO
2111 maintenance area includes the majority of Fort Carson's cantonment area (north of Titus Boulevard and
2112 Specker Avenue). This designation is currently set to run through 2019 (Colorado Department of Public
2113 Health and Environment [CDPHE], 2009). In December 2009, the CDPHE approved *Revised Carbon*
2114 *Monoxide Attainment/Maintenance Plan, Colorado Springs Attainment/Maintenance Area*, the most
2115 current State Implementation Plan (SIP) for the maintenance area (CDPHE, 2009).

2116 The Colorado Springs area, to include portions of Fort Carson, may become designated as a moderate
2117 nonattainment area for the ozone (O₃) standard once the U.S. EPA finalizes its review determination.
2118 Therefore, NO_x and VOC emissions will also be scrutinized to ensure future compliance with the general
2119 conformity rule.

2120 **Pollutants and Sources**

2121 Fort Carson stationary and fugitive emission sources, in general, include boilers, high temperature hot
2122 water generators, furnaces/space heaters, emergency generators, paint spray booths, fuel storage and use
2123 operations, facility-wide chemical use, and military smoke/obscurants.

2124 Of Fort Carson's air pollutant emissions, the main generation occurs through the combustion of fossil
2125 fuels via equipment such as boilers (a stationary source) and motorized vehicles (a mobile source).
2126 Combustion products mainly include CO; NO_x; sulfur dioxide (SO₂); and particulate matter (PM), both as
2127 inhalable coarse particles (PM₁₀) and fine particles (PM_{2.5}), which is PM whose diameter is less than or
2128 equal to 10 and 2.5 micrometers (μm) respectively. Mobile source emissions (i.e., from cars, trucks, and
2129 other motor vehicles), a source of combustion products, are elevated during heavy travel times (e.g., open
2130 and close of business times). Traffic congestion typically raises the amount of CO exhaust emissions on
2131 the installation through an increase in the number of vehicles operating within a given area, as well as
2132 longer idling times due to vehicles sitting in traffic.

2133 PM_{2.5} is formed mostly in the atmosphere when gases from motor vehicles and industrial activities
2134 undergo chemical reactions. PM₁₀ is directly emitted into the atmosphere from crushing or grinding
2135 operations, dust from construction sites, landfills, agriculture, wildfires and brush/waste burning,
2136 windblown dust from open lands and unpaved roads, etc. Tank and other military vehicle maneuvers on
2137 unpaved roads downrange contribute to PM emissions. PM emissions also occur from Fort Carson
2138 prescribed burn operations, a process that targets areas vulnerable to spontaneous fires due to range
2139 operations and areas with heavy natural fuel buildups in order to reduce the potential of wildfires.

2140 VOCs and HAPs from Fort Carson operations largely result from painting and coating activities, fuel
2141 storage, fuel operations, and chemical usage. To a lesser extent, landfill-related emissions, military
2142 training activities, and fire training activities emit VOCs and various HAPs.

2143 The source sectors generating the greatest amount of air pollutants in El Paso, Fremont, and Pueblo
2144 counties, cumulatively (the counties in which Fort Carson is located), are on-road vehicles, nonroad
2145 equipment, electricity generation, residential wood combustion, miscellaneous, road dust, industrial
2146 processes, solvent use, and fossil fuel combustion (EPA, 2010a).

2147 **Permits, Management Plans, and Best Management Practices**

2148 Fort Carson manages its air emissions per regulatory requirements, management plans, and BMPs. Key
2149 among these is its CAA Title V operating permit (No. 95OPEP110). This type of permit is required of
2150 facilities located in an attainment area with the potential to emit (i.e., the maximum emissions a facility
2151 could emit given physical, enforceable, and permitting constraints) more than 100 tons per year (tpy) of a
2152 criteria pollutant. A Title V permit limits the amount of pollutants from significant emission sources in
2153 various ways, depending on the source type (e.g., restricting operating hours, fuel type, throughput
2154 amount, and emission rates). As a major Title V source, Fort Carson must submit a permit application for
2155 renewal every five years. The current permit was received July 2007. Any net increase of criteria
2156 pollutants that will result in a “major modification” will subject Fort Carson to the PSD review
2157 requirements (40 CFR §52.21). As part of Fort Carson’s Title V operating permit, the installation is
2158 permitted as a minor (area) source of HAPs as it does not emit more than eight tons of any single HAP (of
2159 186 regulated HAPs) or 20 tons of total HAPs per year. Also of note, the permit limits use of smoke
2160 munitions and the generation of fog oil smoke for training exercises, activities that are typically unique to
2161 the military.

2162 Prescribed fire is used as a management tool at Fort Carson to support the installation’s readiness mission
2163 and ecosystem health. Fort Carson prepared and submitted a *Prescribed Fire Planning Document* to
2164 CDPHE in 2003, which expires every 10 years based on Colorado Air Quality Control Commission
2165 (AQCC) Regulation No. 9 (CDPHE, 2008b). This regulation requires significant users (those who own or
2166 manage more than 10,000 acres (4,047 ha) per year and plans to use prescribed fire that will generate
2167 more than 10 tons of PM₁₀) to submit a planning document. Fort Carson maintains a burn permit to carry
2168 out prescribed burning activities. It is estimated that air emissions from prescribed burning included N₂O,
2169 CO₂ and methane (CH₄) as primary emissions that contributed an estimated 349.77 tons of GHG
2170 equivalents of CO₂ in 2009.

2171 Annually, Fort Carson staff prepares the CDPHE and El Paso County prescribed burn permit applications
2172 in the first quarter and submits the applications to the respective regulatory agency. The required
2173 notifications are filed with the State prior to and after each burn. The State then invoices Fort Carson each
2174 year for the previous year’s actual acreage of burns and subsequent PM emissions.

2175 Also, Fort Carson has an *Integrated Wildland Fire Management Plan* “to reduce wildfire potential,
2176 effectively protect and enhance valuable natural resources, integrate applicable State and local permit and
2177 reporting requirements, and implement ecosystem management goals and objectives on Army
2178 installations.” This plan must be updated annually and revised at a minimum once every five years.
2179 Constant monitoring occurs during each prescribed burn to ensure that air quality and safety, among other
2180 concerns, are not compromised.

2181 The *Fort Carson Fugitive Dust Control Plan* (Fort Carson, 2004a) was established, per Colorado AQCC
2182 Regulation No. 1 (CDPHE, 2007a), as part of a State enforceable BMP to minimize dust impacts to air
2183 quality. The plan was approved by the CDPHE in August 2005. The plan calls for implementing
2184 measures “to avoid off-property transport and to ensure the associated visible emissions do not exceed
2185 20% opacity or create a nuisance problem” (Fort Carson, 2004a).

2186 Fort Carson oversees numerous air quality related permits, in addition to the Title V operating permit, that
2187 are required prior to conducting any activity requiring such a permit. These permits, whether obtained by
2188 the Garrison or project proponents, include CDPHE/El Paso land development permits for excavation,
2189 land clearing, road grading, and construction activities (depending on the size and duration of the project);
2190 and permits for open burning, demolition, abrasive blasting, and asbestos. Additionally, Fort Carson
2191 oversees the filing of any reports or notifications required by air quality regulations, including, for
2192 example, the filing of notifications with the State prior to and after each prescribed burn.

2193 **Piñon Canyon Maneuver Site**

2194 **NAAQS Attainment Status**

2195 PCMS is within the air quality control area of Las Animas County, which is in attainment for all NAAQS
2196 (EPA, 2010b). As a result, the General Conformity Rule does not apply and PCMS is not subject to the
2197 Nonattainment New Source Review (NNSR) permitting program. PCMS is a minor stationary source
2198 under the PSD program, but there is no requirement for a PSD analysis for PCMS, because it’s located in
2199 an attainment area and it’s not a major source of air pollutants under the provisions of the CAA.

2200 **Pollutants and Sources**

2201 Due to the maneuver training mission of Fort Carson, there are similarities between Fort Carson and
2202 PCMS in their air pollutants and sources. But, as evidenced in the Fort Carson cantonment area being
2203 more than three times larger than the cantonment area at PCMS, there are also dissimilarities. PCMS
2204 stationary and fugitive emission sources, in general, include boilers, furnaces/space heaters, fuel storage
2205 and use, military smoke/obscurants, prescribed burning, and fugitive dust from training activities (i.e.,
2206 vehicle maneuvers and convoys on unpaved roads/areas). The major sources of PM emissions on PCMS
2207 arrive from burning and training exercises. These emissions contribute to inhalable PM emissions that
2208 have the potential to limit visibility and impact health. The combustion of fossil fuels in equipment, such
2209 as boilers and generators does not substantially contribute to the emissions generated at PCMS.

2210 The source sectors generating the greatest amount of air pollutants in Las Animas County, the county in
2211 which PCMS is located, are on-road vehicles, nonroad equipment, fossil fuel combustion, and road dust
2212 (EPA, 2010a).

2213 Vehicle exhaust is the major source for VOCs, NO_x, and SO₂. Combustion from wildfires is the major
2214 source for CO. And fugitive dust from unpaved roads is the major source for PM₁₀.

2215 **Permits, Management Plans, and Best Management Practices**

2216 Due to PCMS's location in an attainment area and its potential to emit less than 250 tpy, the facility only
2217 has two construction permits. Construction permit No. 96LA1082 (CDPHE, 2007b) limits the generation
2218 of DoD-approved obscurants for training exercises and No. 04LA0772 (CDPHE, 2006) is for a 20,000-
2219 gallon gasoline underground storage tank (UST) and its associated dispensing operation. All other
2220 stationary sources are exempt from filing Air Pollutant Emission Notices per Colorado AQCC Regulation
2221 No. 3 (CDPHE, 2008a) and PCMS remains an area source of HAPs.

2222 With PCMS being managed by Fort Carson, prescribed burns are managed by and under the same
2223 planning and management documents, with appropriate permits obtained, as those regulations and plans
2224 applicable to Fort Carson (see above). The prescribed burn activity is responsible for the majority of
2225 PCMS's CO emissions.

2226 Though it is not required for PCMS to have a State-enforceable plan, the above-mentioned *Fort Carson*
2227 *Fugitive Dust Control Plan* (Fort Carson, 2004a) is followed as a BMP to minimize dust impacts to air
2228 quality.

2229 **5.5.2. Environmental Consequences**

2230 **Alternatives 1 and 3**

2231 Air quality impacts will occur from the construction and operation of stationary sources for the CAB
2232 facilities and the associated tactical equipment sets and weapons systems involved in training CAB units.
2233 Air emissions from construction activities at Fort Carson will include construction traffic and equipment
2234 and will be temporary in nature. Air quality impacts at Fort Carson and PCMS will be attributable to
2235 fugitive dust emissions connected with CAB training activities and SO_x from burning diesel fuels, like
2236 JP8, associated with CAB operations. Operations of the CAB (excluding the above-mentioned training)
2237 will result in air emissions from boilers, emergency generators, equipment maintenance, and traffic from
2238 employees and deliveries. Significant but mitigable impacts are projected at Fort Carson.. Impacts to air
2239 quality at PCMS are projected to be less than significant. Both locations will remain in compliance with
2240 existing air quality permits (Fort Carson, 2009). No violations of NAAQS are expected to result from
2241 CAB stationing.

2242 Air quality impacts will occur as a result of an increased number of privately-owned vehicles in the
2243 region. Using traffic estimates from Section 5.12 and Appendix D, estimated emission levels potentially
2244 caused by the privately-owned vehicles of CAB Soldiers at Fort Carson were calculated (Table 12);
2245 however, this increase is not expected to cause a significant impact.

2246

2247 **Table 12. Estimated Annual Vehicle Emissions Generated from Increased Population brought on**
 2248 **by a CAB Stationing**
 2249

Emission Per Mile		Total Emissions	
Emission	Pounds Per Mile	Pounds	Tons
CO	0.00765475	522,238	261.1
NOx	0.00077583	52,930	26.4
VOC	0.00079628	54,325	27.1
Sox	0.00001073	732	0.4
PM ₁₀	0.00008979	6,126	3.1
PM _{2.5}	0.00005750	3,923	2.0
CO ₂	1.10152540	7,5150,468	37,575.2
CH ₄	0.00007169	4,891	2.4

2250
 2251 With increased training, there is a risk that there may be an increase in fires, which emit PM₁₀. If
 2252 additional fires occur, they are not expected to impact any PSD Class I areas. Effects to air quality will be
 2253 temporary and are not expected to cause significant opacity effects outside Fort Carson or PCMS
 2254 boundaries.

2255 Additionally, combustion of JP8 fuel by helicopters will generate 163.57 tons of CO, 13.64 tons of NO₂,
 2256 4.71 tons of PM₁₀/PM_{2.5}, 4.75 tons of SO₂, and 133.15 tons of VOCs annually during training exercises.

2257 As the CAB facilities are to be located outside of Fort Carson’s main cantonment area, they are not in a
 2258 CO maintenance area. This CAB stationing is expected to have indirect impacts on the CO maintenance
 2259 area by employees and their transportation activities, but no significant degradation is anticipated. Fort
 2260 Carson is currently classified as a major stationary source as are its boilers and hot water generators. Fort
 2261 Carson demonstrated conformity in its Clean Air General Conformity Analysis and documented a Clean
 2262 Air Act, Section 176(c) General Conformity Record of Nonapplicability, both of which are in Appendix
 2263 C Fort Carson’s *Grow the Army* FEIS (Fort Carson, 2009). This analysis included the CAB. Also
 2264 documented in Appendix C of the Fort Carson FEIS, the installation demonstrated that proposed CAB
 2265 activities will not be subject to the PSD permitting requirements under NSR regulations.

2266 As mentioned above, EPA is expected to announce a new attainment standard that may result in the
 2267 Colorado Springs area, to include portions of Fort Carson, becoming designated as a moderate

2268 nonattainment area for O₃. If this occurs, NO_x and VOC emissions will be scrutinized to ensure future
2269 compliance with the general conformity rule.

2270 Fort Carson is currently developing a fugitive dust management plan at the request of the CDPHE. The
2271 plan describes all of the fugitive dust sources and the technologically feasible and economically
2272 reasonable control measures and operating procedures that can be used to minimize dust on Fort Carson
2273 and PCMS. The goal of the plan and its implementation are to avoid creating visible emissions that are in
2274 excess of 20 percent opacity, or having any visible emissions go beyond the installation's boundaries
2275 creating a nuisance dust problem. Control of fugitive dust is regulated by the AQCC Regulation No. 1.
2276 Fort Carson is in the process of finalizing its fugitive dust management plan. Measures for fugitive dust
2277 mitigation proposed in the draft plan include restricting traffic speeds and flow over unpaved areas, use of
2278 water for short-term surface stabilization, and chemical stabilization for long term mitigations. Fort
2279 Carson staff, contractors, and Soldiers will implement these measures to avoid off-property transport of
2280 fugitive dust and to ensure the associated visible emissions do not exceed 20 percent opacity or create a
2281 nuisance problem. Additionally, this plan will serve as a planning tool that can be incorporated into
2282 project design and construction phases to help reduce fugitive dust emissions on Fort Carson and PCMS.
2283 The implementation of these mitigation measures and others outlined in the plan will ensure that impacts
2284 reduced to a less than significant level at each location.

2285 For GHG and climate change, a rough estimate of the carbon emissions from CAB operations can be
2286 obtained by taking the hours that will be flown by the aircraft, determining the gallons of fuel to be used,
2287 and thereby determining the likely annual emissions (Table 13).

2288

2289 **Table 13. Direct GHG Emissions from Aviation Asset Flight Operations Emissions Factor Data¹**

	Carbon Dioxide	Nitrous Oxide ²	Methane ²
EEF (LBS/GAL)	21.09	0.000683422	0.000595238
GWP ³	1	310	21

GHG Emission Calculations									
Group ID	Airframe Type	Total Annual Operational Time (hrs)	Max. Rated Fuel Use (lbs/hr)	Fuel Type	Fuel Density (lbs/gal)	Annual Fuel Use (gal)	CO ₂ (tpy)	N ₂ O (tpy)	CH ₄ (tpy)
1	UH-60	5,388	1,200	JP-8	6.7	965,014.93	10,176.1	0.3	0.3
2	AH64-D	10,420	1,200	JP-8	6.7	1,866,268.66	19,679.8	0.6	0.6
3	OH-58D	7,041	320	JP-8	6.7	336,286.57	3,546.1	0.1	0.1
4	UH-60	1,638	1,200	JP-8	6.7	293,373.13	3,093.6	0.1	0.1
5	CH-47	2,370	2,200	JP-8	6.7	778,208.96	8,206.2	0.3	0.2
6	15 UH-60	3,142	1,200	JP-8	6.7	562,746.27	5,934.2	0.2	0.2
Total Tons =							50,636.0	1.6	1.4
Total Annual GHG Emissions as CO_{2e} = 51,174.7 tons									

CO_{2e} = Carbon Dioxide Equivalents¹

Source: Meister, 2010

NOTE:

1. Emissions factors calculated from data in: (1) Energy Information Administration, Documentation for Emissions of GHG in the U.S. 2005, DOE/EIA-0638 (2005), October 2007, Tables 6-1, 6-4, and 6-5.
2. Source: U.S. EPA. Inventory of U.S. GHG Emissions and Sinks: 1990-2005, EPA 430-R-07-002, Annex 3.2, (April 2007), web site: <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>. Units converted from g/gal to lbs/gal.
3. GWP of gases (100-year time horizon) from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (SAR).

2290

2291 In addition to GHG impacts from helicopter training it is estimated that the tactical ground vehicles of the
 2292 CAB will use approximately 148,400 gallons of JP-8 fuel annually. This will be estimated to contribute
 2293 up to an additional 10,608 tons of CO_{2e} per year given a high use scenario for these vehicles and assuming
 2294 they are not deployed and training at home station.

2295 Section D.6 of Appendix D in this PEIS discusses the transportation impacts of CAB stationing. This
2296 appendix predicts that the addition of CAB Soldiers and their Families will be expected to increase
2297 vehicle miles driven in and around the installations by 70,750,880 miles at each location annually.
2298 Assuming a privately owned vehicle fleet fuel efficiency average of approximately 24 miles per gallon, an
2299 additional combustion of approximately 2,947,950 gallons of gasoline will be expected to result in an
2300 additional 26,207 tons of CO equivalents according to calculations and conversions used by the EPA
2301 (www.epa.gov/cleanenergy/energy-resources/calculator.html).

2302 The cumulative impact from combustion of fossil fuels for tactical and privately owned vehicles, when
2303 combined, is anticipated to result in the release of an additional 87,989.7 tons of CO₂ GHG equivalents.
2304 This estimate includes additional use of helicopters, ground support vehicles and indirect impacts of
2305 commuter traffic. These GHG impacts will only be realized on a global scale if a new CAB is added to
2306 the Army's force structure, and not in the case that existing units are realigned to form the CAB.

2307 It is recognized that additional energy for homes and offices will also increase the amount of GHGs
2308 produced as part of this action. Fort Carson is aggressively working towards installation sustainability
2309 goals IAW Department of the Army (DA) and DoD policy. For example, Fort Carson has an ambitious
2310 sustainability goal to obtain 100 percent of its energy needs from renewable energy sources by 2027. This
2311 goal exceeds Colorado's Climate Action Plan which articulates a goal of reducing GHG emissions 20
2312 percent below 2005 levels by 2020 and 80 percent below 2005 levels by 2050. The installation already is
2313 using a few building that use ground source heat pumps to meet all of the building's heating and cooling
2314 needs. Currently, electricity and natural gas account for 99 percent of all scope 1 and 2 emissions for the
2315 installation and the goal is to drastically reduce these contributions. In efforts to meet EO objectives as
2316 well as State and Federal regulations for renewable energy use, Fort Carson is working toward deriving a
2317 much larger amount of their energy from renewable sources in the next decade.

2318 For a CAB to be formed by consolidating existing units, there should be no net gain of carbon emissions.
2319 The aircraft are already flying somewhere and adding these carbon emissions to the global mix. For a
2320 CAB to be built, the emissions will be added to the global production of GHG. To put this in perspective,
2321 the 87,989.7 tons of CO₂^e represent 0.000013 percent of the U.S. emissions total. In this case, this is not a
2322 significant increase, but it does add to the global GHG emissions and therefore could contribute to the
2323 climate change phenomenon.

2324 If a new CAB is stationed at Fort Carson, it will contribute GHGs to the earth's atmosphere by adding
2325 vehicles, personnel, facilities, and their associated emissions. The global concentration of CO₂ in our
2326 atmosphere today far exceeds the natural range over the past 650,000 years. Global surface temperatures
2327 have increased about 33.33° Fahrenheit (0.74° Celsius) (plus or minus 32.32° Fahrenheit [0.18° Celsius])
2328 since the late 19th century.

2329 The increase in GHGs adds to the risk of changing climate, affects of which could include changes in
2330 species distribution, species viability, increased flooding, higher sea levels, population displacement, and
2331 increased risk of drought and desertification. For example, global climate change will have combined
2332 effects on the PCMS area because of continuing long-term drought. Changing patterns of precipitation
2333 could accompany climate change. PCMS could end up drier than its current state.

2334 The direct and cumulative impacts of implementing this decision will not contribute significantly to the
2335 degradation of air quality in the region and will not require General Conformity mitigation, PSD
2336 permitting, or produce violations to air quality.

2337 **Alternative 2 and the No-Action Alternative**

2338 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
2339 locations. There will be no change in air quality impacts due to training or construction activities
2340 associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions,
2341 Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start
2342 of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected
2343 under Alternative 2 is other than Fort Carson.

2344 Prescribed burn activities are anticipated to increase slightly over the next few years, dependent on
2345 uncontrollable climate factors, such as drought and meteorological conditions. The installation will
2346 continue to adhere to the regulatory requirements for Fort Carson and PCMS, ensuring conditions are
2347 acceptable for prescribed fires, and air quality is not compromised (CDPHE, 2008b).

2348 **5.5.3. Cumulative Effects**

2349 Fort Carson completed a conformity applicability and PSD analysis that included potential CAB
2350 stationing scenarios. Cumulative emissions from construction projects are unlikely to lead to a violation

2351 of the NAAQS, because regional concentrations will have to double over the existing emissions to
2352 approach the regulatory threshold. The amount of emissions increase anticipated during construction,
2353 operations, and military training is not anticipated to have a significant adverse cumulative effect, and
2354 violations of NAAQS are not anticipated. Existing and foreseeable development within and surrounding
2355 PCMS is anticipated to be limited, causing a low chance of additional sensitive receptors or sources of air
2356 pollutants. Cumulatively, the projected increase in training maneuvers at PCMS resulting from the need
2357 to train more Soldiers is expected to create less than significant impacts. Fort Carson's air program (to
2358 include PCMS) has been implementing various initiatives to address air quality issues, like minimizing
2359 criteria and HAP emissions from stationary sources on the installation and reducing fugitive dust
2360 emissions.

2361 The USAF has recently proposed the establishment of a Low Altitude Tactical Navigation (LATN) area
2362 in northern New Mexico and southern Colorado. The LATN will provide airspace to operate C-130 and
2363 CV-22 aircraft for training purposes. The LATN will allow the USAF to train aircrew members and
2364 conduct military flight activities which may include, but are not limited to, air combat maneuvers and low
2365 altitude tactics. The USAF will remain in compliance with FAA regulations and provisions governing
2366 airspace use in the LATN, including maintaining minimum flight altitudes of 1,000 feet AGL around
2367 developed areas. The LATN will provide training airspace for USAF Special Operation Forces at Cannon
2368 AFB. Cannon AFB is located in eastern New Mexico approximately five miles west of the city of Clovis.
2369 The training will consist of approximately three sorties per 24-hour period, or approximately 688 flights
2370 annually. Aircraft altitudes will remain between 200 and 3,000 feet AGL, with the majority of the sorties
2371 taking place at 500 feet AGL at airspeeds at or below 250 knots.

2372 The USAF LATN proposal for use of low altitude airspace for military training will cumulatively
2373 increase air emissions in southern Colorado in conjunction with the Army's CAB stationing proposal if
2374 Fort Carson were selected for CAB stationing. Cumulatively, the USAFs proposal is not anticipated to
2375 contribute to fugitive dust issues that may be associated with helicopter use of PCMS, as flight altitudes
2376 of the USAF proposal will preclude such impacts. Emissions from the combustion of aircraft fuel will
2377 include NO_x, as well as other criteria pollutants, and select HAPs typically associated with the
2378 combustion process. The proposal will contribute GHGs to the atmosphere, as well, which will be
2379 quantified and assessed by the USAF in the future. The USAF continues to work to assess the air quality
2380 and other environmental impacts as they refine the LATN proposal and associated number of flight hours

2381 that will occur as part of the proposal. Cumulatively, when considering the LATN proposal in conjunction
2382 with CAB stationing impacts at Fort Carson and PCMS, impacts are anticipated to be less than significant
2383 given the low number of sorties and wide geographic area covered by the USAF proposal.

2384 **5.6. Noise**

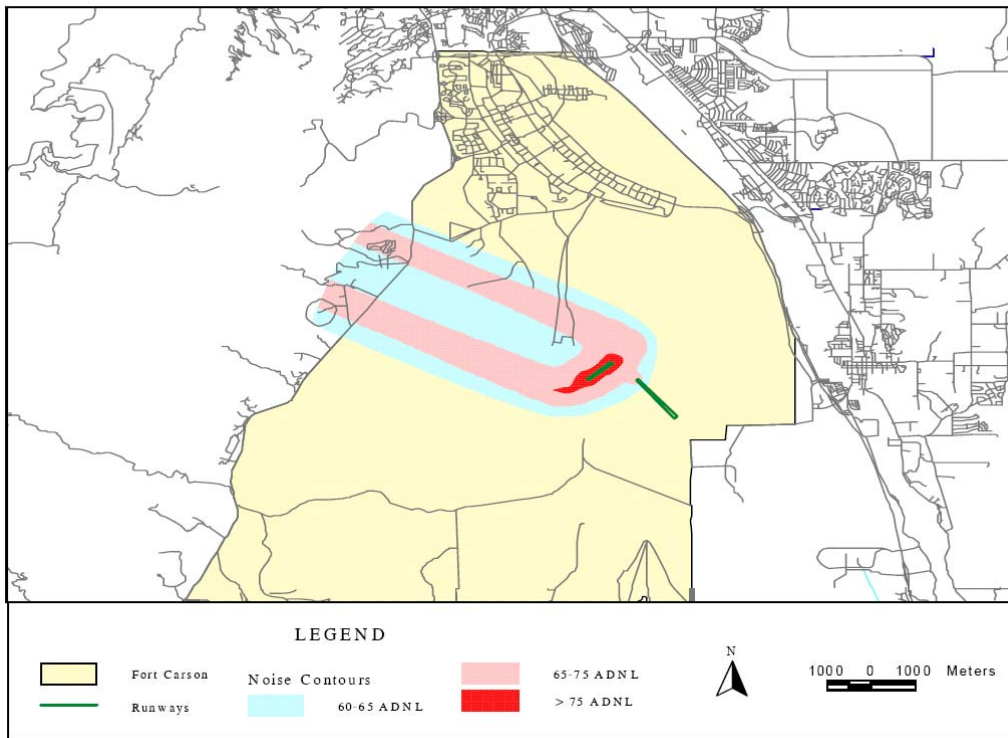
2385 Potential noise impacts related to the stationing of a CAB at Fort Carson are discussed in the following
2386 section.

2387 **5.6.1. Affected Environment**

2388 **Fort Carson**

2389 Noise-sensitive areas adjacent to Fort Carson include Cheyenne Mountain State Park to the west;
2390 Colorado Springs to the north and west; and Security, Widefield, and Fountain to the east. Other noise-
2391 sensitive areas include Turkey Canyon Ranch and Red Rock Valley Estates along the western boundary
2392 and El Rancho and Midway Ranch along the eastern boundary. Noise-sensitive locations near the
2393 southern boundary of Fort Carson include the communities of Penrose and Pueblo West, which are
2394 located to the southwest and southeast, respectively. Noise-sensitive areas within Fort Carson are
2395 primarily located within the cantonment area, which is where a majority of family housing, schools, office
2396 space, and child development centers are located.

2397 Sources of noise associated with Fort Carson include aircraft and traffic as well as large- and small-
2398 caliber weapons. The primary sources of noise are the firing of weapons, specifically large-caliber
2399 weapons such as artillery and tank main guns, as well as the operation of military aircraft at BAAF.
2400 Secondary sources of noise include motor vehicle traffic, consisting of cars, trucks, and tracked vehicles.
2401 Fort Carson noise contour data is in Appendix D of Fort Carson's *Grow the Army* FEIS (Fort Carson,
2402 2009), and a copy of the addendum for a CAB (also in Fort Carson's FEIS appendix) is provided in
2403 Appendix B of this PEIS. Noise contours extend beyond the installation boundary at BAAF (Figure 7).



2404

2405

Source: Fort Carson Noise Management Plan, 2006

2406 **Figure 7. BAAF Noise Contours**

2407 Fort Carson operates IAW the *Installation Environmental Noise Management Plan, Fort Carson, CO*
 2408 (U.S Army Environmental Center [AEC], 2006) and Fort Carson Regulation 95-1, *Aviation : Local*
 2409 *Flying Rules and Procedures* (Fort Carson, 2010c). The Environmental Noise Management Program
 2410 (ENMP) (formerly known as the Installation Compatible Use Zone Program) outlines the policies and
 2411 procedures for managing and limiting noise impacts to the surrounding communities. Fort Carson
 2412 Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel, including
 2413 minimum off-post altitudes, minimum slant range distances from sensitive areas. and restricted areas. Fort
 2414 Carson also has established policies and procedures related to noise complaints.

2415 Efforts to reduce potential noise impacts of military activities on surrounding communities include the
 2416 ACUB activities mentioned in Section 5.4.1.

2417 Helicopters routinely fly from Fort Carson to PCMS, though not all aircraft will fly the same pattern or
2418 route. However, all aircraft will comply with the local flying rules per Fort Carson 95-1 and AR 95-1, as
2419 well as all FAA guidelines under 14 CFR 91.155 for visual flight rules and AC 91-36D VFR operations
2420 for noise-sensitive areas. All aircraft will avoid over-flight of heavily inhabited areas and endangered
2421 species designated areas unless directed to do so in the performance of their mission. For Fort Carson and
2422 Colorado Springs, this means all rotary-wing aircraft will maintain a minimum of 1,000 feet (304.8 m)
2423 AGL, and 0.25 mile (0.4 km) standoff outside Fort Carson while flying through the mountain passes until
2424 clear of inhabited areas (weather permitting), unless they are operating in a designated low-level or Nap-
2425 of-the-Earth (NOE) training route (further discussed in this section with Route Hawk map in Appendix
2426 B). Special Use Permits and designated Landing Zones will be preapproved and coordinated through the
2427 USFS and U.S. Department of Agriculture (USDA) for current and future training events (Mullins, 2010).

2428 **Piñon Canyon Maneuver Site**

2429 Noise-sensitive locations adjacent to PCMS consist of a limited number of residences around the
2430 installation periphery. Although the population within the project area is increasing, the human presence
2431 within the project area remains low. No other noise-sensitive areas are located adjacent to the maneuver
2432 site.

2433 The primary sources of noise at PCMS originate from short-term military training exercises at the small-
2434 caliber weapons ranges and from military aircraft operations at the combat assault landing strip by C-130
2435 aircraft. Large-caliber weapons are not used at PCMS. The vast majority of live-fire weapons
2436 qualification takes place at Fort Carson.

2437 Compatible-use-zone noise contours generated for the Combat Assault Landing Strip at PCMS and a
2438 supplemental annoyance buffer for the NOE flight corridor (e.g., where helicopter flight is very close to
2439 the ground surface) are on pages B-28 and B-29 in Appendix B. Although the NZ II and NZ III contours
2440 for the Combat Assault Landing Strip are contained within the installation boundary, there is the potential
2441 for aircraft to cause annoyance while entering or exiting the airspace. The two proposed Combat Landing
2442 Strips, identified on page B-30 of Appendix B, do not exist and are no longer being considered for
2443 construction by Fort Carson. Using a 0.25-mile-wide buffer on either side of the NOE flight corridor, the
2444 supplemental annoyance buffer extends past the installation boundary for a maximum of 0.25 mile. It
2445 should be noted that the 0.25-mile buffer does not surround the entire installation, because the NOE flight

2446 corridor does not follow the full length of the installation boundary, but rather is located at varying
2447 distances from the boundary.

2448 During all training operations at PCMS, units undergo resource protection and stewardship training,
2449 including procedures that alleviate their noise impacts, such as the adherence to aviation rules.

2450 Fort Carson policies regarding noise abatement and noise complaints are also applicable to PCMS.

2451 **5.6.2. Environmental Consequences**

2452 **Alternatives 1 and 3**

2453 The addition of CAB facilities at the ORTC and adjacent BAAF will be short term in duration and
2454 construction does not generate the peak noise levels (as do large-caliber weapons) that could be exceeded
2455 15 percent of the time. Consequently, the increase in noise associated with construction of new facilities
2456 will be less than significant.

2457 The addition of a CAB to the existing BAAF activity will be acoustically insignificant to the noise
2458 contours (U.S. Army Center for Health Promotion and Preventative Medicine [CHPPM], 2008a). The
2459 BAAF runway extension of 1,500 feet (472 m) that is programmed for FY 2016 will be to the southeast,
2460 where off-post land use is industrial and heavy commercial (Benford, 2010). The FY 2016 runway
2461 improvements are expected to result in widening the runway from 75 feet (23 m) to 100 feet (30.5 m). Per
2462 Section 2.3, the additional flight operations resulting from a CAB stationing at Fort Carson will increase
2463 Fort Carson and PCMS air time by an annual average of 24,800 flying hours. As detailed in Section 2.5.4,
2464 it is estimated that up to one third of total estimated CAB flight time (see Tables 3 and 4) may occur at
2465 PCMS. As of the end of FY10, Fort Carson (to include PCMS) had a total of 17,223 flying hours.

2466 Preliminary plans exist, that may be altered, for a child development center and chapel to be built north of
2467 Wilderness Road near the proposed CAB facilities; both are noise sensitive uses that will be impacted by
2468 CAB operations out of BAAF. Currently, funding has not been appropriated for either facility.

2469 The addition of a CAB will increase the frequency of aerial maneuver training at Fort Carson and
2470 between Fort Carson and PCMS. (See Appendix B for the flight path established for the purpose of
2471 conducting both day and night low-level tactical navigation operations between Fort Carson and PCMS.)

2472 Even with this increase, peak noise levels will remain the same and the noise contours will not change
2473 from the current noise modeling predictions. There is a potential that individual overflights of aircraft
2474 using the airspace at Fort Carson and PCMS may cause some limited additional disturbance to those
2475 living nearby. However, Fort Carson Regulation 95-1's minimum flight altitudes and stand-off distances
2476 imposed for NOE operations will greatly reduce this potential.

2477 Noise impacts from CAB activities potentially affecting large mammals and birds are expected to be less
2478 than significant. Deer and pronghorn respond to military training, i.e., CAB vehicles and helicopter
2479 maneuvers, by increasing or contracting home range size and moving out of their normal home range
2480 (Gerlach and Vaughan, 1990; and Stephenson et al., 1989). Pronghorn habituation to vehicles, aircraft
2481 noise, and visual stimuli was observed at PCMS during research conducted in the 1980's (Andersen and
2482 Rosenlund, 1991). Fort Carson, in partnership with University of Colorado, Colorado Springs, and the
2483 USAF Academy is conducting research investigating the relationship between training and deer on the
2484 installation. Results of this research will be used to establish additional mitigation management.

2485 Response to continuous ambient noise can affect bird communities by reducing species richness (Francis
2486 2009) and potentially affect individual species. However, whether noise can be isolated as a source of
2487 disturbance independent of other factors is not clearly demonstrated (Dooling et al 2007). Nesting birds,
2488 including raptors are subjected to various types of disturbance associated with military training, including
2489 helicopter overflights. Helicopter overflights are common on Fort Carson and during training rotations at
2490 PCMS. However, Fort Carson breeding bird communities in the major habitats (grasslands and pinyon-
2491 juniper) is equal to or greater than similar sites in the region (personal communication, Rick Clawges;
2492 personal observation, Richard Bunn). Both Fort Carson and PCMS have large expanses of unfragmented
2493 and vegetatively diverse communities supporting diverse bird communities. Fort Carson is currently
2494 monitoring grassland nesting bird communities to evaluate species persistence in training areas. The
2495 primary species of interest are FWS Species of Conservation Concern (FWS, 2008). Burrowing owl
2496 colony occupation and site disturbance data are collected annually for evaluating persistence within the
2497 military training environment. Stationing of the CAB will not qualitatively change associated impacts.
2498 However, frequency of overflights will increase. Fort Carson will continue to monitor persistence of bird
2499 nesting species. The effects of CAB stationing will be negligible on nesting birds.

2500 Andersen et al., evaluated low-level helicopter flights over nesting red-tailed hawks at PCMS, concluding
2501 the species habituated to overflights (Andersen et al., 1989). Delaney et al. (1999) found 105 m to be the
2502 distance at which Mexican spotted owls flushed when approached by a Sikorsky HH-60G military
2503 helicopter, but this minimum distance is a product of aircraft type and prevailing conditions at their study
2504 site. In a Utah study, golden eagles were found not to require special management considerations in areas
2505 with frequent overflights by private and military helicopters (Grubb et al., 2010).

2506 In 2008, Swainson's hawks nested and fledged three juveniles just outside the BAAF fence at site
2507 subjected to hundreds of low-level helicopter overflights (April Estep, personal communication). Prior to
2508 prairie dog control, bald and golden eagles were observed frequently throughout the winter for several
2509 years within the BAAF Aircraft Operations Area (AOA) and Small Arms Ranges, indicating habituation
2510 to live fire and helicopter overflights. Red-tailed, Swainson's, and Ferruginous hawks are frequently
2511 observed within the BAAF AOA, indicating habituation to live fire and helicopter overflights. Great
2512 horned owls roost in hangars and on ledges of hangars and other airfield buildings, indicating habituation
2513 to live fire and helicopter overflights. On Fort Carson, red-tailed hawks nested several years inside a
2514 Small Arms Range on Fort Carson and became habituated to the noise generated on the range (Richard
2515 Bunn, personal observation). Raptor response to helicopter overflights and noise are varied, resulting in
2516 habituation by some individuals. The effects of helicopter overflights on nesting raptors will be
2517 negligible.

2518 **Alternative 2 and the No-Action Alternative**

2519 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
2520 locations. There will be no change in noise impacts due to training or construction activities associated
2521 with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the
2522 Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY
2523 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected under
2524 Alternative 2 is other than Fort Carson.

2525 **5.6.3. Cumulative Effects**

2526 Noise contours will not change significantly as the result of a CAB stationing at Fort Carson. That being
2527 said, an adverse cumulative impact could result from the increased duration and frequency of training as

2528 single noise events generated by CAB training will have the potential to generate a cumulative noise
2529 impact greater than the marginal increases in average weighted noise level contours. A CAB stationing
2530 will not result in a significant adverse change to noise outside Fort Carson. There will be an increase in
2531 frequency of aerial maneuver training between Fort Carson and PCMS, but the low number of operations,
2532 minimum flight altitudes, and stand-off distances imposed for NOE operations is expected to make the
2533 cumulative noise impact less than significant. A significant cumulative, but temporary, increase in noise
2534 generating activities within Fort Carson could occur from construction activities for CAB facilities due to
2535 the high level of additional construction activities already taking place at the fort.

2536 Currently, the Army utilizes 16 landing zone sites in the Pike and San Isabel National Forests for
2537 mountain/high altitude training of Army aviation units preparing for deployment to rugged, high elevation
2538 areas such as Afghanistan. In October, 2007, the Army published the *Environmental Assessment for the*
2539 *Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training* (Fort
2540 Carson, 2007b). As discussed in this EA, sites in the National Forest are utilized an average of three to
2541 four times per week annually, though this varies from week to week based on weather, aircraft
2542 availability, use restrictions, and other factors. The average training event lasts for about 15 minutes.
2543 Aviation units from across the Army, not just at Fort Carson, conduct training on these National Forest
2544 System lands. Should a CAB be stationed at Fort Carson, there will be no change in the use of these areas
2545 from what was analyzed in the 2007 EA. In addition to aviation training at San Isabel and Pike National
2546 Forests, a transient aviation unit from Fort Hood has recently developed an agreement with the Bureau of
2547 Land Management (BLM) for the short-term use of BLM lands in the vicinity of Canyon City. This
2548 agreement allows the unit to use 20 landing zones for training of aircraft prior to their deployment. This
2549 type of short-term usage of BLM lands around Canyon City by transient units has occurred in the past and
2550 may continue intermittently in the future.

2551 As mentioned in Section 5.5.3, the USAF has also recently proposed the establishment of a LATN area in
2552 northern New Mexico and southern Colorado. The LATN will provide airspace to operate C-130 and CV-
2553 22 aircraft for training purposes. The LATN will allow the USAF to train aircrew members and conduct
2554 military flight activities, which may include, but are not limited to, air combat maneuvers and low altitude
2555 tactics. The USAF will remain in compliance with FAA regulations and provisions governing airspace
2556 use in the LATN, including maintaining minimum flight altitudes of 1,000 feet AGL around developed
2557 areas. The LATN will provide training airspace for USAF Special Operation Forces at Cannon AFB.

2558 Cannon AFB is located in eastern New Mexico approximately five miles west of the city of Clovis. The
2559 training will consist of approximately three sorties per 24-hour period, or approximately 688 flights
2560 annually. Aircraft altitudes will remain between 200 and 3,000 feet AGL, with the majority of the sorties
2561 taking place at 500 feet AGL at airspeeds at or below 250 knots.

2562 Given the limited frequency of use and short duration of training, use of landing zones in Pike and San
2563 Isabel National Forests are expected to have less than significant cumulative noise impact on these areas.
2564 Similar training use of BLM sites around Canyon City also are projected to have less than significant
2565 cumulative noise impacts attributable to the limited use and short duration of training. All Army aviation
2566 operations adhere to Fort Carson Regulation 95-1 to reduce environmental and airspace impacts of
2567 aviation operations.

2568 A CAB stationing at Fort Carson, with training activities also occurring at PCMS, will result in negligible
2569 adverse long-term cumulative effects for geology and soils.

2570 **5.7. Affected Environment**

2571 The following paragraphs describe the affected environments of Fort Carson and the PCMS as it relates to
2572 geology and the soil types present.

2573 **Fort Carson**

2574 **Geology**

2575 The eastern portion of Fort Carson lies within the Colorado Piedmont section of the Great Plains
2576 Province, while the western portion is located in the foothills of the Rampart Range section of the
2577 Southern Rocky Mountains Province. The region is characterized by rolling plains, tablelands, and
2578 occasional valleys, canyons, and buttes. Dominant landforms on Fort Carson consist of high plains on the
2579 southeastern, west central, and western portions of Fort Carson (5,400 to 6,400 feet [1,646 to 1,951 m]),
2580 low plains on the eastern portion of Fort Carson dominated by Fountain Creek and its tributaries (5,400 to
2581 6,200 feet [1,646 to 1,890 m]), and steep terrain including Timber Mountain (6,897 feet [2,102 m]), Wild
2582 Mountain (6,695 feet [2,041 m]), and Booth Mountain (6,454 feet [1,967 m]) (Fort Carson, 2007a). The
2583 lowest point on Fort Carson is Beaver Creek Valley. The cantonment area is located within the high
2584 plains region. Further details on the rocks, geological units, and geological history can be obtained from

2585 Fort Carson’s *Integrated Natural Resources Management Plan* (INRMP) (Fort Carson, 2007a) and the
2586 installation’s *Grow the Army* FEIS (Fort Carson, 2009).

2587 According to the Colorado Geology Survey (CGS), Colorado is comprised of areas with low to moderate
2588 potential for damaging earthquakes. There are about 90 potentially active faults that have been identified
2589 in Colorado (some of which may be located near Fort Carson); however, several thousand mapped faults
2590 in Colorado have not been sufficiently studied to know whether they are capable of generating
2591 earthquakes or not. It is not possible to accurately estimate the timing or location of future dangerous
2592 earthquakes in Colorado (CGS, 1999).

2593 There are three main fault lines in the region, which includes both Fort Carson and PCMS: Oil Creek, Ute
2594 Pass, and Rampart Range faults. Fort Carson and PCMS are located within the low risk Seismic Zone 1;
2595 where earthquake potential is on a scale of zero to four, with a “four” having the greatest potential for
2596 earthquakes (Fort Carson, 2007a). Very small earthquakes do occur in the region with mostly
2597 unnoticeable effects.

2598 Mineral resources of economic importance in the Pikes Peak Region include sand, gravel, limestone, coal,
2599 clay, and gold. Currently, sand and gravel aggregate is the single most important mineral commodity
2600 produced in the area (Fort Carson, 2007a).

2601 **Soils**

2602 Thirty-four soil categories and 65 soil associations have been recognized on Fort Carson. Predominant
2603 soil associations identified are the Penrose-Minnequa complex, Penrose-Rock complex, Razor-Midway
2604 complex, and Schamber-Razor complex (Fort Carson, 2007a). Additional information on Fort Carson soil
2605 types and characteristics can be found in the INRMP (Fort Carson, 2007a) and information specific to El
2606 Paso, Fremont, and Pueblo counties can be obtained from the USDA Natural Resources Conservation
2607 Service (NRCS) soil survey data (NRSC, 2010).

2608 Undisturbed soils and native vegetation occur throughout the cantonment area, the most highly developed
2609 area on Fort Carson, primarily in the southern end of the cantonment. These undisturbed soils and native
2610 vegetation are broken up by local areas of disturbed soils resulting from construction of post housing and
2611 other support facilities.

2612 The ORTC and BAAF areas consist almost exclusively of a soil association known as Satanta loam.
2613 Satanta loam is a nonacidic soil type, which exhibits low corrosivity to concrete and steel and is ideal for
2614 construction. It is moderately susceptible to sheet and rill erosion from surface water and is moderately
2615 resistant to wind erosion. The soil is well drained and there are no layers restricting water flow within 80
2616 inches (2,235 cm) of the soil surface. The Satanta loam soil association consists of 17.5 percent clay; 43
2617 percent sand, and 39.5 percent silt. The least-disturbed soils at BAAF occur in the southwestern portion of
2618 the airfield (Fort Carson, 2009).

2619 The range and training areas on Fort Carson cover the majority of land on-post and have the largest
2620 percentages of undisturbed soils on the installation. For information on soil types and characteristics of
2621 soils in the downrange area, see Fort Carson's INRMP (Fort Carson, 2007a) and the installation's *Grow*
2622 *the Army* FEIS (Fort Carson, 2009).

2623 Soil erosion, primarily from water runoff, is a significant problem on Fort Carson. Soils of greatest
2624 concern for erosion control are clays, silty clays, and clay loams (Fort Carson, 2007a). The eastern portion
2625 of Fort Carson, located within the Fountain Creek Watershed, contains soils that have been identified as
2626 having a moderate to high potential for erosion. Specific soil types on Fort Carson of greatest concern for
2627 erosion are Wiley-Kim, Penrose-Manvel, and Rizoza-Neville (Fort Carson, 2009). Also, soils occurring at
2628 Fort Carson exhibit high shrink-swell potential because montmorillonitic clays dominate the composition
2629 of most of the soil associations on the installation (Fort Carson, 2009). Soils with high shrink-swell
2630 potential can result in problems with building foundations and stability.

2631 Soil erosion is greatest in areas where vegetation has been removed and soils have been disturbed due to
2632 construction or training activities. Ground maneuver training activities have resulted in localized soil
2633 erosion, particularly in soils on steep slopes adjacent to gulches. Training activities have impaired
2634 vegetation growth, resulting in gully erosion, which increases in severity as the gullies broaden. This
2635 erosion has resulted in some soil loss, ultimately depositing soils downslope or downstream. The western
2636 portion of the downrange area has a high degree of wind erosion associated with disturbed soils (areas
2637 that have been cleared for training operations, including berms).

2638 Some chemical elements that naturally occur in Fort Carson soils include selenium (Se) and mercury
2639 (Hg). As described in the installation's INRMP, Fort Carson and the PCMS have some of the highest
2640 naturally occurring documented levels of Se in the U.S. (Fort Carson, 2007a). Naturally occurring Se can

2641 acutely and chronically impact both aquatic and terrestrial wildlife when land disturbances, such as
2642 military mechanized maneuvers and excessive erosion occur. Se leached into soil is taken up by Se
2643 receiving plants that are uniquely adapted to these sites, such as the desert princess plume (*Stanleya*
2644 *pinnata*) and two-grooved milkvetch (*Astragalus bisulcatus*). The International Agency for Research on
2645 Cancer has determined that Se and Se compounds are not classifiable as to their carcinogenicity to
2646 humans (DHHS, 2003); and the EPA has classified elemental Se as not classifiable as to human
2647 carcinogenicity, and Se sulfide as a probable human carcinogen (EPA, 2000). The naturally occurring Hg
2648 and some other heavy metals follow the same geological and biological pathways as Se.

2649 **Piñon Canyon Maneuver Site**

2650 **Geology**

2651 PCMS is located within the Raton Basin, developed along the eastern margin of the Rocky Mountain
2652 foreland because of compression associated with the Laramide Orogeny. Numerous volcanoes intruded
2653 the Raton Basin, forming lone mountain peaks. Volcanic vents, cinder cones, and lava fields typify the
2654 geology of the area. Geologic structures at PCMS are generally associated with the Apishapa Uplift,
2655 which is oriented southwest to northeast across the southern portion of PCMS. Sedimentary rocks
2656 associated with the uplift typically dip northeast ranging from one to 36° (Fort Carson, 2007a). The Black
2657 Hills (5,365 feet [1,635 m] above MSL), Sheep Canyon, and Muddy Creek Monoclines (strata inclined in
2658 the same direction) are major smaller structures within PCMS. Several smaller synclines and anticlines
2659 are also associated with these monoclines, including the Model Anticline in the western portion of PCMS.
2660 The Maneuver Site is distinguished by topographic features such as mesas, cuestas, dissected plateaus,
2661 deep canyons, and volcanic formations.

2662 See above write-up under Fort Carson for seismic activity of the State and the region that includes Fort
2663 Carson and PCMS.

2664 Historically, coal was mined in limited quantities on PCMS. Today, there are no active coal mines on the
2665 installation.

2666 **Soils**

2667 There are 29 soil associations recognized on the PCMS (Fort Carson, 2009). Predominant soil
2668 associations identified are the Manzanola silty clay loam, Minnequa-Wiley silt loams, Travessilla-Rock
2669 outcrop complex and Wiley-Villegreen loams (Fort Carson, 2007a). Additional information on PCMS
2670 soil types and characteristics can be found in the INRMP (Fort Carson, 2007a) and information specific to
2671 Las Animas County can be obtained from the NRCS soil survey data (NRSC, 2010).

2672 A major landslide occurs every 20 to 40 years at PCMS, affecting soils with slopes that are greater than
2673 30 percent. Landslides tend to occur at PCMS from approximately the middle of the northern boundary,
2674 southwest to Dillingham Ridge.

2675 Contributing factors leading to soil erosion at PCMS are much different than those at Fort Carson. Soil
2676 erosion caused by water typically is a result of larger storms (more than 0.5 inches [1.27 cm]), which
2677 occur on an average of less than six days per year in any given year. However, the fine and silty nature of
2678 some of the predominant soil types and the dry conditions mean that PCMS is more susceptible to wind-
2679 based erosion rather than water erosion for most of the year, with the exception of a limited number of
2680 days of heavy rainstorms. Extensive overgrazing (prior to 1983), vegetation removal, and soil compaction
2681 from mechanized training have contributed to erosion and erosion potential.

2682 Historically, PCMS has contributed highly variable levels of sediment/surface soil to the Purgatoire River
2683 Basin, ranging from 20,000 tons to several hundred thousand tons of sediment and soils (Stevens, et.al.,
2684 2008). This level of contribution to the river basin system is highly dependent on the variable rainfall and
2685 patterns the region receives (both total frequency of storms, their size, and amount of precipitation);
2686 amount of maneuver training and maneuver damage; and the Army's internal land management,
2687 environmental, and training management programs.

2688 See above write-up under Fort Carson regarding Se in the soils.

2689 **5.7.1. Environmental Consequences**

2690 **Alternatives 1 and 3**

2691 The consequences as they relate to geology and soils should the stationing of a new CAB occur at Fort
2692 Carson and/or Fort Carson and JBLM are described.

2693 **Geology**

2694 Implementation of this stationing decision is not predicted to cause significant impacts to the geological
2695 character of Fort Carson or PCMS. The limited mining operations on Fort Carson and PCMS are not
2696 expected to be impacted by a CAB stationing at the installation.

2697 **Soils**

2698 Existing soils, topography, and climate conditions are such that significant impacts are not anticipated.
2699 Temporary impacts to soils are anticipated as a result of construction and renovation activities for CAB
2700 facilities at Fort Carson. Proposed CAB facilities are expected to be on relatively flat land with low soil
2701 erosion potential. Construction and renovation site disturbance will temporarily destabilize soils and
2702 increase wind and water erosion.

2703 The primary impacts to soils are predicted to result from aviation maneuvers of the CAB at both Fort
2704 Carson and PCMS. These impacts will include increased surface disturbance of soils and removal of
2705 vegetation, soil compacting and rutting, reduced infiltration of water, and indirect effects from increased
2706 potential for fire and lost vegetative cover. For example, soil loss is expected to be exacerbated by wind
2707 erosion because of high velocity winds generated by helicopter rotor wash. Aviation units will typically
2708 fly at altitudes of several hundred feet during support of armored maneuver rotations, but will conduct
2709 low-level flights during landing, and dismounted troop and equipment insertions. The use of training
2710 simulators and smoke obscurants by the CAB's ground vehicles, and catalytic converters on the ground
2711 vehicles, will have some potential to start fires. Maneuver training of the CAB will increase the
2712 susceptibility of Fort Carson's and PCMS's soils to wind erosion, but impacts are predicted to be
2713 mitigable to less than significant through training and environmental management procedures. Actions
2714 carried out under the installation's ITAM program, for example, work to reduce impacts and, where
2715 impacts to soils occur as a result of training, repair damages.

2716 **Alternative 2 and the No-Action Alternative**

2717 **Geology**

2718 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
2719 locations. There will be no change in geological impacts due to training or construction activities

2720 associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions,
2721 Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start
2722 of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected
2723 under Alternative 2 is other than Fort Carson.

2724 **Soils**

2725 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
2726 locations. There will be no change in soil impacts due to training or construction activities associated with
2727 the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army
2728 stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013
2729 (October 1, 2012). The same will occur for Alternative 2 if the stationing location selected under
2730 Alternative 2 is other than Fort Carson.

2731 **5.7.2. Cumulative Effects**

2732 The implementation of past, present, and future cantonment area construction and range
2733 construction/upgrades on Fort Carson have and will continue to have temporary impacts on soil erosion
2734 and loss of surface soils through erosion of disturbed construction sites. Past and present training
2735 activities have caused an increased potential for erosion at PCMS. Increased training frequencies and a
2736 broader training activity/footprint will cause the potential for adverse soil erosion effects on Fort
2737 Carson/downrange area training lands. Future training activities and military use of PCMS will likely
2738 continue to increase the potential for erosion. Maneuver training of the CAB at Fort Carson and PCMS
2739 will result in significant, but mitigable, cumulative effects to soil erosion. There will be a potentially
2740 significant cumulative loss of soil resources, however, this will range across the Fort Carson region as
2741 development of military projects in concert with community transportation projects and other regional
2742 initiatives continue.

2743 **5.8. Water Resources**

2744 Water resources as they will be affected by the proposed action are discussed in the following section.

2745 **5.8.1. Affected Environment**

2746 Water resources on Fort Carson and PCMS are managed as a coordinated management effort with the
2747 U.S. Geological Survey (USGS), NRCS, FWS, U.S. Department of Justice, USACE, CDOW, CDPHE,
2748 Colorado Water Protective and Development Association, and Colorado State Division of Water
2749 Resources (Fort Carson, 2007a).

2750 **Fort Carson**

2751 **Surface Water and Watersheds**

2752 Fort Carson lies within the Arkansas River basin. Within that basin, the northern and eastern portions of
2753 the installation are located within the Fountain Creek watershed and drains southeast into Fountain Creek,
2754 which is located off-post near the installation's northeast boundary. The southern and western portions of
2755 the installation drain off-post, southward, directly into the Arkansas River. The cantonment area is located
2756 in the Lime Kiln Valley watershed, a sub-watershed to the Fountain Creek watershed.

2757 The average water flow on and near Fort Carson is about 2 to 5 cubic feet per second (cfs) (0.06 – 0.14
2758 cubic meters per second [cms]) (Fort Carson, 2009). Some streams can be expected to have no flow at
2759 some time during the year. Flow characteristics of major drainages are summarized in Fort Carson's
2760 *Grow the Army* FEIS (Fort Carson, 2009). The majority of flows in drainages consist of runoff from
2761 precipitation and snowmelt. Groundwater seepage and return flows also contribute to baseflows in
2762 drainages.

2763 Teller Reservoir, the largest downrange water body, has been listed as an impaired water body on
2764 Colorado's Section 303(d) list and has recently been placed on Colorado's Monitoring and Evaluation
2765 List to be re-evaluated (Fort Carson, 2009). The impairment is the result of a fish consumption advisory
2766 that has been imposed because of a biological accumulation of Hg in soil, plants, and fish tissues.
2767 Although the Teller Reservoir has a capacity of approximately 2,600 acre-feet (113,256,000 cubic feet
2768 [³][3,207,052 cubic meters (m³))] of non-potable water, it frequently contains no water and has been dry
2769 most of the time since 2002.

2770 Despite being normally dry, Wildhorse Creek, on the southern border of the installation has been
2771 identified as warranting monitoring and evaluation for nitrate as prescribed in the Section 303(d) listing

2772 for impaired waters of Colorado. In addition, this creek has been listed for Se and *E. coli* on the 303(d)
2773 list.

2774 Although the quality of the surface water on Fort Carson is good, it is not a source of domestic water at
2775 Fort Carson (Fort Carson, 2007a). Water from most streams and surficial aquifers on the western portion
2776 of the installation is suitable for irrigation. Surface water that flows eastward across Fort Carson
2777 accumulates sediments (i.e., suspended solids) that are then concentrated through evaporation. Water
2778 from the eastern portion of Fort Carson, however, is still suitable for irrigation with proper management
2779 practices.

2780 **Groundwater**

2781 Groundwater at Fort Carson occurs in both alluvial and bedrock aquifers. Alluvial aquifers are formed
2782 from unconsolidated deposits of stream alluvium, colluviums, and residuum derived from Pierre Shale
2783 that is moderately permeable; however, their dependability is limited by their areal extent, thickness, and
2784 available recharge. The alluvial aquifers are capable of providing well yields from 10 gallons to more
2785 than 100 gallons per minute (gpm) (Leonard, 1984).

2786 The principal bedrock aquifer at Fort Carson is the Dakota-Purgatoire aquifer, which, at Fort Carson, is
2787 comprised of massive bedded sandstones in the Dakota Sandstone and Lytle Sandstone Member of the
2788 Purgatoire Formation. This bedrock aquifer can yield 10 gpm, but local fracturing can increase the
2789 permeability and yield more than 200 gpm. Recharge to bedrock aquifers is from infiltration of
2790 precipitation and stream flow in areas where the aquifer is exposed at the land surface. Discharge occurs
2791 mostly from well pumping and leakage through overlying formations (Leonard 1984).

2792 In general, the quality of groundwater on Fort Carson is good with the exception of localized areas of
2793 elevated nitrates, high dissolved solids, and sulfates exceeding secondary drinking water standards.
2794 Nitrate-Nitrogen has been detected in the groundwater at multiple locations greater than the regulatory
2795 standard of 10 mg/L. Currently, Fort Carson and CDPHE are collaborating to evaluate the possibility that
2796 elevated concentrations of nitrates may be naturally occurring as a result of groundwater coming in direct
2797 contact with the shale bedrock (Fort Carson, 2009).

2798 **Floodplains**

2799 A 100-year floodplain is associated with drainages in the cantonment area. Floodplain maps are available
2800 from the Fort Carson Directorate of Public Works.

2801 **Water Rights**

2802 Fort Carson retains approximately 50 surface and subsurface water rights, on Fort Carson. Water rights
2803 for Fort Carson are judicially administered under Water Division Number 2, within Water Districts 10,
2804 12, and 14. These water rights directly support the training mission by assuring adequate water supplies
2805 for the support and rehabilitation of natural resources. Of the surface water rights, some are surface
2806 diversion ditches and others are reservoir storage rights. The subsurface water rights include wells that are
2807 currently installed and areas with wells that are classified as future wells, which will not be installed until
2808 required. Surface water gauging stations on or near Fort Carson streams and reservoirs are used for water
2809 rights administration by both the installation and the Colorado Division of Water Resources.

2810 **Piñon Canyon Maneuver Site**

2811 **Surface Water and Watersheds**

2812 PCMS, like Fort Carson, is located in the Arkansas River basin. The majority of the drainages at PCMS
2813 flow from the northwest to the southeast and drain into the Purgatoire River, which flows to the northeast
2814 along the southern and eastern boundaries of PCMS. The Big Arroyo drainage is located in the northwest
2815 corner of PCMS and flows northeast. No creeks or major drainages are present in the cantonment area.

2816 The Purgatoire River and its tributaries within PCMS have periodic high flows, including the potential for
2817 flash floods, while smaller creeks and drainages might be dry much of the year.

2818 There is a water resources management program for PCMS. Erosion control activities that are or could be
2819 implemented to control sediment loading in surface water are identified and described in detail in the
2820 CWA Section 404 regional permit issued by the USACE, Albuquerque District (Permit No. SPA-2008-
2821 00058-SCO) (USACE, 2008) and the Programmatic EA for the Erosion and Sediment Control Program
2822 (Fort Carson, 1998). Most of the activities listed in the previous CWA Section 404 Regional Permit
2823 (Permit No. 2002-00707) have been implemented (Fort Carson, 2009). These activities, together with

2824 plant material applications, are the principal techniques used by the Army to control sediment loading at
2825 PCMS. The USGS (Stevens et al 2008) has determined that sediment production from PCMS tributaries
2826 into the Purgatoire River does not exceed normal background sediment contributions.

2827 Adjacent to PCMS, Segment 7 of the Purgatoire River has been listed on the 303(d) impaired water
2828 bodies list because the existing quality exceeds the underlying standard for dissolved Se. In addition, and
2829 IAW Regulation #94, Colorado's Monitoring and Evaluation List, Segment 7 is included for sediment. It
2830 is included because there is reason to suspect water quality problems in the stream segment, but
2831 uncertainty exists in one or more factors to make a determination.

2832 It should be noted that high Se levels have been observed in numerous locations throughout the State. The
2833 Se sources are typically tied to fossil fuels, such as coal or oil, or are the result of the natural weathering
2834 or irrigation of cretaceous marine shales and shale-derived soils. The latter is especially true of areas
2835 where the soils contain high alkalinity and receive low amounts of precipitation. The USGS has
2836 determined that PCMS drainage area contains slightly to moderately saline soils.

2837 As discussed in Section 4.6.1.1.2 of the Fort Carson *Grow the Army* EIS, Fort Carson and PCMS have
2838 been issued a Section 404 regional permit (Permit No. 2002-00707) by USACE, Albuquerque District,
2839 which authorizes implementation of erosion control activities at PCMS.

2840 There is a water resources management program for PCMS. Erosion control activities that are or could be
2841 implemented to control sediment loading in surface water are identified and described in detail in the
2842 Section 404 regional permit and the Programmatic Environmental Assessment for the Erosion and
2843 Sediment Control Program (1998). Most of the activities listed in the CWA, Section 404, Regional Permit
2844 #2002-00707 have been implemented including erosion control impoundments, bank-sloping, check
2845 dams, rock armor, hardened crossings, culverts, erosion control terraces, water diversions, and water
2846 turnouts. These activities are all designed to curtail erosion process and/or sediment transport. The only
2847 method that was not utilized that was listed on the permit is bridge construction because that method was
2848 determined to be unnecessary at this time.

2849 **Groundwater**

2850 The principal sources of groundwater in the area is the Dakota-Purgatoire aquifer, which, at PCMS, is
2851 comprised of the Dakota Sandstone and Cheyenne Sandstone Member of the Purgatoire Formation (Von
2852 Guerard *et al.* 1987). These sandstones occur throughout a large part of PCMS. The aquifer ranges from
2853 185 to 320 feet in thickness and resides at approximate depths of 225 to 425 feet below the surface in
2854 upland areas (Fort Carson, 1998). Recharge of this aquifer primarily occurs in areas approximately 60
2855 miles west of PCMS (Fort Carson, 1998). Recharge on PCMS occurs through precipitation and
2856 subsurface inflow from neighboring aquifers. However, PCMS resides in a semi-arid climate and
2857 therefore only a small percentage of this precipitation may reach the aquifer. Groundwater movement in
2858 the northeastern corner of PCMS is toward the northeast, while groundwater movement throughout the
2859 remainder of the installation is toward the east and southeast (Von Guerard *et al.* 1987).

2860 Wells in the Dakota-Purgatoire aquifer have reported yields that range from less than 10 gallons to 500
2861 gpm. Well yield in unfractured parts of the Dakota-Purgatoire, which are known to occur at the
2862 installation, are likely to be less than 300 gpm (Von Guerard, *et al.*, 1987).

2863 Previous groundwater quality testing determined that the groundwater beneath PCMS contains
2864 concentrations of dissolved solids, sulfate, iron, manganese, nitrate, chloride, fluoride, Se, and
2865 radionuclide constituents that exceed domestic or public-use water quality standards. The water quality in
2866 the aquifer is adequate for wildlife and livestock and for fire suppression (Fort Carson, 1998; Fort Carson,
2867 2007a). There are approximately 95 wells on PCMS, though few are currently functional. Causes of wells
2868 not working include lack of power (e.g., portable generator), broken solar power generator, broken water
2869 line pipes to associated stock tanks, and broken or poorly functioning well pump. Some of the major wells
2870 are connected to distribution lines that fill stock tanks for wildlife management and fire suppression (Fort
2871 Carson, 2007a).

2872 **Floodplains**

2873 Floodplains have not been mapped on PCMS. However, flash floods occur intermittently during
2874 excessive rainfall, typically from May through October (Fort Carson, 2007a). Flood-prone areas occur
2875 along the drainages in the training areas, but the cantonment area is not subject to flooding because the

2876 associated watershed drains to the Simpson Lake, which has adequate storage for accumulating
2877 floodwaters.

2878 **Water Rights**

2879 As with Fort Carson, PCMS water rights directly support the training mission. Water rights for the PCMS
2880 are judicially administered under Water Division Number 2, Water Districts 17 and 19. Water rights are
2881 administered from arroyos and canyons that originate generally to the north and west of the PCMS, with
2882 some arroyos and canyons originating from the installation proper.

2883 **5.8.2. Environmental Consequences**

2884 **Alternatives 1 and 3**

2885 Construction of new CAB facilities at Fort Carson could result in stormwater runoff from land
2886 disturbance sites and increased sedimentation in waterways beyond the project site boundary in and
2887 around the ORTC and BAAF. Construction of the new CAB facilities, operation of CAB facilities and
2888 execution of CAB training activities will increase the use of fuels, solvents, and other hazardous and toxic
2889 substances, which could result in an indirect effect to groundwater if accidentally released into the
2890 environment. At Fort Carson and PCMS, increased training could result in increased surface water
2891 sedimentation. The impacts of CAB training and operations on sediment loading and potential additions
2892 of naturally occurring Se to surface or groundwaters are considered to be negligible or less than
2893 significant. In 1993, the USGS completed a study entitled *Assessment of Effects of Military Maneuvers on*
2894 *the Stream Flow, Water Quality, and Sediment Yields at PCMS, Las Animas County, Colorado* (USGS,
2895 1993). This report analyzed in-stream water quality data during the pre- and post-military maneuver
2896 periods at PCMS from 1982 to 1985 and 1985 to 1987, respectively. Effects of military maneuvers on
2897 stream flow quantity and quality were determined by statistical analysis. The USGS reported no
2898 statistically significant change in stream flow quantity or quality between the pre- and post-maneuver
2899 periods for the Purgatoire River and its tributaries within PCMS. According to the findings of the USGS,
2900 the largest correlation to sedimentation of the waters of the Purgatoire River is the number of large storm
2901 events received in the in the vicinity of PCMS, not the frequency of use of PCMS by the military. In
2902 addition, Fort Carson implements the erosion and sediment control program and the ITAM program to
2903 reduce erosion and sedimentation impacts to water bodies on and surrounding Fort Carson and PCMS.

2904 Programs include bank sloping of eroded gullies, hardening of crossings, terraces, and construction of
2905 erosion control dams. Training lands are monitored on a routine basis as part of the ITAM program.
2906 Impacts to 303(d) impaired surface waters at Fort Carson and PCMS as a result of a CAB stationing are
2907 expected to be less than significant. New CAB facilities are not expected to be in the 100-year floodplain.
2908 No significant impacts are expected to occur to surface water, stormwater, floodplains, hydrogeology, or
2909 groundwater as a result of this CAB stationing decision. No changes or expansions in water rights are
2910 expected as a result of this action.

2911 **Alternative 2 and the No-Action Alternative**

2912 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
2913 locations. There will be no change in water resource impacts due to training or construction activities
2914 associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions,
2915 Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start
2916 of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected
2917 under Alternative 2 is other than Fort Carson.

2918 **5.8.3. Cumulative Effects**

2919 A CAB stationing, to include CAB training activities, may increase groundwater use, which will be
2920 accommodated through existing subsurface water rights. Implementation of a CAB stationing action will
2921 not release any water or pollutants that could infiltrate aquifers at Fort Carson. Increased soil erosion and
2922 increased stormwater runoff (from increased impervious surfaces) resulting from construction of CAB
2923 facilities and training activities at Fort Carson have the potential to affect surface water quality but, with
2924 BMPs and other management actions being implemented, the cumulative effect is expected to be less than
2925 significant to Fort Carson surface water resources. Increased soil erosion resulting from CAB training
2926 activities at PCMS is expected to result in adverse, but mitigable, cumulative effects.

2927 **5.9. Biological Resources**

2928 Biological resources and how they will be affected by the proposed action are discussed in the following
2929 section.

2930 **5.9.1. Affected Environment**

2931 Fort Carson, including its maneuver site, continues to be a leader in sustainability and ecosystem
2932 management by proactively seeking partners to facilitate natural resources conservation while
2933 maintaining the installation's training mission. The Fort Carson ACUB program, the Greenprint project,
2934 the Central Shortgrass Prairie Ecoregional Assessment, and Front Range Eco-Regional Management
2935 Team initiative are successful examples. Through collaboration with multiple agencies, organizations and
2936 individuals, Fort Carson has initiated grassland prairie ecosystem assessments, noxious weed
2937 management and control, forest health assessments in collaboration with the USAF Academy, regional
2938 fire management plan development, and establishment of conservation easements that will buffer
2939 Installation boundaries from incompatible development, while concurrently conserving critical shortgrass
2940 prairie habitat.

2941 **Fort Carson**

2942 **Vegetation and Wildlife, including Threatened and Endangered Species**

2943 Fort Carson is located at the western edge of the Central Shortgrass Prairie Ecoregion. The Central
2944 Shortgrass Prairie is characterized by rolling-to-undulating plains and tablelands of low relief that are
2945 traversed by streams and contain canyons, buttes, badlands, and isolated mountains. Shortgrass prairie,
2946 mixed-grass prairie, and sand-sage prairie community types dominate the Central Shortgrass Prairie
2947 Ecoregion (Central Shortgrass Prairie Ecoregional Planning Team, 1998).

2948 The installation is within upper regions of the Prairie Grasslands Plant Zone, an area characterized by
2949 generally treeless terrain dominated by plants belonging to the grass family (Fort Carson, 2007a). Fort
2950 Carson consists of approximately 45 percent grasslands, 14 percent shrublands, 37 percent forest and
2951 woodlands, and four percent other (Fort Carson, 2009). Aquatic habitats on Fort Carson are very limited
2952 and consist of wetlands, riparian corridors, and open water. The grasslands are primarily shortgrass prairie
2953 and foothills grassland. The Sacaton grasslands, found along the eastern boundary of Fort Carson, provide
2954 habitat for numerous sensitive wildlife species. The Frankenia shrublands, primarily found in central and
2955 southern Fort Carson and often on high relief sites, support several Species of Special Concern. Some
2956 forested canyons are known to be used by the Mexican spotted owl (*Strix occidentalis lucida*), a rare
2957 winter resident to Fort Carson (Fort Carson, 2007a). Listed plant species in El Paso County are the

2958 endangered Osterhout milk-vetch (*Astragalus osterhoutii*) and threatened Ute ladies'-tresses (*Spiranthes*
2959 *diluvialis*); Pueblo and Fremont counties have no listed plant species (FWS, 2010). Of the 22 noxious
2960 weeds known to occur on Fort Carson, only one, the myrtle spurge (*Euphorbia myrsinites*) is considered a
2961 List A weed species in Colorado. While most of the species for which biological control is approved and
2962 available are found on Fort Carson, some species occur on PCMS. Tamarisk has recently been approved
2963 for biological control efforts (other than experimental populations) in Colorado by USDA Animal and
2964 Plant Health Inspection Service (APHIS), USFWS, and the Colorado Department of Agriculture. Fort
2965 Carson has initiated release of the biological control agent *Diorhabda elongata* against tamarisk at both
2966 Fort Carson and PCMS. Because of the availability of an effective biological control agent, the bindweed
2967 mite (*Aceria malherbae*), a List C species, Field bindweed, has been targeted for biological control.
2968 Releases of the mite have been made at both Fort Carson and PCMS to help suppress populations of this
2969 noxious weed. The 2008 Fort Carson and PCMS *Plants Management Plan* has detailed information on
2970 weed distribution and control strategies. The cantonment area and the BAAF, which are highly disturbed
2971 and developed, consist primarily of non-native ornamentals. Due to aircraft operational needs and to
2972 reduce the occurrence of BASH, large trees within flight pattern zones of BAAF are removed. The ORTC
2973 area, with vegetation considered to be in fair condition, consists primarily of a mix of disturbed land,
2974 western wheatgrass/blue gama, small soapweek/blue gama, and big bluestem/little bluestem. Further
2975 details on vegetation, to include noxious weeds, is available from Fort Caron's *Grow the Army* FEIS (Fort
2976 Carson, 2009).

2977 Fort Carson is home to numerous wildlife species in diverse habitats, including some species protected
2978 under the ESA. The Mexican spotted owl (*Strix occidentalis lucida*) is the only listed species under the
2979 ESA known to occur at Fort Carson. Species under consideration for listing and not protected by the ESA
2980 are the mountain plover (*Charadrius montanus*) (proposed threatened), Arkansas darter (*Etheostoma*
2981 *cragini*) (candidate), and northern leopard frog (*Lithobates pipiens*) (petitioned). State listed species on
2982 Fort Carson include Arkansas darter (threatened), southern redbelly dace (endangered), and burrowing
2983 owl (threatened). Fort Carson's INRMP, which is also approved by the FWS and CDOW, discusses
2984 management of rare and listed species, to include the, Mexican spotted owl. The last evidence of
2985 greenback cutthroat trout (*Oncorhynchus clarki stomias*) spawning in Lytle Spring was in 2001.
2986 Recreational fishing for the trout was discontinued in 2002 because the trout are no longer present in
2987 Lytle Pond. In 2006, the pond was drained to repair the dam, and the species was not found in the pond or

2988 the spring. The species was not restocked because the Lytle Pond population was no longer instrumental
2989 to the recovery of the species. Fry and eggs had not been transferred 10 years prior to the signing of the
2990 2007-2010 INRMP. Currently, the Arkansas darter (Federal candidate for listing and State threatened
2991 species) is the only sensitive species known to be present in Lytle Pond. The threatened Preble's meadow
2992 jumping mouse (*Zapus hudsonius preblei*) does not occur on Fort Carson and critical habitat is not
2993 designated on the installation. The Gunnison's prairie dog (*Cynomys gunnisoni*) is a candidate for ESA
2994 listing and is not known to occur on Fort Carson. In El Paso County, this species generally occurs at
2995 higher elevations (>6,000 feet) in the vicinity of Monument Pass and Green Mountain Falls. Fort Carson
2996 biologists are aware of the candidate status and proximity of this species to the installation. Biologists
2997 identify prairie dogs by species when conducting annual surveys. The mountain plover (proposed
2998 threatened) occurs on Fort Carson and PCMS during the breeding and migratory seasons. It is rare on
2999 both locations, nesting at only a few sites. Fort Carson's *Grow the Army* FEIS presents the special status
3000 wildlife species that occur (i.e., have been observed) on Fort Carson and the installation's INRMP also
3001 discusses management of these species of concern and other wildlife (Fort Carson, 2007a; Fort Carson,
3002 2009).

3003 Wildland fire management is one of a number of tools used to manage habitat and reduce the risk of
3004 wildfires causing damage to life and property. Wildfire on Fort Carson (and PCMS) poses a significant
3005 threat to sensitive ecosystems, cultural resource sites, training areas and has the potential for escape onto
3006 neighboring public/private lands. The training areas on the installation require the use of munitions and
3007 weapons systems that increase the chance of wildfire ignition and may damage important resources. Fort
3008 Carson's management plan for wildland fire, which is in the process of being updated as of September
3009 2010, lays out specific guidance, procedures, and protocols in the prevention and suppression of wildfires
3010 on all Fort Carson training lands, including PCMS, with wildland fuels (Fort Carson, 2010b). Per that
3011 plan, there are two objectives of prescribed fires on Fort Carson and PCMS (Fort Carson, 2010b). The
3012 first is to utilize fire efficiently, economically, and safely for fuels treatment activities with the least
3013 impact on natural resources and environmental quality. Secondly, the plan allows for the use of fire as a
3014 management tool to improve ecological conditions, including improving grasslands and wildlife habitat,
3015 by removing older, decadent vegetation and promoting the growth of new, more palatable forage for
3016 wildlife.

3017 **Wetlands**

3018 Fort Carson has approximately 1,028 acres (416 ha) of wetlands. Wetlands on the installation generally
3019 occur along intermittent and perennial stream channels and tributaries or as isolated wetlands, such as
3020 where a dam has been built for erosion control or for water storage. Most isolated wetlands are only one
3021 to two acres (0.4 – 0.8 ha) in size. The largest downrange wetland is on the upper reaches of Teller
3022 Reservoir, encompassing about 100 acres (40 ha). About six springs occur on Fort Carson, and they have
3023 very small associated wetlands. There are also a number of wetland areas scattered throughout the
3024 cantonment area, typically in natural or stormwater runoff drainages and in an area south of BAAF. In
3025 addition to cattails, common wetland species are cottonwood and willow. Some wetlands have been
3026 invaded by tamarisk, a noxious weed of primary wetland management concern (Fort Carson, 2007a).

3027 No wetlands occur within the footprint of construction proposed for CAB facilities. Some minimal
3028 individual and cumulative impacts to wetlands occur as a result of Fort Carson soil erosion control
3029 activities. These impacts are covered under the CWA Section 404 regional permit issued by the USACE,
3030 Albuquerque District (Permit No. SPA-2008-00058-SCO) (USACE, 2008). Typical erosion control
3031 measures include erosion control and stock watering impoundments, banksloping of erosion courses,
3032 check dams, rock armor, hardened crossings, culverts and bridges, erosion control terraces and water
3033 diversions, water turnouts, and other erosion control activities approved by USACE. Due to the avoidance
3034 and minimization efforts the Army currently implements as part of its INRMP and ITAM procedures,
3035 direct effects to wetlands from training activities do not normally occur.

3036 **Piñon Canyon Maneuver Site**

3037 **Vegetation and Wildlife, including Threatened and Endangered Species**

3038 Like Fort Carson, PCMS is located within the Central Shortgrass Prairie Ecoregion and is within upper
3039 regions of the Prairie Grasslands Plant Zone. PCMS consists of approximately 41 percent grasslands, 33
3040 percent shrublands, 17 percent forest and woodlands, and nine percent other (Fort Carson, 2007a).

3041 Aquatic habitats (springs, playa lakes, and man-made structures) on PCMS are very limited and consist of
3042 wetlands, riparian corridors, and open water. Most of the grasslands are classified as shortgrass prairie.
3043 Shrublands typically have a grass understory and are sometimes intermixed with coniferous and/or
3044 deciduous trees. Deciduous shrubland is found along major drainage ways. In the forest/woodlands,

3045 Pinyon pine and one-seed juniper are the dominant species of higher elevation woodlands on rocky and
3046 steeper slopes, and cottonwood, willows, and cherries dominate woodlands of drainage ways.
3047 Approximately 25 percent of the cantonment area is vegetated with vegetation consisting primarily of
3048 mowed native grasses and landscaping plants. No plant species appear on the FWS list of Federally listed
3049 endangered, threatened, and candidate species for Las Animas or Otero counties (FWS, 2010). Of the
3050 several noxious weeds known to occur on PCMS, only one, African rue (*Peganum harmala*), of the
3051 family Zygophyllaceae (Caltrop), is an A List species in Colorado. The African rue, which is extremely
3052 drought tolerant, is toxic to livestock and can replace valuable forage subsequently reducing the
3053 productivity of pasture and rangeland. PCMS has conducted eradication activities per its African rue
3054 eradication plan, a plan coordinated with the Colorado Department of Agriculture (Fort Carson, 2007a).
3055 Control efforts for containing the spread of African rue at the installation focus on detecting infestations
3056 as early as possible and eliminating them by removing plants before seed set and disposing of them
3057 properly. Besides African rue, Russian knapweed and Canada thistle are the weed species of most
3058 concern at PCMS. No effective biological controls exist for Russian knapweed, and control efforts
3059 concentrate on mechanical and chemical methods. As discussed above under Fort Carson, biological
3060 control efforts are one of the means used to control invasive species, such as tamarisk, on PCMS.

3061 PCMS is also home to numerous wildlife species in diverse habitats, including some species protected
3062 under the ESA. The lower reaches of the Purgatoire River watershed, in which PCMS occurs, is one of
3063 few places on the Great Plains that still supports a relatively intact large mammal community (e.g., elk,
3064 mountain lion, pronghorn, bighorn sheep, black bear, mule, and white-tailed deer). Approximately 400 to
3065 1,200 acres [162 to 486 ha] on PCMS are populated by the Black-tailed prairie dog (*Cynomys*
3066 *ludovicianus*), an important food source for the bald eagle (*Haliaeetus leucocephalus*), golden eagle
3067 (*Aquila chrysaetos*), burrowing owl (*Athene cunicularia*), and ferruginous hawk (*Buteo Regalis*). No
3068 species currently listed as endangered or threatened under the ESA are known to occur on PCMS. For
3069 animal species found in Las Animas and Otero counties, one bird species is listed as endangered (interior
3070 population of the least tern [*Sterna antillarum*]), two as threatened (Mexican spotted owl [*Strix*
3071 *occidentalis lucida*] and piping plover [*Charadrius melodus*]), and one as proposed threatened (mountain
3072 plover [*Charadrius montanus*]); and, one mammal species is listed as threatened (Canada lynx [*Lynx*
3073 *Canadensis*]), and one mammal species is proposed as endangered (New Mexico jumping mouse [*Zapus*
3074 *hudsonius luteu*]). The New Mexico jumping mouse is known to occur at a single site in Colorado, in Las

3075 Animas County approximately 20 miles southeast of PCMS. This species inhabits riparian corridors
3076 bordering perennial streams and emergent wetlands, which are rare on PCMS. As mentioned under Fort
3077 Carson, the mountain plover (*Charadrius montanus*), proposed to be listed as a threatened species, occurs
3078 on Fort Carson and PCMS during the breeding and migratory seasons. It is rare on both installations,
3079 nesting at only a few sites. Also as mentioned above under Fort Carson, further information on PCMS
3080 wildlife, to include the Triploid checkered whiptail (*Cnemidophorus neotesselatus*), designated as a
3081 Species at Risk by the Army, and Colorado State species of concern, such as the peregrine falcon, is
3082 available from the installation's INRMP and *Grow the Army* FEIS (Fort Carson, 2007a; Fort Carson,
3083 2009).

3084 Also, as mentioned above under Fort Carson, wildland fire management occurs at PCMS. When severe
3085 wildfires occur, as during the 2008 fire season at PCMS, the installation takes action, as appropriate, to
3086 evaluate damages, implement rehabilitation efforts and monitor impacts of both the wildfire and
3087 subsequent rehabilitation.

3088 **Wetlands**

3089 PCMS has approximately 361 acres (146 ha) of wetlands, a significant reduction to the 1992 estimate of
3090 4,776 acres (1,933 ha) resulting from the administrative removal of the Purgatory River section from
3091 Department of Army management to USFS (Fort Carson, 2007a). Most wetlands on the PCMS are
3092 associated with side canyons that are tributary to the Purgatoire River and water developments.

3093 **5.9.2. Environmental Consequences**

3094 **Alternatives 1 and 3**

3095 Construction of CAB facilities at the ORTC area will have some impact to existing native vegetation.
3096 Impacts, which include loss of habitat from construction activities, are not expected to be significant.
3097 There are no Federally protected species or Species of Special Concern that use the ORTC site on a
3098 regular basis. No construction activities will occur within wetlands. Impacts from surface water flow and
3099 sedimentation could occur to Rock Creek.

3100 Additional aircraft stationed at BAAF increases the chance of an aircraft-wildlife strike. The primary
3101 wildlife threats, e.g., eagles, hawk, and coyotes, are associated with the presence of Black-tailed prairie

3102 dogs, within and adjacent to the AOA. Prairie dogs entering the AOA and adjacent areas will be lethally
3103 controlled or trapped and relocated. These actions are consistent with the Biological Assessment and
3104 Management Plan for the black-tailed prairie dog on Fort Carson and the PCMS (Bunn 2004). The Black-
3105 tailed prairie dog plan was prepared in 2004 and specifically addresses prairie dog encroachment at
3106 BAAF: “Prairie dogs will be controlled if their presence threatens the safety of Army personnel, e.g.,
3107 helicopter landing and refueling sites or aircraft runways. Sites where prairie dogs have threatened the
3108 safe operation of helicopter and fixed-wing aircraft include BAAF and dirt landing strips located
3109 downrange on Fort Carson.” Prior to lethal control of prairie dogs, BAAF is surveyed for the presence of
3110 mountain plover and burrowing owl IAW State and Federal protocols. Deer discovered with the AOA
3111 will be hazed from the AOA in cooperation with the Colorado Division of Wildlife.

3112 CAB training activities, including high altitude helicopter training (Fort Carson, 2007b), will have some
3113 impact to existing wildlife and native vegetation. Following discussions expand on impacts to specific
3114 species as raised during the public comment period.

3115 CAB activities potentially affecting mountain plovers on Fort Carson are (1) overflights and (2) air-
3116 ground integration training.

3117 1. *Overflights*. At Fort Carson, mountain plovers nest adjacent to Range 123, a jet/rotary aircraft aerial
3118 bombing and gunnery live fire range that will be used by CAB helicopters. Plovers have been
3119 documented at this site during the breeding season since 1991. In a 1995 study, short-term
3120 behavioral changes by the mountain plover in response to F-16 overflights were found to be
3121 negligible (Bunn et. al. 1996, unpublished report). The normal behavior routines of plovers were not
3122 altered or interrupted by jet overflights under the conditions prevailing in the study. We are unaware
3123 of research investigating the relationship of nesting plovers to helicopter overflights and noise. The
3124 plover nesting area is approximately 9,514.44 feet (2,900 m) south of Range 123. Helicopter
3125 overflights will have no or negligible effect on plovers nesting south of Range 123 on Fort Carson.
3126 Plover nesting areas at PCMS may experience overflights during training operations, but the effects
3127 will likely be negligible.

3128 2. *Air-Ground Integration Training*. Establishing Forward Arming, Refuel, and Combat Service Support
3129 points could affect the species by causing nest/chick abandonment and death of eggs or chicks.

3130 Management objectives for the Mexican spotted owl (*Strix occidentalis lucida*) specified in the 2007-
3131 2011 INRMP include avoiding intensive readiness training (e.g., off-road vehicular traffic, bivouac) from
3132 November to February and protecting owl habitat from catastrophic fire. CAB activities potentially
3133 affecting the species are (1) increased frequency of large-caliber live fire, (2) 2.75-inch rockets and
3134 Hellfire missiles, (3) aerial gunnery, (4) air-ground integration training, (5) overflights, and (6)
3135 catastrophic fire.

3136 1. *Large-caliber Live Fire Noise*. Stationing of the CAB at Fort Carson will increase the number of
3137 training exercises of live-fire training, which includes large- and small-caliber weapons. Effects of
3138 small-caliber training will have no impacts to the owl due to the distance separating ranges from the
3139 known distribution of the owl. A large-caliber weapons firing range (Range 143) is approximately
3140 13,123.36 feet (4,000 m) from the winter range of the owl on Fort Carson. Fort Carson and FWS
3141 observations of an owl wintering on Booth Mountain during large-caliber weapons firing in 1994
3142 detected no short-term behavioral changes in response to the activity (R. Bunn, unpublished data).
3143 The normal diurnal roosting behavior routine of the owl were apparently not altered or interrupted.
3144 Firing large-caliber weapons in Ranges 143 and 145 will have no effect on owls wintering on Booth
3145 Mountain.

3146 2. *Hellfire Missiles/2.75-inch Rockets*. Hellfire missiles are fired from Training Areas 14 and 35 into the
3147 Large Impact Area, 40,026.25 feet (12, 200 m) from Booth Mountain. The ranges are 56,430.45 and
3148 23,293.96 feet (7,100 and 17,200 m), respectively, from the spotted owl wintering area. The 2.75-inch
3149 rockets (only training rounds) are fired in Ranges 109, 111, 143, 145, 155, and 123. Firing 2.75-inch
3150 rockets and Hellfire missiles will have no effect on owls wintering on Booth Mountain.

3151 3. *Aerial Gunnery*. Two aerial gunnery ranges (131D and 123) are located 42,831.36 and 18,251.31 feet
3152 (13,055 and 5,563 m) from the owl wintering area on Booth Mountain, respectively. Jet and rotary
3153 aircraft currently use Range 123. Observations by FWS and Fort Carson personnel in 1996
3154 determined low level overflights by jets exiting the Range 123 detected no short-term behavioral
3155 response on the owl wintering on Booth Mountain. Aerial gunnery in range 131D will have no effect
3156 on wintering spotted owls. Aerial gunnery in range 123 will have no effect on owls wintering on
3157 Booth Mountain.

3158 4. *Air-Ground Integration Training*. Establishing Forward Arming, Refuel, and Combat Service Support
3159 points within the wintering area could induce flushing behavior, increasing the probability of
3160 predation, and interfere with sheltering and foraging behavior. Live fire close troop support training
3161 will occur on Range 155, 26,574.80 feet (8,100 m) from Booth Mountain and will have no effect on
3162 wintering owls.

3163 5. *Helicopter Overflights*. Aerial maneuvers in the wintering area could flush owls from diurnal roosts,
3164 increasing vulnerability to predation. Delaney et al found 344.49 feet (105 m) to be the distance at
3165 which owls flushed when approached by a Sikorsky HH-60G military helicopter, but this minimum
3166 distance is a product of aircraft type and prevailing conditions at their study site (Delaney, et.al.,
3167 1999). Overflight disturbance is mitigable.

3168 6. *Catastrophic Wildfire*. Catastrophic wildfire could destroy owl winter habitat on Booth Mountain.
3169 Fire associated with increased training is not likely to encroach into wintering habitat due to the
3170 prescribed fire program on Fort Carson.

3171 Effects of CAB training on the New Mexico jumping mouse are predicted to be negligible. This species
3172 inhabits riparian corridors bordering perennial streams and emergent wetlands, which are rare on PCMS.
3173 Air-ground integration training is the only activity likely to affect suitable habitat for this species, but
3174 impacts will be negligible. Perennial waters on PCMS occur primarily in steep walled canyons, which are
3175 generally unsuitable for temporary stations and off-road vehicle travel.

3176 Training impacts from CAB activities potentially affecting large mammals and birds are expected to be
3177 less than significant. Deer and pronghorn respond to military training, i.e., off-road wheeled and tracked
3178 vehicles, helicopters, jet aircraft and bivouacs, by increasing or contracting home range size and moving
3179 out of their normal home range (Gerlach and Vaughan, 1990; and Stephenson et al., 1989). Pronghorn
3180 habituation to vehicles, aircraft noise, and visual stimuli was observed at PCMS during research
3181 conducted in the 1980's (Andersen and Rosenlund, 1991). Fort Carson, in partnership with University of
3182 Colorado, Colorado Springs, and the USAF Academy is conducting research investigating the
3183 relationship between training and deer on the installation. Results of this research will be used to establish
3184 additional mitigation management.

3185 Chronic wasting disease (CWD), a fatal neurological disease found in deer, elk, and moose, is present on
3186 Fort Carson but not PCMS. The disease attacks the brains of infected deer, elk, and moose, causing the
3187 animals to become emaciated, display abnormal behavior and impaired mobility, and eventually die. The
3188 prevalence and spread of CWD is density dependent. If a decision is made to station a CAB at Fort
3189 Carson, that action is anticipated to have no affect on the occurrence or spread of CWD. CWD is not
3190 known to occur at PCMS.

3191 In continuation of general wildlife and vegetation impacts, additional training will increase wildlife and
3192 vegetative disturbance on Fort Carson and PCMS and could result in increased presence of noxious
3193 weeds. Increased training, to include air-ground integration operations, could also result in increased
3194 incidence of wildfire. With increased flight operations, BASH incidents could increase.

3195 No wetlands exist within the proposed CAB facilities construction site at Fort Carson and few direct
3196 impacts from training are anticipated. CAB training could result in indirect impacts to wetlands from
3197 potential upland erosion and sedimentation processes. At PCMS, few direct impacts to wetlands occur
3198 from ongoing training activities and no construction will occur at PCMS as part of the proposed CAB
3199 stationing. Training an additional CAB could result in indirect impacts to wetlands from erosion and
3200 sedimentation processes in drainages upstream of man-made erosion control dams. Sediments could silt
3201 in these small wetlands, changing their nature or converting them to upland habitats if erosion-control
3202 dams are not properly maintained. Wetland and riparian area buffers are generally protected from
3203 vehicular and mechanized training on Fort Carson and PCMS due to the surrounding topography, which
3204 makes these areas unsuitable for this type of training. Because of avoidance and minimization efforts Fort
3205 Carson and PCMS currently implements as part of its INRMP and ITAM procedures, direct effects to
3206 wetlands will be limited. Erosion control measures are protective of surface water, including wetlands and
3207 riparian areas. From 1996 to 1997, a Legacy grant was used to study wetland community constituents and
3208 their distribution as well as various physical parameters at 10 sites on Fort Carson and five sites on
3209 PCMS. No decline was noted in representative wetlands, and no statistically significant increases in
3210 measured constituents were identified. Because training does not seem degrade wetlands quality in any
3211 significant way, impacts to wetlands as a result of CAB stationing are predicted to be negligible.

3212 The effects of the impacts on wildlife and plants are not expected to be significant and existing fire
3213 management practices will minimize the risk of large, destructive fires, also keeping wildfire impacts to
3214 less than significant.

3215 Mitigation for Federally protected and sensitive species will be determined in consultation with the FWS
3216 if Fort Carson is selected for CAB stationing and will be developed as part of site-specific NEPA
3217 following this PEIS and ROD. Proposed mitigation for big game impacts are (1) repair and maintenance
3218 of existing water sources and development of new sites on Fort Carson and PCMS providing a water
3219 source for deer, pronghorn, and elk temporarily displaced; (2) prescribed fire to rejuvenate habitat; and
3220 (3) seeding.

3221 **Alternative 2 and the No-Action Alternative**

3222 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
3223 locations. There will be no change in biological resource impacts due to training or construction activities
3224 associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions,
3225 Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start
3226 of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected
3227 under Alternative 2 is other than Fort Carson.

3228 **5.9.3. Cumulative Effects**

3229 Biological resources have been impacted by increasing development both within Fort Carson and along
3230 the Rocky Mountain Front Range. There has been a loss of vegetation and habitat within the Front Range
3231 from private and Federal land development. A CAB stationing at Fort Carson will result in a variety of
3232 potential impacts, which may include mortality, disturbance, or displacement, and loss of habitat or
3233 nesting or foraging territory. Cumulative effects from a CAB stationing in combination with other present
3234 and planned future actions will continue to occur at Fort Carson and in the region. At PCMS, CAB
3235 training could potentially add to cumulative wetlands impacts, which will result from potential sediment
3236 inputs to wetland areas. These wetland impacts will be mitigated, in part, by implementation of a fugitive
3237 dust control management plan and will be less than significant. A CAB stationing will result in adverse
3238 cumulative, but mitigable, effects to biological resources at Fort Carson and PCMS.

3239 **5.10. Cultural Resources**

3240 The affect on cultural resources is defined in the following section.

3241 **5.10.1. Affected Environment**

3242 Cultural resources management on Fort Carson and PCMS encompasses conservation of resources of
3243 significance to the history or prehistory of the U.S. or of traditional, religious, or cultural importance to
3244 Native Americans. These resources consist of the material manifestations of the knowledge, beliefs, art,
3245 morals, laws, and customs particular to a people or society. Fort Carson and its maneuver site manage
3246 cultural resources associated with all major prehistoric and historic cultural periods recognized on the
3247 southern Great Plains and Rocky Mountains.

3248 Twelve Federally recognized Indian tribes have expressed a cultural affiliation with land at Fort Carson
3249 and PCMS. A Comprehensive Agreement between Fort Carson and 10 tribes for tribal access, privacy,
3250 and inadvertent discovery of human remains and other cultural items was finalized and signed in 2004
3251 and a second Comprehensive Agreement with an eleventh tribe was signed in 2005. Traditional cultural
3252 properties and sacred sites have been identified on Fort Carson and PCMS.

3253 Section 106 consultation IAW the NHPA was conducted for the construction activities on Fort Carson
3254 associated with *Grow the Army* initiatives, which included a potential CAB stationing (Fort Carson,
3255 2009).

3256 Two significant documents that guide cultural resources management on Fort Carson and PCMS are a
3257 Memorandum of Agreement between Fort Carson, the COSHPO, and the Advisory Council on Historic
3258 Preservation (ACHP) (Fort Carson, 1980) and the installation's ICRMP (Fort Carson, 2002).

3259 In 2007, Fort Carson's Garrison Commander made the decision to comply with Section 106 of the NHPA
3260 through implementation of the Army Alternate Procedures (AAP) in lieu of 36 CFR §800. As
3261 consultation was initiated with the COSHPO, Native American tribes with a cultural affiliation to Fort
3262 Carson administered lands, and other consulting/interested parties, concern was expressed regarding the
3263 AAP process and its applicability for Fort Carson and PCMS. Subsequently, Fort Carson made the
3264 decision to develop a PA for compliance with Section 106. Consultations began toward the development
3265 of a PA in February and March of 2010. Fort Carson has drafted the initial draft PA which is currently

3266 being reviewed by Fort Carson and other Army staff. The Army plans on distributing the PA to the
3267 SHPO, Tribes, and ACHP for planned meetings in March 2011, continuing the consultation process. It is
3268 anticipated that the PA, inclusive of the updated ICRMP, will be finalized and signed in the summer of
3269 2011. The PA and updated ICRMP will be completed prior to any site-specific NEPA for implementing
3270 CAB stationing at Fort Carson if a decision is made to station a CAB at Fort Carson. Site specific NEPA
3271 documentation will provide additional details on the PA and cultural resource management procedures at
3272 that time.

3273 **Fort Carson**

3274 Prehistoric, historic, and multi-component sites eligible for inclusion in the NRHP are known to occur
3275 throughout Fort Carson. Approximately 89 percent of Fort Carson has been inventoried for cultural
3276 resources with historic properties identified in the following categories: districts; buildings; structures;
3277 and historic, prehistoric, and multi-component archaeological sites. The installation's built environment
3278 (historic structures) includes World War II temporary wood structures, Capehart and Wherry Era (1949-
3279 1962) family housing, and Cold War Era facilities. A total of 2,199 archeological sites have been
3280 recorded on Fort Carson. Of these, 151 are currently determined to be eligible for inclusion in the
3281 National Register. Prehistoric sites number 1,586; historic sites number 550, of which 63 sites are multi-
3282 component (i.e., having both prehistoric and historic components); and approximately 50 sites contain
3283 either historic or prehistoric rock art. The entire cantonment area of Fort Carson has been surveyed for
3284 cultural resources and is devoid of known prehistoric sites.

3285 Prehistoric resources predominate on Fort Carson and include defensive fortifications, open architectural
3286 sites, open and sheltered camp sites, lithic scatter assemblages and food procurement or processing sites,
3287 quarry locations, and game drives. Historic sites date to the late 1860s and include 19th/20th century
3288 ranching, homestead, and town complexes with numerous building types and functions, and small mining
3289 and stone/clay quarry operation sites. Both prehistoric and historic rock art is found on Fort Carson,
3290 again, with prehistoric elements predominating. Most rock art is located within the designated Turkey
3291 Creek Rock Art District, but some isolated panels exist elsewhere (Fort Carson, 2009).

3292 Fort Carson has one identified sacred site, located within the Turkey Creek Rock Art District. Although
3293 only one site was identified as having direct, religious significance for culturally affiliated tribes, the

3294 sacred site associated with this district may be expanded in the future depending on consultation with
3295 other tribes that expressed an interest in the area, but have thus far been unable to complete a site visit.

3296 Paleontological resources (fossil remains) are located on Fort Carson but are not classified as cultural
3297 resources. While fossils are important scientific resources, they do not have the same Federal mandates
3298 for identification and protection as cultural resources at Fort Carson (or at other Army installations). The
3299 Army, however, avoids impacting paleontological resources as part of its management of Fort Carson.
3300 Fifty-three paleontological localities are known to exist on Fort Carson (Fort Carson, 2009).

3301 Further details on Fort Carson's cultural resources, management of those resources, and consultation
3302 actions related to those resources and Native American tribes is available in Fort Carson's *Grow the Army*
3303 FEIS (Fort Carson, 2009) and *Integrated Cultural Resources Management Plan* (Fort Carson, 2002).

3304 **Piñon Canyon Maneuver Site**

3305 Cultural resources management on the Maneuver Site encompasses conservation of resources of
3306 significance to the history or prehistory of the U.S. and of traditional, religious, and cultural importance to
3307 Native Americans. Approximately 90 percent of PCMS has been inventoried for cultural resources, with
3308 5,500 archeological sites having been recorded. Of these, 510 are currently determined to be eligible for
3309 inclusion in the National Register. There are 4,319 prehistoric sites; 616 historic sites; 565 multi-
3310 component sites; and 240 sites that contain either historic or prehistoric rock art. All of the cantonment
3311 area of PCMS has been 100 percent surveyed for cultural resources and contains no sites eligible for
3312 inclusion in the National Register (Fort Carson, 2009).

3313 On PCMS, five sacred site locations have been identified, along with three traditional cultural properties
3314 and two Areas of Concern.

3315 Fourteen paleontological localities have been identified on PCMS.

3316 In late summer 2010, subsequent to completion of the Fort Carson *Grow the Army* FEIS (Fort Carson,
3317 2009), the 2nd BCT conducted the first relatively large-scale maneuver exercise at the PCMS in a number
3318 of years. Unfortunately, Soldiers caused some damage to archaeological resources on PCMS in the
3319 summer of 2010. The extent of damage caused by M1 tanks is being evaluated by Fort Carson. The

3320 proposed CAB and its vehicles will not be operating in the same area as these resources and will not be
3321 performing maneuver training that could cause similar damage.

3322 Further details on PCMS's cultural resources, management of those resources, and consultation actions
3323 related to those resources and Native American tribes is available in Fort Carson's *Grow the Army* FEIS
3324 (Fort Carson, 2009) and *Integrated Cultural Resources Management Plan* (Fort Carson, 2002).

3325 **5.10.2. Environmental Consequences**

3326 **Alternatives 1 and 3**

3327 Inadvertent impacts to cultural resources on Fort Carson and PCMS may occur as a result of stationing a
3328 CAB at Fort Carson. Impacts to cultural resources could occur as a result of construction or training.
3329 Impacts are expected to be less than significant. At the ORTC site and BAAF, Phase I archaeological
3330 inventories have been completed, and no historic properties eligible for inclusion in the National Register,
3331 nor properties with the potential for National Register eligibility, were located within these areas (Fort
3332 Carson, 2009). Section 106 consultation has been completed by Fort Carson on the areas proposed for
3333 construction of CAB facilities. In the Fort Carson and PCMS training areas, archaeological work is
3334 ongoing and the unsurveyed acreage will continue to decrease. Increased training could result in loss of or
3335 damage to cultural resources directly through maneuver training activities or indirectly through loss of
3336 cultural resources in a fire caused by military training. As discussed above, Fort Carson is in the process
3337 of developing a PA. Fort Carson will continue to follow processes and procedures outlined in their
3338 ICRMP, including consultation actions, to ensure protection of cultural resources. Given a lack of
3339 facilities construction at PCMS and the fact that the majority of aviation training occurs in the air or on
3340 approved roads and trails, impacts to cultural resources at PCMS are expected to be less than significant.

3341 **Alternative 2 and the No-Action Alternative**

3342 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
3343 locations. There will be no change in cultural resource impacts due to training or construction activities
3344 associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions,
3345 *Grow the Army* stationing decisions, and other directed stationing actions that will occur prior to the start

3346 of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected
3347 under Alternative 2 is other than Fort Carson.

3348 **5.10.3. Cumulative Effects**

3349 The implementation of a CAB stationing to Fort Carson may result in direct or indirect loss of cultural
3350 resources in the State of Colorado through training maneuvers or increased frequency of wildfires that
3351 military training could generate. It is anticipated that the stationing action will not result in significant
3352 adverse cumulative impacts with the continued cultural resource management program and policies in
3353 place to preserve Fort Carson's and PCMS's historic and archaeological resources.

3354 **5.11. Socioeconomics**

3355 The affect on the socioeconomics of the region is defined in the following section.

3356 **5.11.1. Affected Environment**

3357 **Fort Carson**

3358 The defined ROI for Fort Carson includes three counties: El Paso, Fremont, and Pueblo. Summaries of
3359 the analysis conducted in the Fort Carson *Grow the Army* FEIS (Fort Carson, 2009) are provided herein in
3360 order to establish a backdrop for impact evaluation. See Fort Carson's FEIS for additional details.

3361 The estimated population of the ROI totaled 777,806 in 2006, an increase of more than 11.6 percent since
3362 2000. The ROI includes two large communities: the city of Colorado Springs, located north of Fort
3363 Carson, with a 2006 population of just over 370,000; and the city of Pueblo, located southeast of Fort
3364 Carson, with a 2006 population of approximately 104,000 residents.

3365 Almost 6,500 civilian workers are currently employed at Fort Carson (appropriated, nonappropriated,
3366 contractor, and others), an increase from the 5,100 workers noted in Fort Carson's 2009 *Grow the Army*
3367 FEIS. Assuming each is a head of household, this will represent a population of over 12,100 persons
3368 (applying an average household size of 1.87). The approximately 24,900 active duty military personnel,
3369 down from the 25,100 personnel reported in Fort Carson's *Grow the Army* FEIS, are accompanied by

3370 approximately 37,400 Family members, a total connected population of about 74,500 persons, or nearly
3371 10 percent of the entire 2006 population of the ROI.

3372 Fort Carson has on-post housing units for both unaccompanied and accompanied personnel. There are
3373 currently over 3,000 family housing units of various types contained in numerous clusters or “villages.”
3374 According to the 2008 Housing Market Analysis, there is a validated on-post housing requirement for
3375 4,012 family housing units by 2013. The analysis anticipated that another 952 units will be needed by
3376 2013. The construction of 952 family housing units may not be realized however, due to limited space
3377 and land constraints within the cantonment area on Fort Carson. As of July 2007, an estimated 329,800
3378 housing units were located off-post in the ROI. The proportion of owner-occupied housing units was 68
3379 percent. Overall, the quality of housing in the ROI is considered good.

3380 The off-post population in the Fort Carson market area (within a 20-mile commute of the installation’s
3381 main work areas) currently totals 535,167 persons, having increased at an average annual rate of 1.8
3382 percent since 2000. Population is forecast to grow 2.3 percent per year, for a projected market area
3383 population of 598,428 persons in 2013. The area’s housing stock is currently estimated to total 225,277
3384 units. Owner-occupants claim 64.9 percent of occupied homes, while renters occupy the remaining 35.9
3385 percent.

3386 Vacancy rates and rentals in all areas within the Colorado Springs metropolitan area are highly cyclical.
3387 The rental vacancy rate was estimated to be 8.8 percent, up from 4.8 percent in 2000. The influx of
3388 military personnel into the Fort Carson area will lead to declining vacancy rates over the next five years.
3389 Vacancy rates for 2013 are projected to be 6.5 percent in the rental market.

3390 More than 400,000 people were employed in the ROI, 79 percent working in El Paso County. In that
3391 county, the largest share of employment is concentrated in the Federal government, with 11 percent
3392 attributable to military and civilian jobs. The retail trade sector employed 11 percent and State and local
3393 government accounted for a 9 percent share. In Fremont and Pueblo counties, employment in State and
3394 local government contributes substantially to both economies. The largest employers in El Paso County
3395 are the major military installations, the proportion of military employment in the county being much
3396 higher than the ROI and the State. The unemployment rate in all counties of the ROI gradually increased
3397 from an average low of three percent in 2000 to an average of six percent in 2005. In 2000, Colorado’s
3398 unemployment rate was approximately three percent. It had risen to approximately five percent in 2005.

3399 In 2010, the unemployment rate in El Paso County had climbed to 8.8 percent, while Fremont County
3400 and the area surrounding PCMS, unemployment was 9.4 percent. These increases can be largely
3401 attributable to the economic recession in the U.S..

3402 Total nonfarm wage and salary earnings in the ROI totaled nearly \$17.6 billion in 2006, approximately 84
3403 percent of that amount in El Paso County. The contribution to total earnings by the military sector is
3404 highly concentrated in El Paso County, reaching approximately 18 percent, compared to 2 percent for the
3405 State and 1 percent for the other ROI counties, collectively.

3406 In 2007, operating expenditures at Fort Carson that had the greatest effect on the local economy (after
3407 salaries) were local purchases and contracts (approximately \$204 million), utilities (approximately \$17
3408 million), and rent and lease payments (approximately \$3 million). The large majority (greater than 99
3409 percent) of DoD prime contracts awarded to firms in the ROI have been made to companies located in El
3410 Paso County, accounting for over 54 percent of all DoD awards statewide. The value of prime contract
3411 awards in El Paso County totaled more than \$2.2 billion in 2006.

3412 The primary sources of revenue for the three counties of the ROI are sales taxes, property taxes, transfers
3413 from the State government, and transfers from the Federal government. In El Paso and Fremont counties,
3414 property taxes contribute a relatively small share of total revenues (under 17 percent) in comparison to
3415 Pueblo County (30 percent). Sales tax revenues are especially important for El Paso County and are
3416 attributable to its role as the major commercial hub of the ROI. Revenues derived from State and Federal
3417 government transfers are important to all counties in the ROI, particularly in Fremont County, where the
3418 revenue comprises approximately 45 percent.

3419 The major operating expenditure categories for the counties are public safety, general government social
3420 services, and health. The provision of social services consumes approximately 30 percent of operating
3421 expenditures in Pueblo and Fremont counties but is much lower in El Paso County at approximately 21
3422 percent. Expenditures on public safety comprises approximately 25 percent of the operating expenditures
3423 for each county.

3424 Numerous facilities and services located on Fort Carson contribute to the Quality of Life of on-post
3425 residents and military personnel and their Families residing off-post. These services include child care,
3426 health care, public schools, and other facilities.

3427 The percentage of minority populations within the ROI is approximately 20 percent in El Paso County, 18
3428 percent in Pueblo County, and 11 percent in Fremont County. The population of the census tracts
3429 including and immediately adjacent to Fort Carson has a higher percentage of minority population than El
3430 Paso County and the ROI. Fort Carson's residential population, as with other military populations,
3431 contributes to that higher minority percentage in the immediate vicinity of the post. Of the total U.S.
3432 Military, 38 percent of active duty members identify themselves as minorities.

3433 Both Pueblo and Fremont counties have poverty levels that exceed or are equivalent to 20 percent; Pueblo
3434 County at approximately 31 percent and Fremont County at approximately 20 percent. El Paso County's
3435 poverty level is approximately 15 percent. While each county does not meet the definition of a poverty
3436 area (census tracts or blocks), there are small geographical areas within each county where more than 20
3437 percent of the population lives below the poverty level.

3438 Children are present on Fort Carson in a number of settings, including family housing neighborhoods,
3439 four elementary schools, one middle school, day care centers, and recreational areas. During the 2007-
3440 2008 school year, there were 2,322 children enrolled in the schools on Fort Carson. Of the 2,322 children
3441 enrolled, 1,817 were in elementary and 505 were in middle school (U.S. Census Bureau, 2008, as
3442 referenced in Fort Carson, 2009).

3443 **Piñon Canyon Maneuver Site**

3444 PCMS does not support a resident population. All troops that train at PCMS are permanently stationed
3445 either at or near Fort Carson or travel from other locations, therefore no Soldier or Family housing is
3446 required. Demographic information is based on data from the U.S. Census Bureau and the Colorado State
3447 Demography Office. The ROI population remained approximately the same over the 26-year period
3448 between 1980 and 2006 (from 43,904 to 43,937). Growth was highest in the 1990s, with an average
3449 annual growth rate of 0.82 percent. This rate slowed to 0.27 percent between 2000 and 2006. Between
3450 1980 and 1990, all three counties decreased in population.

3451 The counties in the ROI are rural; ranching and agriculture support much of the local economy.
3452 Employment data for the ROI were obtained from the Colorado Department of Labor and Employment.
3453 Between 2006 and 2007, the number of jobs increased from approximately 19,400 to approximately
3454 20,000 at a rate of 3.0 percent. Most of the growth took place in Las Animas County, which accounted for

3455 approximately 58 percent of the growth in employment. Compared with the State of Colorado, where
3456 only 1.4 percent of the workforce is engaged in farming, the three counties in the ROI have high
3457 employment in farming—nine percent in Huerfano County and approximately eight percent in Las
3458 Animas and Otero counties. Employment in government and government enterprises (Federal, State, and
3459 local) is high in Las Animas County (23 percent) and Otero County (20 percent). Huerfano County (13.2
3460 percent) is slightly above the State average (13.1 percent). Federal, civilian, and military employment is
3461 below the State average, whereas employment in State and local government is high in Las Animas and
3462 Otero counties (21.9 percent and 18.1 percent, respectively) compared to the State (10.1 percent).

3463 Major employers in Las Animas County include Burlington Northern/Santa Fe Railroad, Trinidad State
3464 Junior College, oil and gas drilling enterprises, and related support businesses. A new minimum-security
3465 correctional facility opened in 2003. The economy of Otero County is closely linked to agriculture,
3466 including livestock (primarily cattle) production and farming. Major crops include dryland wheat,
3467 irrigated corn, and alfalfa hay. The largest employers are local and county government entities. Huerfano
3468 County has a larger, medium-security correctional facility that provides employment in the area.

3469 PCMS currently retains 12 full-time employees on site to maintain PCMS facilities and manage training
3470 lands.

3471 **5.11.2. Environmental Consequences**

3472 **Alternatives 1 and 3**

3473 The stationing of the CAB at Fort Carson will have no measurable economic effects within the PCMS
3474 ROI. PCMS is used only for training activities with little opportunity for local economic stimulus,
3475 although Fort Carson, in conjunction with government and private organizations and individuals, is
3476 seeking to increase purchases from local sources in support of those training activities. The major impacts
3477 will accrue at Fort Carson as this is where Soldiers and their Families will live, shop, and otherwise spend
3478 salary and other procurement dollars. No disproportionately high and adverse effects on minority and
3479 low-income populations are anticipated, as these new Soldiers will be distributed within the existing
3480 communities where current Soldiers live. Their spending patterns will likely mirror those that exist today.

3481 The stationing of a CAB at Fort Carson is expected to result in short-term and minor long-term economic
 3482 benefits in the region through increased local demand for housing and goods and services. This
 3483 conclusion is based on the past evaluation of potential socioeconomic impacts of a potential Infantry
 3484 Brigade Combat Team (IBCT) (Fort Carson, 2009), which was based on 3,500 new Soldiers. The subject
 3485 stationing of the IBCT at Fort Carson has subsequently been cancelled, and the smaller CAB has only
 3486 2,700 Soldiers, as well as a smaller construction requirement.

3487 This analysis is focused on the effects of new salaries that will be introduced to the ROI by the addition of
 3488 2,700 Soldiers associated with the proposed CAB units. As a result of the screening criteria used to select
 3489 the final potential sites (identifying those installations with existing supporting facilities), construction
 3490 expenditures will be minimal, and are thus excluded from the analyses.

3491 Predicted impacts are overstated. The actual timing of soldier relocation and arrival will not occur in one
 3492 year; but will likely be spread over a number of years to address the practical realities of logistics
 3493 associated with realignments.

3494 The results of the Economic Impact Forecast System (EIFS) evaluation for location of a CAB at Fort
 3495 Carson are shown in Table 14 with detailed results in Appendix C.

3496 **Table 14. Predicted Impacts at Fort Carson/PCMS and RTVs**
 3497

Variable	Change	Rational Threshold Value (RTV)
Business Volume	0.34%	5.64%
Income	0.74%	5.63%
Employment	0.84%	4.04%
Population	1.01%	3.17%

3498
 3499 As shown, the predicted changes are well within the calculated Rational Threshold Values (RTV) (used to
 3500 ascertain potential significance). As a result, the effects will be minor in the economic region, but will
 3501 likely be considered positive by the community, offsetting the economic downturns that have occurred in
 3502 the last few years.

3503 The majority of the new military personnel are expected to live off-post. The housing market should be
3504 able to absorb this growth, primarily in southern Colorado Springs, Fountain, and Security/Widefield (all
3505 within El Paso County). Approximately 97 percent of Fort Carson's Soldier population lives in El Paso
3506 County.

3507 A CAB stationing will result in an increase in both the on-post and off-post population, with a resulting
3508 proportionate increase in demand for schools and childcare facilities, public safety, medical, and other
3509 services. School enrollment will increase as a result of the increase in regional population. Off-post
3510 growth projections were recently prepared for student enrollments for advanced planning purposes in
3511 order to accommodate expansions and realignments at Fort Carson. These potential impacts are normally
3512 mitigated through early Army outreach and coordination with those school districts, allowing them to
3513 plan for additional facilities.

3514 The military personnel that are projected to live on-post, as well as many who live off-post, will increase
3515 the demand for childcare services. This increased demand will likely be met by two recently completed
3516 child development centers and five additional child development centers to be completed by the end of
3517 2011; all of which increase capacity by 900 spaces. Demand for off-post child care services is not
3518 expected to rise significantly, as many of the military personnel commuting to work at Fort Carson will
3519 likely first look on-post (near their place of employment) for preschool child care services, rather than
3520 off-post. As with any population increase, the services provided through the private sector will be
3521 expected to respond to any increased demand.

3522 Services will continue to be provided to residents and retirees by the Army Community Support Center,
3523 the Family Connection, Family Readiness Groups, and the Retirement Services Office. No immediate
3524 increase in the retiree population is anticipated. Although some of the older active duty personnel may
3525 possibly choose to retire or settle in this area after discharge or retirement, most of the new troops are
3526 typically younger and many will likely serve at other posts before discharge or retirement, or return to
3527 their place of origin. It is unlikely that a CAB stationing will have an impact on the retiree population.

3528 Increased demand will occur for on-post retail, food, and related services such as Fort Carson's
3529 commissary and retail outlets in the Post Exchange. Additional facilities are already anticipated (chapel,
3530 dental clinic, child care facility, Troop Store [mini-mall], etc.), as well as additional utilities and road
3531 infrastructure. Fort Carson construction activity is underway to increase the size of its current commissary

3532 and Post Office. The city of Fountain has plans for a retail village to be constructed just to the east of Fort
3533 Carson's Gate 20 and Colorado Springs has plans for a retail village just north of Fort Carson's Gate 4.
3534 During construction, safety measures stated in 29 CFR Part 1926, "*Safety and Health Regulations for*
3535 *Construction*," and other applicable regulations and guidance will be followed to protect the health and
3536 safety of all personnel and employees at the installation, as well as construction workers.

3537 Demand for recreational facilities will increase with the additional population. The increase in off-post
3538 population will also increase the demand for off-post recreational facilities. The demand for some
3539 facilities, such as gyms and pools, may be moderated by the use of the new on-post facilities.
3540 Nevertheless, as the population increases, the services provided through the private sector can be expected
3541 to respond to the increased demand. Thus, recreation centers and other facilities that offer recreational
3542 opportunities can be expected to increase in number to meet any additional demands.

3543 Fort Carson's *Grow the Army* FEIS has an analysis of environmental justice impact (Fort Carson, 2009).
3544 No disproportionately high and adverse effects on minority and low-income populations are anticipated,
3545 as these new Soldiers will be distributed within the existing communities in which current Soldiers live.
3546 Their spending patterns will likely mirror those that exist today.

3547 CAB construction activities at Fort Carson will occur within the core of the installation, not along the
3548 edges of the installation boundary, therefore few adverse impacts to low-income and minority
3549 communities are expected. Also, construction impacts at Fort Carson will be temporary in nature. Impacts
3550 from noise, dust, and traffic generated by construction will be minimized by careful construction
3551 planning. Fugitive dust emissions will be minimized throughout the construction period by use of
3552 conventional dust suppression, BMPs, and mitigation techniques, such as soil erosion and sedimentation
3553 control, restrictions on where vehicles can travel on site, speed controls for construction vehicles and
3554 equipment, and watering of exposed soil and demolition debris to control dust. Noise from construction
3555 equipment will be controlled by use of appropriate sound mitigation techniques and BMPs. Construction
3556 traffic during peak-hours will be reduced by the use of centralized construction staging areas.

3557 At PCMS, aircraft noise and fugitive dust from training are potential impacts, which could affect the
3558 population near PCMS, which includes some minority Hispanic populations as well as some enclaves of
3559 economically disadvantaged populations. During training exercises and travel to and from PCMS, Army
3560 aviators will continue to adhere to Fort Carson Regulation 95-1 which outlines policies and procedures

3561 for pilots to maintain minimum altitudes around population centers. In addition, prescribed flight routes to
3562 and from PCMS also require pilots to maintain minimum altitudes and distances from populations to
3563 reduce noise impacts. At PCMS, Army staff will continue to implement dust suppression activities in
3564 coordination with major training events to prevent fugitive dust impacts. Because of these activities and
3565 management procedures, no disproportionately high and adverse effects on minority and low-income
3566 populations are anticipated at PCMS.

3567 Similarly, the location and distribution of new military Soldiers and their Families will have no negative
3568 impacts or risks to children in the ROI.

3569 Less than significant, beneficial, cumulative economic effects will occur under the proposed alternatives
3570 due to the direct and indirect economic impacts of the new Soldiers and their Families. These will be
3571 accompanied by minor or no direct or indirect impacts on housing, Quality of Life, environmental justice,
3572 or protection of children.

3573 **Alternative 2 and the No-Action Alternative**

3574 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
3575 locations. There will be no change in socioeconomic impacts due to training or construction activities
3576 associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions,
3577 Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start
3578 of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected
3579 under Alternative 2 is other than Fort Carson.

3580 **5.11.3. Cumulative Effects**

3581 The cumulative impacts of a CAB stationing, along with other past, present, and reasonable foreseeable
3582 future actions that affect economy, employment, demographics, housing Quality of Life, schools,
3583 community services, or environmental justice on and around Fort Carson and PCMS are expected to be
3584 less than significant.

3585 This increase in both the personnel and residential population on Fort Carson, as well as increases in
3586 nearby communities will translate into increased Army and individual expenditures for purchases of
3587 goods, contracting of services, utilities, and rent and lease payments and will, therefore, have a net

3588 positive cumulative impact to the local and regional economy. For Fort Carson, this increase is occurring
3589 against a rapid increase in regional population density. School enrollment in the Fort Carson area will
3590 increase as a result of the cumulative increase in regional population. Adverse cumulative effects around
3591 Fort Carson will be partially offset through the provision of Federal impact aid to offset costs of providing
3592 public education to families of military personnel.

3593 **5.12. Transportation and Airspace**

3594 The affect on transportation and airspace are defined in the following section.

3595 **5.12.1. Affected Environment**

3596 **Fort Carson**

3597 As mentioned in Section 5.2, Fort Carson is in central Colorado near Colorado Springs and approximately
3598 75 miles (121 km) from Denver (Figure 5). The ROI of the affected environment for traffic and
3599 transportation aspects of the proposed action include Fort Carson and the western portion of El Paso
3600 County, to include the communities of Colorado Springs, Stratmoor, Snowy, Cimarron Hills, Fountain,
3601 Widefield, and Security. Major roads that border Fort Carson are I-25 to the east, SH 115 to the west, and
3602 Academy Boulevard to the north. Other major routes in the area include US 24, SH 85, SH 16, and
3603 Powers Boulevard.

3604 **Traffic and Roadways**

3605 Appendix D provides detailed information on traffic and roadway conditions in the Fort Carson ROI. The
3606 analysis draws from studies and transportation plans developed by El Paso County, the PPACG and
3607 CDOT. This analysis demonstrates that travel to and from Fort Carson has increased over the last four
3608 years. The main driver of the gate counts is the number of Soldiers physically present. Within the next
3609 three years, if all Soldiers assigned at Fort Carson were not deployed and remained on-Post, then traffic
3610 volumes to/from Fort Carson could increase by another 30 percent to over 95,000 vehicles per day.
3611 CDOT and the PPACG identified a number of roadway improvements that will alleviate some of the
3612 problems associated with congestion (Appendix D). Additionally, the PPACG recommended that the
3613 several jurisdictions (city of Colorado Springs, city of Fountain, El Paso County, and Fort Carson)

3614 continue to cooperate and expand their nonmotorized transportation system. Recent capacity
3615 improvements have already been implemented for some Fort Carson gates and adjacent roadway systems.

3616 **Nonmotorized Transportation**

3617 As addressed in Appendix D, nonmotorized transportation as it relates to Fort Carson is somewhat
3618 geographically limited to nearby regions around the installation. Fort Carson does have infrastructure that
3619 actively supports cycling as a recognized mode of transportation and has taken steps to coordinate its
3620 bicycle infrastructure with that of adjoining jurisdictions of Colorado Springs, Fountain and El Paso
3621 County. Continued cooperation and development of bicycle infrastructure among regional organizations
3622 and governments could lead to increased levels of cycling to Fort Carson.

3623 **Public Transportation**

3624 Public transportation services are limited, as outlined specifically in Appendix D.

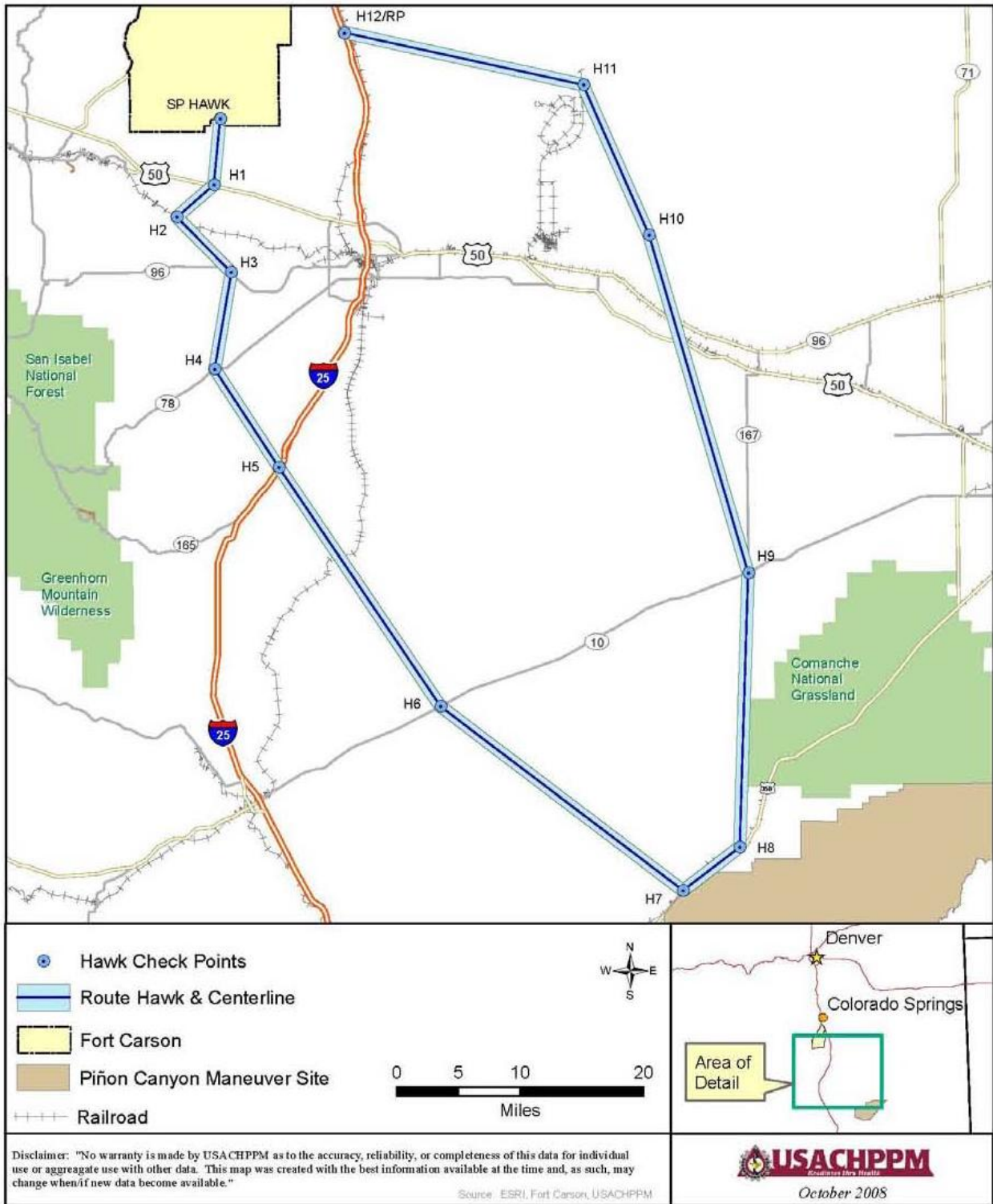
3625 **Airspace**

3626 Fort Carson has 152 square miles (394 square km) of FAA designated Permanent restricted use and SUA,
3627 with no limit in altitude (see Appendix A for general information on SUAs). The installation has access to
3628 this airspace continuously. The airspace is controlled by the FAA of Denver, Colorado (HQDA, 2002).
3629 Army aviation assets are stationed at and flight operations conducted out of BAAF.

3630 Fort Carson airspace is used by helicopters, fixed-wing aircraft and transient aircraft flights. The USAF
3631 and Air National Guard also use the installation's airspace. FAA and Fort Carson established permanent
3632 restricted airspace over the installation to prevent flights from unauthorized aircraft. Civilian aircraft are
3633 restricted and military aircraft are permitted under controlled conditions while firing, including artillery,
3634 mortar, and missile projectiles, is in process. Airspace adjacent to Fort Carson is used by commercial and
3635 military institutions (HQDA, 2007).

3636 Aviation units stationed at Fort Carson will be expected to aerially deploy to PCMS to conduct both
3637 aviation unit training and training in support of BCTs and to conduct helicopter gunnery exercises. Units
3638 conducting aerial deployment from Fort Carson to PCMS will follow FAA regulations for the airspace in
3639 which they are flying and will avoid concentrations of built up civilian areas (also see Section 5.6.1).

3640 Flight altitudes adhere to noise-abatement policies that minimize aircraft noise footprint on and near the
3641 installation and within the local flying area (see Section 5.6.1). The area between Fort Carson and PCMS
3642 does not have established air corridors. The only restriction is that aircraft must maintain a minimum
3643 altitude of 700 feet AGL (231 m AGL) unless they are operating in a designated low-level or NOE
3644 training route. A route has been established between Fort Carson and PCMS for the purpose of
3645 conducting both day and night low-level tactical navigation operations (Figure 8). Route Hawk is one
3646 mile (1.6 km) wide; 0.5 mile (0.8 km) either side of centerline with a floor of 100 feet AGL (30.5 m
3647 AGL) and a ceiling of 300 feet AGL (91 m AGL) (CHPPM, 2008a).



3648 **Figure 8. Route Hawk**

3649 Additionally, lands of the Pike/San Isabel National Forests have been used to provide the Army and Fort
3650 Carson locations related to mountain/high altitude training of helicopter pilots and instructors since about
3651 1978 and is operated under a Special Use Permit. An EA was conducted in 2007 (Use of National Forest
3652 System Lands for Mountain/High Altitude Military Helicopter Training, October 2007 (Fort Carson,
3653 2007b)) in cooperation with the USFS for reissuance of the Special Use Permit. There are no flights or
3654 operations conducted in the vicinity of Federally designated wilderness areas and adherence is maintained
3655 as to environmental and safety laws and regulations that are in place for this type of activity.

3656 Aviation accident prevention is an integral part of the Fort Carson Safety Program and applies to all
3657 aviation units assigned to or operation on Fort Carson. With safety policies contained in Fort Carson
3658 Regulation 95-1, contractors engaged in maintenance, industrial, ground, and flight operations on Fort
3659 Carson are also part of the team ensuring safety standards are implemented. The Safety Program applies
3660 to not only military personnel, contractors, and military equipment, but also applies to ensuring the public
3661 is kept safe. The Army continuously works to identify hazards, assess the hazards, develop controls and
3662 countermeasures, implement the controls, and most importantly, provide supervision on all aviation
3663 missions.

3664 **Piñon Canyon Maneuver Site**

3665 **Transportation**

3666 The sole public access point to PCMS is provided via US 350, approximately 30 miles northeast of
3667 Trinidad. Deployments from Fort Carson follow a fixed route along I-25 approximately 117 miles (188
3668 km) south to US 160, along US 160 approximately 7 miles (11 km) northeast to US 350, and then along
3669 US 350 approximately 24 miles (39 km) northeast to the main gate at PCMS cantonment area.

3670 I-25 is the primary north-south I- through Colorado. The city of Pueblo, located approximately 30 miles
3671 (48 km) south of the Fort Carson cantonment area, is the only city transected by the I-25 portion of the
3672 deployment route. The remainder of the route runs through sparsely populated rural areas.

3673 **Airspace**

3674 Airspace at PCMS is used for tactical high-speed flight training for fighter or bomber aircraft, as well as
3675 Army aviation training. The PCMS military operations area (MOA) extends from 100 feet AGL (30.5 m

3676 AGL) to an altitude of 10,000 feet (3,048 m). Federal airways pass over and surround the PCMS. Two
3677 instrument routes exist in these airways, and military aircraft use them for tactical maneuvers (HQDA,
3678 1995). There are no restricted military controlled airspace over PCMS, but there is a MOA for SUA for
3679 military training activities. Flight operations are conducted out of the Piñon Canyon Combat Assault
3680 Landing Strip.

3681 **5.12.2. Environmental Consequences**

3682 **Alternatives 1 and 3**

3683 **Traffic and Roadways**

3684 Evaluation of the regional transportation system confirmed that the El Paso County region will see
3685 continued population growth. The regional study of the potential effects of growth at Fort Carson also
3686 studied the potential impacts on the region's transportation system, to include automobile, nonmotorized
3687 transportation, and public transit. The projected growth to 26,000 Soldiers on Fort Carson will impact
3688 traffic congestion in the region (see Appendix D). With the stationing of a CAB at Fort Carson, CAB
3689 Soldiers and Family members are projected to generate approximately 70,750,880 vehicle miles per year
3690 traveled on the installation and surrounding area (see Appendix D). The region has identified the potential
3691 effects and is prepared to meet those effects to ensure the continued quality of the transportation system to
3692 meet local and regional demands and ensure the quality and safety of the transportation system. The
3693 region has identified capital improvement projects to address population growth, and transportation
3694 demands for the future, to include roadways and nonmotorized infrastructure that can potentially decrease
3695 auto demand in the future. Army Regulation 385-10, *The Army Safety Program*, contains requirements for
3696 traffic safety and loss prevention to reduce the risk of death or injury to Army personnel and civilians.
3697 Through training and other means, the Army seeks to instill in our Soldiers the importance of vehicle
3698 safety, expecting Soldiers to operate motor vehicles in a safe manner and always to employ risk
3699 management principles when using their privately owned vehicles. Public transit had been used at Fort
3700 Carson, but was ceased due to lack of demand. Stationing a CAB at Fort Carson will have direct and
3701 indirect effects on the local and regional transportation system, but with implementation of capital
3702 improvement projects planned in the region, those effects will not be significant.

3703 Stationing a CAB at Fort Carson will not involve permanently stationing Soldiers at PCMS. Units from
3704 the CAB will fly their aircraft and drive their wheeled vehicles by convoy to conduct training at PCMS.
3705 The stationing of 2,700 Soldiers will have minimal impact on traffic and transportation on traffic
3706 congestion on the public roads leading to, or near, PCMS. Convoys will be scheduled in conjunction with
3707 CDOT to avoid peak traffic periods in the Pueblo metropolitan area, and limited in the number of vehicles
3708 per convoy and number of convoys per day. Stationing the CAB at Fort Carson will not have significant
3709 effects on traffic or transportation at or near PCMS.

3710 **Rail and Off-Post Aviation Facilities**

3711 Rail and aviation facilities are adequate to meet increased demands of Fort Carson growth and CAB
3712 training at Fort Carson and PCMS.

3713 **Airspace**

3714 The stationing of a CAB at Fort Carson will involve a substantial increase in helicopter maneuver training
3715 on the installation. Although the increase in the number of flight hours (approximately 24,800 additional
3716 hours), landings, and takeoffs appear substantial when compared to the current conditions, the direct and
3717 indirect effects will be less than significant. Even with the units currently stationed at Fort Carson, the
3718 restricted airspace is readily available and can easily accommodate the increase in flight training hours,
3719 landings, and takeoffs. Thus, the increase in maneuver training associated with the CAB will not create
3720 obstructions to air navigation, affect flight operations at BAAF or any other airfield, or require the FAA
3721 to modify existing controlled SUAs or create new ones. The existing restricted airspace and MOAs will
3722 allow flight operations to occur safely throughout the maneuver training areas without potential
3723 interference from nonparticipating or incompatible aircraft. Units conducting aerial deployment from Fort
3724 Carson to PCMS will follow FAA regulations for the airspace in which they are flying and will avoid
3725 concentrations of built up civilian areas. Use of Pike and San Isabel National Forests for mountain/high
3726 altitude training by CAB Soldiers, should a CAB be stationed to Fort Carson, will make no changes to the
3727 use limits identified in the 2007 EA (Fort Carson, 2007b). Additionally, mountain/high altitude training
3728 activities will continue to be conducted per the 1994 Interagency Agreement between the DoD and USFS,
3729 Rocky Mountain Region and the Helicopter Training Operating Plan between Fort Carson and Pike and
3730 San Isabel National Forests. Consequently, stationing a CAB at Fort Carson, to include training at PCMS,
3731 will result in less than significant effects to airspace.

3732 **Alternative 2 and the No-Action Alternative**

3733 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
3734 locations. There will be no change in transportation and airspace impacts due to training or construction
3735 activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed
3736 actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to
3737 the start of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location
3738 selected under Alternative 2 is other than Fort Carson.

3739 **5.12.3. Cumulative Effects**

3740 **Traffic and Roadways**

3741 The region around Fort Carson, encompassing El Paso County and the cities of Colorado Springs and
3742 Fountain will undoubtedly see an increase in population in the foreseeable future. For example, the
3743 population in El Paso County is expected to grow from approximately 517,000 in 2000 to approximately
3744 800,000 in 2030; a 54 percent increase (El Paso County, 2004). This will bring additional housing and
3745 businesses to the region, and combined with the projected population growth at Fort Carson, have an
3746 effect on the region's transportation system. Therefore, the PPACG, the authorized Metropolitan Planning
3747 Organization for the region, has recognized not only the inevitable growth in the region, but also that of
3748 Fort Carson. PPACG has evaluated the potential effects, identified potential problem areas and identified
3749 a number of capital improvement projects to address the expected increase in traffic volume. PPACG, in
3750 cooperation with other local jurisdictions and Fort Carson, is working to further expand nonmotorized
3751 transportation in the region. However, the cumulative effect of a CAB stationing is not expected to be
3752 significant.

3753 Although the PCMS region is experiencing population growth, the growth is not significant. CAB
3754 Soldiers will not be stationed at PCMS. Units from the CAB will fly their aircraft and drive their wheeled
3755 vehicles by convoy to conduct training at PCMS. Convoys will be scheduled in conjunction with CDOT
3756 and limited in the number of vehicles per convoy and number of convoys per day. Cumulative impacts to
3757 transportation infrastructure and traffic is expected to be less than significant at PCMS.

3758 **Airspace**

3759 The USAF and Air National Guard use the airspace over Fort Carson and PCMS for training operations.
3760 As a result of the Army’s recent Transformation and Growth initiatives, the BCTs stationed at Fort
3761 Carson are equipped with Unmanned Aerial Systems (UAS). The BCTs also train and employ UAS at the
3762 PMCS. These UAS systems compete for and fly in the same restricted and SUA and MOAs used by the
3763 USAF and Army aviation units. There is sufficient restricted and MOAs available at both Fort Carson and
3764 PCMS to accommodate the safe employment of Army aviation assets, UAS, and USAF aircraft. There are
3765 no known reasonably foreseeable actions that will impact the airspace over either facility. Cumulative
3766 impacts to airspace are expected to be less than significant.

3767 Currently, the Army utilizes 16 landing zone sites in the Pike and San Isabel National Forests for
3768 mountain/high altitude training of Army aviation units preparing for deployment to rugged, high elevation
3769 areas such as Afghanistan. In October 2007, the Army published an *Environmental Assessment for the*
3770 *Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training* (Fort
3771 Carson, 2007a). As discussed in this EA, sites in the National Forest are utilized an average of three to
3772 four times per week annually, though this varies from week to week based on weather, aircraft
3773 availability, use restrictions, and other factors. The average training event lasts for about 15 minutes, both
3774 for the airspace around the site, and also training on the ground. Aviation units from across the Army, not
3775 just at Fort Carson, conduct training on these National Forest System lands. Should a CAB be stationed to
3776 Fort Carson there will be no change to the levels of airspace use of these areas from what was analyzed in
3777 the 2007 EA. In addition to aviation training at San Isabel and Pike National Forests, a transient aviation
3778 unit from Fort Hood has recently developed an agreement with the BLM for the short-term use of BLM
3779 lands in the vicinity of Canyon City. This agreement allows the unit to use 20 landing zones for training
3780 of aircraft prior to their deployment. This type of short-term usage of BLM lands around Canyon City by
3781 transient units has occurred in the past and may continue intermittently in the future.

3782 As mentioned in Section 5.5.3 and 5.6.3, the USAF has also recently proposed the establishment of a
3783 LATN area in northern New Mexico and southern Colorado. The LATN will provide airspace to operate
3784 C-130 and CV-22 aircraft for training purposes. The LATN will allow the USAF to train aircrew
3785 members and conduct military flight activities which may include, but are not limited to, air combat
3786 maneuvers and low altitude tactics. The USAF will remain in compliance with FAA regulations and

3787 provisions governing airspace use in the LATN, including maintaining minimum flight altitudes of 1,000
3788 feet AGL around developed areas. The LATN will provide training airspace for USAF Special Operation
3789 Forces at Cannon AFB. Cannon AFB is located in eastern New Mexico approximately five miles west of
3790 the city of Clovis. The training will consist of approximately three sorties per 24-hour period, or
3791 approximately 688 flights annually. Aircraft altitudes will remain between 200 and 3,000 feet AGL, with
3792 the majority of the sorties taking place at 500 feet AGL at airspeeds at or below 250 knots.

3793 Given the limited frequency of use and short duration of training, landing zones in Pike and San Isabel
3794 National Forests are expected to have less than significant cumulative impact on the airspace of these
3795 areas. Similar airspace use of BLM sites around Canyon City also are projected to have less than
3796 significant cumulative impacts attributable to the limited use and short duration of training. All Army
3797 aviation operations adhere to Fort Carson Regulation 95-1 to reduce environmental and airspace impacts
3798 of aviation operations.

3799 The USAF LATN proposal for use of low altitude airspace for military training will cumulatively
3800 increase the use of airspace in southern Colorado in conjunction with the Army's CAB stationing
3801 proposal if Fort Carson were selected for CAB stationing. FAA and USAF regulations require aircraft
3802 utilizing the LATN area to avoid airfields, towns, noise-sensitive areas, and wilderness areas by
3803 prescribed vertical and/or horizontal distances. For all other areas within the LATN, aircrews are
3804 prohibited from flying over the same point more than once per day. The Army will follow established
3805 routes to and from PCMS, and will adhere to similar regulations and policies governing airspace use.
3806 Airspace use of BLM sites around Canyon City also are projected to have less than significant impacts
3807 attributable to the limited use and short duration of training. Cumulatively, impacts to airspace around
3808 Fort Carson and PCMS are anticipated to be less than significant. The Army will continue to work with
3809 the FAA and follow coordinated procedures to ensure impacts to airspace in the region are reduced.

3810 **5.13. Utilities**

3811 The affect on utilities is defined in the following section.

3812 **5.13.1. Affected Environment**

3813 **Fort Carson**

3814 **Potable Water**

3815 Potable water is purchased by Fort Carson from Colorado Springs Utilities for domestic, industrial, and
3816 irrigation use in the cantonment area. The maximum historical daily water demand on Fort Carson is 5.5
3817 million gallons per day (mgd) (20.8 million L) and the total capacity of the two supply lines is 14 million
3818 gallons (53 million L). A new Colorado Springs Utilities potable water supply line is under construction
3819 that will supply the Wilderness Road complex, and will be capable of supporting any new construction
3820 for the CAB. Construction is expected to be complete in February 2011. The potable water storage system
3821 at Fort Carson consists of five water storage tanks with enough capacity during emergency conditions. A
3822 new water storage tank is under construction at the Wilderness Road complex. There are also five smaller
3823 water storage tanks serving BAAF and downrange training areas and ranges.

3824 **Wastewater**

3825 The installation operates and maintains a sanitary sewage treatment plant that services the cantonment
3826 area, the family housing area, BAAF, and the Range Control complex. This system also services
3827 Cheyenne Mountain Air Station under an Inter-Service Support Agreement. The sanitary sewage
3828 treatment plant, which was re-constructed in 1998, has a 4.0-mgd (15.1 million L) design capacity with a
3829 peak historical flow of 2.6 mgd (9.8 million L). The current wastewater load for the entire system is 1.3
3830 mgd (4.9 million L). Portable toilets, dry vault, self-composting latrines, septic tanks and leach fields, and
3831 nondischarging treatment/oxidation lagoons serve downrange training areas and ranges.

3832 An industrial wastewater treatment plant (IWTP) is located directly north of the sanitary sewage plant,
3833 near Gate 20. The IWTP was designed and constructed to treat petroleum-contaminated water from the
3834 motor pools in the cantonment area. The IWTP collection sewer extends down Minick Avenue behind the
3835 motor pools and delivers industrial wastewater to the IWTP. Wastewater is conveyed using both lift
3836 stations and gravity flow. IWTP effluent is combined with the sanitary sewage water entering the sewage
3837 plant. Treated IWTP effluent is discharged directly into "I" Ditch (Clover Ditch), which is one of the
3838 jurisdictional waters on Fort Carson. BAAF, the Colorado Army National Guard Centennial Training

3839 Site, and part of the Special Forces Complex are not connected to the IWTP. These facilities all use oil-
3840 water separator (OWS) systems to pretreat industrial wastewater before it is drained into the main
3841 wastewater system. A new branch of the industrial wastewater sewer system serves the recently
3842 constructed 1st Brigade complex.

3843 **Stormwater**

3844 The climate and topography of the Fort Carson area affect stormwater. Stormwater drainages tie in with
3845 watersheds, which are discussed in Section 5.8.1. Stormwater runoff in the northern portion of the
3846 installation flows into one of four main drainages: B-Ditch, Clover Ditch, Unnamed Ditch, and Rock
3847 Creek, which are all tributaries to Fountain Creek. The southern and western portions of the installation
3848 drain directly into the Arkansas River to the south.

3849 Three permit types are utilized at Fort Carson under the EPA stormwater program: the National Pollutant
3850 Discharge Elimination System (NPDES) Construction General Permit (permit number COR10000F), the
3851 Multi-Sector General Permit, and the MS4 (permit number COR042001) (Fort Carson, 2009).

3852 Fort Carson has completed baseline modeling for the four main drainages in northern portion of the
3853 installation. This information provided the installation with a realistic representation of floodplains and
3854 peak flows for predevelopment, existing, and future proposed conditions. The installation's *Grow the*
3855 *Army* FEIS contains modeling assessment information for their FEIS alternatives, which included a
3856 potential CAB stationing (Fort Carson, 2009).

3857 **Solid Waste**

3858 The *Integrated Solid Waste Management Plan* (ISWMP) contains details of the Solid Waste Management
3859 Program at Fort Carson (Fort Carson, 2004b). Currently, all solid waste from Fort Carson, including
3860 waste from the housing units, is shipped to offsite landfills, including the Midway Landfill in Fountain by
3861 a licensed contractor. Midway Landfill and other landfills are permitted Subtitle D landfills.

3862 Fort Carson operates a recycling center located near Gate 3. In addition to the recycling center, there are
3863 three additional large drop-off facilities located in the cantonment area. Smaller recycling bins are located
3864 near all facilities. As expansion continues on the installation, Fort Carson indicates additional recycling

3865 containers will be placed at all new facilities. Recyclable materials collected at these sites include paper,
3866 plastic, glass, cardboard, wood pallets, aluminum, and scrap metal.

3867 **Energy, Heating, and Cooling**

3868 Fort Carson purchases natural gas and electricity from Colorado Springs Utilities. The installation obtains
3869 2.3 percent of its energy needs from solar panels and is currently researching other sources of renewable
3870 energy for future use. Electrical services are provided through two aerial 34.5-kilovolt (kV), three-phase
3871 supply lines, which terminate at three power substations in the cantonment area. The peak historical
3872 electrical demand at Fort Carson is 27.9 megavolt amperes (MVA) while the total capacity of
3873 transmission lines available to the installation is 57.4 MVA and the total capacity of transformers is
3874 37.9 MVA. Two of the transformers are close to capacity and the Titus Road substation being upgraded
3875 so that it will have 10 circuits. This substation upgrade, expected to be completed in the first quarter of
3876 2011, will support electricity demand on the cantonment area. Two to four feeders will also extend from
3877 Titus Road down to Butts and Wilderness Roads.

3878 Electrical supply lines to BAAF were upgraded in 1986 and are now operating at peak capacity. Upgrades
3879 to the electrical system at BAAF will be necessary to continue to meet electrical demands for this area.
3880 Power for maneuvers and target training within the downrange area is supplied locally by battery or
3881 generator.

3882 Fort Carson receives natural gas from Colorado Springs Utilities via two feeds at the north end of the
3883 installation near Gate 4. Also, in 2008, Colorado Springs Utilities installed an additional 10-inch (25.4
3884 cm) steel gas line along SH 115 from Gate 1 to Gate 5. Colorado Springs Utilities completed installation
3885 of a gas main from Gate 5 to Gate 6 in December 2010 in support of construction at Wilderness Road
3886 (Gate 6). The natural gas is metered and piped through a series of gas mains and distribution lines to Fort
3887 Carson's four central heating plants, BAAF, and the family housing area. The peak historical daily
3888 consumption of natural gas at Fort Carson is 9,329 million cubic feet (mcf)/day (261.2 million m³/day).
3889 Colorado Springs Utilities' maximum delivery capacity to the installation is 24,000 mcf/day (672 million
3890 m³/day). Recent upgrades to lines within and to the cantonment area and the additional line will
3891 adequately support gas demands within the cantonment area, but upgrades will be required in the
3892 downrange area.

3893 **Communications**

3894 The primary communication infrastructure at Fort Carson consists of cable lines that run throughout the
3895 cantonment area, seven ranges, and BAAF. The communication system around the cantonment area is
3896 sufficient to meet the current needs for personnel and operations. However, as the number of Soldiers and
3897 support personnel at Fort Carson increases, significant upgrades to the existing communications
3898 infrastructure will be required several years in the future. Cable extensions are currently being built for
3899 various new construction projects underway within the cantonment area. Basic administrative analog
3900 telephone and low-speed data are available along Wilderness Road and the downrange area locations use
3901 copper and leased fiber lines.

3902 **Piñon Canyon Maneuver Site**

3903 **Potable Water**

3904 PCMS purchases treated potable water from the city of Trinidad for use in the cantonment area. After the
3905 water is delivered to the Maneuver Site, it is chlorinated and stored in a 500,000-gallon (189,271-L) tank.
3906 The potable water system is adequate to support a maximum of approximately 5,000 personnel based on a
3907 water consumption rate of 35 gallons (132 L) per person per day and other installation-related support
3908 activities, such as dust control and emergency fire suppression. The water tank and potable water
3909 distribution system in the cantonment area is currently operating within capacity and will accept water
3910 demands from additional training units.

3911 **Wastewater**

3912 The cantonment area primarily uses evaporative, nodischarging treatment/oxidation lagoons, originally
3913 constructed in 1985 for both sanitary wastewater and stormwater treatment. The HQ Building and several
3914 nearby buildings, all located within the cantonment area, are constructed to discharge sewage through a
3915 sanitary sewer system to the treatment/oxidation lagoons. Only the HQ Building is served by a septic
3916 tank, which then feeds into the sanitary sewer. There is a vault toilet at the front gate and a septic tank and
3917 leach field serves the guard shack trailer located further in from the front gate. The treatment/oxidation
3918 lagoons are located in the southwestern corner of the cantonment area, and are currently operating at
3919 levels well below their capacity.

3920 The combined treatment facility was originally designed for continuous use by a brigade-sized unit. The
3921 number of personnel at the cantonment area varies over time from fewer than ten to several thousand. The
3922 treatment/oxidation lagoons were upgraded in summer 2006 and subdivided into smaller ponds to more
3923 readily accommodate the fluctuation in flows. The lagoons' impervious liners, which prevent seepage into
3924 groundwater, were recently replaced. The modified system was designed for an average flow capacity of
3925 10,052 gpd (38,047 liters per day [L/day]). The wastewater lagoons do not have a discharge permit
3926 because the lagoons are designed to be nondischarging. Sanitary wastewater is conveyed to the treatment
3927 ponds through separate underground pipes.

3928 Most facilities located outside of the cantonment area have septic systems and leach fields. Portable
3929 toilets are used in the training areas when septic systems are not available.

3930 **Stormwater**

3931 At PCMS, a portion of the stormwater runoff generated in the cantonment area is collected into the
3932 wastewater system and directed to the treatment/oxidation lagoons. Stormwater is also collected at the
3933 railhead terminus and directed to and discharged into the treatment/oxidation lagoons. The majority of
3934 runoff is allowed to flow directly offsite (HQDA, 2007). Stormwater is also managed at the bulk fuel
3935 facility where it is collected via catchment basin, directed to an oil-water separator, and ultimately
3936 discharged into the same treatment/oxidation lagoons used for the HQ Building sewage. Stormwater is
3937 conveyed to the treatment ponds through separate underground pipes.

3938 **Solid Waste**

3939 Solid waste pickup at PCMS is managed via a contract with Waste Connections, and waste is transported
3940 to appropriately permitted disposal facilities in Trinidad. Refuse and construction-related solid waste are
3941 managed by the Directorate of Public Works. Solid waste generated in the training areas is collected and
3942 returned to the cantonment area for disposal. From the cantonment area, solid waste is transported to
3943 appropriately permitted facilities. There is currently no recycling program at PCMS because there are an
3944 insufficient number of personnel at the cantonment area to manage such a program. PCMS is evaluating
3945 how to facilitate a recycling program in the future.

3946 **Energy, Heating, and Cooling**

3947 PCMS purchases electricity from San Isabel Electric Association. The capacity of the existing transformer
3948 is 2,000-kilovolt amperes (kVA), and the existing demand is 300 kVA; therefore, electricity demand at
3949 the site is below the design capacity of the existing transformer.

3950 Trucked-in heating oil and propane currently provide adequate fuel for heating at PCMS. Most buildings
3951 in the cantonment area are heated by oil-fueled furnaces. Heating oil is trucked to the cantonment area
3952 and stored in building-specific USTs. Heating oil is not used outside the cantonment area. Propane is used
3953 to heat some buildings at the PCMS. Distribution lines are not required because storage of these fuels
3954 occurs at the point of use.

3955 Natural gas is not currently used at PCMS.

3956 **Communications**

3957 The communication infrastructure at PCMS consists of fiber cables that enter the cantonment area from
3958 US 350. In 2006, a project was completed to provide upgraded information/communication infrastructure
3959 downrange on Fort Carson and PCMS and to provide connectivity between Fort Carson and PCMS. This
3960 included installing approximately 125 miles (201 km) of fiber optic lines, six guyed communication
3961 towers, and equipment shelters. A combination of towers and several equipment shelters at Pueblo
3962 Chemical Depot and Cedar Crest provide connectivity between Fort Carson and PCMS.

3963 **5.13.2. Environmental Consequences**

3964 **Alternatives 1 and 2**

3965 Implementation of this stationing decision will not cause significant impacts to the infrastructure for
3966 wastewater, energy sources, communications, and solid waste management.

3967 The stationing of a CAB at Fort Carson will increase water demand both on- and off-post. The average
3968 water usage by a Soldier or Family member living and working on Fort Carson is estimated at 125 gallons
3969 per day (gpd) and 50 gpd for Soldiers and Family members living off-post. The total average on-post
3970 daily water demand for the CAB is estimated to be 240,625 gpd with a seasonal peak water demand of
3971 387,000 gpd during summer months (Chong, 2011 personal communication). With approximately 50
3972 percent of the CAB's Soldiers and Family members living off-post, a similar estimate for water demand
3973 off-post is anticipated to be approximately 165,000 gpd.

3974 Two existing waterlines, which run down Butts Road to the BAAF do not require upgrades to meet the
3975 demands of new facilities. Another 8-inch water main will be extended from BAAF to the Wilderness
3976 Road to support construction of additional facilities. Water line extensions will connect these mains to
3977 each of the facilities to be constructed under the Proposed Action.

3978 The industrial wastewater system would adequately handle the additional wastewater generated by the
3979 new activities at BAAF with some modifications. Modifications include an extension of a 12-inch sewer
3980 line from BAAF along Wilderness Road that will be constructed to support the new facilities. Sanitary
3981 wastewater will be conveyed to the WWTP. The addition of Soldiers to Fort Carson will increase the
3982 load on the sanitary wastewater system, but the system will have the capacity to handle additional
3983 wastewater generated by CAB Soldiers.

3984 As no major utility upgrades are required to support CAB stationing, impacts to utilities at Fort Carson
3985 and PCMS are expected to be less than significant.

3986 **Alternative 2 and the No-Action Alternative**

3987 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
3988 locations. There will be no change in utilities impacts due to training or construction activities associated

3989 with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the
3990 Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY
3991 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected under
3992 Alternative 2 is other than Fort Carson.

3993 **5.13.3. Cumulative Effects**

3994 As a result of the Army's recent Transformation and Growth initiatives, additional units have been
3995 stationed at Fort Carson. These increases in units, personnel and Family members have increased the
3996 demand for utilities on the installation. There is, however, sufficient capability to accommodate the
3997 aforementioned increases and the addition of a CAB. The utilities at PCMS are sufficient to accommodate
3998 the additional training load of the aforementioned force structure changes and the addition of a CAB on
3999 the installation. There are no known foreseeable actions that will have an additional impact on the utilities
4000 of either installation.

4001 **5.14. Hazardous and Toxic Substances**

4002 The affect on and/or generation of hazardous and toxic substances is defined in the following section.

4003 **5.14.1. Affected Environment**

4004 **Fort Carson**

4005 Hazardous and toxic materials used at Fort Carson include gasoline, batteries, paint, diesel fuel, oil and
4006 lubricants, explosives, JP-8 jet fuel, pyrotechnic devices used in military training operations, radiological
4007 materials at medical facilities, radioactive materials, pesticides, and toxic or hazardous chemicals used in
4008 industrial operations (USACE, 2006). The principal industrial operations and activities involving the use
4009 of hazardous materials and petroleum-based products at Fort Carson are painting, repair, and maintenance
4010 of vehicle and aircraft. Additionally, Fort Carson operates an IWTP, an Army Oil Analysis Program
4011 Laboratory, medical and dental facilities, and engages in solvent recycling. All of the above activities
4012 represent the majority of the following hazardous waste generated at Fort Carson: paint thinner, paint
4013 booth filters, paint related rags and solvents, Chemical Oxygen Demand (COD) and laboratory reagents,
4014 heptanes, kerosene, methanol, ethanol, and solvent distillation sludges. Asbestos can potentially be found
4015 in buildings constructed before 1978, as can LBP. Lead is also found at gun and artillery practice ranges

4016 where lead munitions are used (Fort Carson, 2004c). Possible ballast light fixtures that potentially contain
4017 PCBs dielectric fluid may also exist on Fort Carson. Fort Carson no longer has any PCB-containing
4018 transformers. Pesticides and herbicides are one of the tools used for insect and rodent control in select
4019 structures and in the control of undesired vegetation including noxious weeds. UXO is found on-post,
4020 especially in the large impact area, which is now the only authorized area on Fort Carson where dud-
4021 producing ammunition can be fired.

4022 All hazardous waste generated at Fort Carson (including the cantonment and downrange areas and
4023 BAAF) is transported to the Hazardous Waste Storage Facility (Building 9248) for storage and eventual
4024 shipment offsite for proper disposal. Currently, there are seven satellite accumulation points on Fort
4025 Carson for the collection and temporary controlled on site storage of hazardous waste (Fort Carson,
4026 2006).

4027 Fort Carson is not listed on the EPA's National Priority List (NPL). Investigation and cleanup of Fort
4028 Carson's contaminated sites is conducted IAW the Resource Conservation and Recovery Act (RCRA)
4029 Part B permit (No. CO-06-09-29-01) requirements. Site investigation and cleanup for the 170 Solid Waste
4030 Management Units (SWMUs) are being performed IAW applicable Army, State, and Federal
4031 requirements to achieve established cleanup goals and schedules.

4032 Fort Carson has a comprehensive program to address the management of hazardous waste, hazardous
4033 materials, and toxic substances. This includes the proper handling, and disposal of hazardous waste and
4034 procurement, use, storage, and abatement (if necessary) of toxic substances. Additionally, a systematic
4035 approach is employed to investigate and remediate known or suspected contaminated sites across the
4036 installation until closure or receipt of a No Further Action (NFA), if necessary. Fort Carson has several
4037 plans in place to help manage hazardous materials and waste including a P2 Plan (also known as the
4038 *Waste Minimization Plan*), *Polychlorinated Biphenyl Management Plan*, *Integrated Pest Management*
4039 *Plan*, *Facility Response Plan*, *Hazardous Waste Management Plan*, and the *Spill Prevention Control and*
4040 *Countermeasures Plan*. Ordnance impact areas and buffer zones are off limits to unauthorized personnel.
4041 In addition, impact areas are posted with warning signs indicating the potential risks of UXO.

4042 **Piñon Canyon Maneuver Site**

4043 Hazardous materials used at the PCMS include gasoline, diesel fuel, oil, and lubricants used during
4044 routine maintenance; pesticides; and explosive and pyrotechnic devices used in military training
4045 operations. Activities involving the use of hazardous materials, including petroleum-based products, at
4046 the PCMS involve the operation and maintenance of vehicles. Asbestos can potentially be found in older
4047 buildings constructed before 1978, as can LBP (i.e., the ranch buildings). Pesticides and herbicides are
4048 one of the tools used for insect and rodent control in select structures and in the control of undesired
4049 vegetation including noxious weeds. High explosives are not used by the Army at PCMS, therefore UXO
4050 is not believed to be present. Nonexplosive practice grenades are used at an existing grenade launcher
4051 range.

4052 Any residual hazardous materials including oil, lubricants, solvents, and batteries generated during
4053 routine maintenance are recovered for reuse or recycling. Other hazardous materials such as pesticides
4054 and fuel are consumed in the process. Hazardous materials brought to the PCMS by maneuvering units
4055 are recovered as material and taken back to their home station for further use or classification and turned
4056 in for reissue or proper disposal. In the event that hazardous wastes are generated at the PCMS, they will
4057 be managed under the rules and regulations as they pertain to a Conditionally Exempt Small Quantity
4058 Generator under the RCRA.

4059 PCMS operates under the same Hazardous Waste Management Program as Fort Carson. See above for
4060 information on the comprehensive program to address the management of hazardous waste, hazardous
4061 materials, and toxic substances.

4062 **5.14.2. Environmental Consequences**

4063 **Alternatives 1 and 3**

4064 Renovation of facilities at the BAAF could create additional lead, asbestos, PCBs, and chlorofluorcarbon
4065 wastes. With continued implementation of regulatory and administrative mitigation measures, impacts
4066 from construction of CAB facilities at Fort Carson, to include renovation and demolition activities, will
4067 be less than significant, because there will be minimal risk of human or environmental exposure to
4068 hazardous materials used or hazardous wastes generated during construction. Increased live-fire activities

4069 associated with CAB training will result in the generation of small amounts of additional expended small
4070 arms ammunition UXO. Ammunition handling and storage methods, disposal protocols, and safety
4071 procedures will continue to be conducted IAW existing regulations. CAB operations and training at Fort
4072 Carson and PCMS will result in an increase in the use of hazardous materials, use of petroleum-based
4073 products, and disposal of hazardous waste, therefore the increased potential for spills. Due to extensive
4074 outreach and training efforts on spill prevention, major site contamination and cleanup, or other special
4075 hazards resulting from increases in personnel, construction activities, and training activities will not be
4076 anticipated. This combined with Fort Carson's (and PCMS's) comprehensive program to address the
4077 management of hazardous waste, hazardous materials, and toxic substances, effects from a CAB
4078 stationing related to hazardous waste, hazardous materials, and toxic substances is anticipated to be less
4079 than significant.

4080 **Alternative 2 and the No-Action Alternative**

4081 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
4082 locations. There will be no change in hazardous and toxic substance impacts due to training or
4083 construction activities associated with the No-Action Alternative. The No-Action Alternative includes
4084 BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that
4085 will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the
4086 stationing location selected under Alternative 2 is other than Fort Carson.

4087 **5.14.3. Cumulative Effects**

4088 The cumulative impact to hazardous and toxic substances consists of past, present, and reasonably
4089 foreseeable future actions that increase the handling of these substances or the generation of hazardous
4090 wastes on Fort Carson and PCMS. With a CAB stationing, the addition of personnel and training will
4091 result in an increase in the use of hazardous materials and petroleum and subsequent generation, handling,
4092 storage, and disposal of wastes derived from these materials. Fort Carson and PCMS have the capacity to
4093 handle these wastes and will continue to implement installation SOPs and plans for their reduction,
4094 disposal, and handling. Only minor cumulative impacts are predicted.

4095

(This page was intentionally left blank.)

4097 **6. JOINT BASE LEWIS-MCCHORD, WASHINGTON AFFECTED ENVIRONMENT AND**
4098 **ENVIRONMENTAL CONSEQUENCES**

4099 **6.1. Introduction**

4100 On February 1, 2010, Fort Lewis and McChord AFB became JBLM – one of 12 joint bases worldwide.
4101 On that day, the installation support functions at Fort Lewis and McChord AFB began a phased
4102 consolidation to Army management under the Joint Base Garrison. The process was completed on
4103 October 1, 2010, when JBLM reached its full operational capability and all installation support functions
4104 were transferred.

4105 JBLM is home to the Army’s I Corps and the USAF’s 62nd Airlift Wing. It is one of 15 U.S. power
4106 projection platforms whose primary focus is military support in the Pacific Rim. It is responsible for
4107 meeting the training and deployment requirements of three active component Stryker Brigade Combat
4108 Teams (SBCT), the 446th Airlift Wing of the USAF Reserve Command, and a host of support units,
4109 including the 66th Theater Aviation Command, units of the Washington Army and Air National Guard.

4110 Those aircraft on JBLM assigned to the former Fort Lewis total 99 aircraft, down from the 276 total
4111 aircraft that were on Fort Lewis in 1985. This proposed action, if a decision is made to station a CAB at
4112 JBLM, will add up to 120 helicopters. As noted in Section 3.4, the Army is now considering only
4113 stationing a subset of the aviation units comprising a CAB at JBLM and, if such a decision occurs, only
4114 44 helicopters will be added to JBLM’s current aircraft total.

4115 JBLM YTC provides critical maneuver lands necessary to train large units from JBLM and other
4116 installations. The National Guard and Army Reserve units from Oregon and Washington are among
4117 YTC’s primary users. The few units permanently stationed at YTC are generally small support elements
4118 that have little to no impact on the environment outside the limited cantonment area. YTC has long been
4119 supporting up to brigade level exercises for both armor and infantry units.

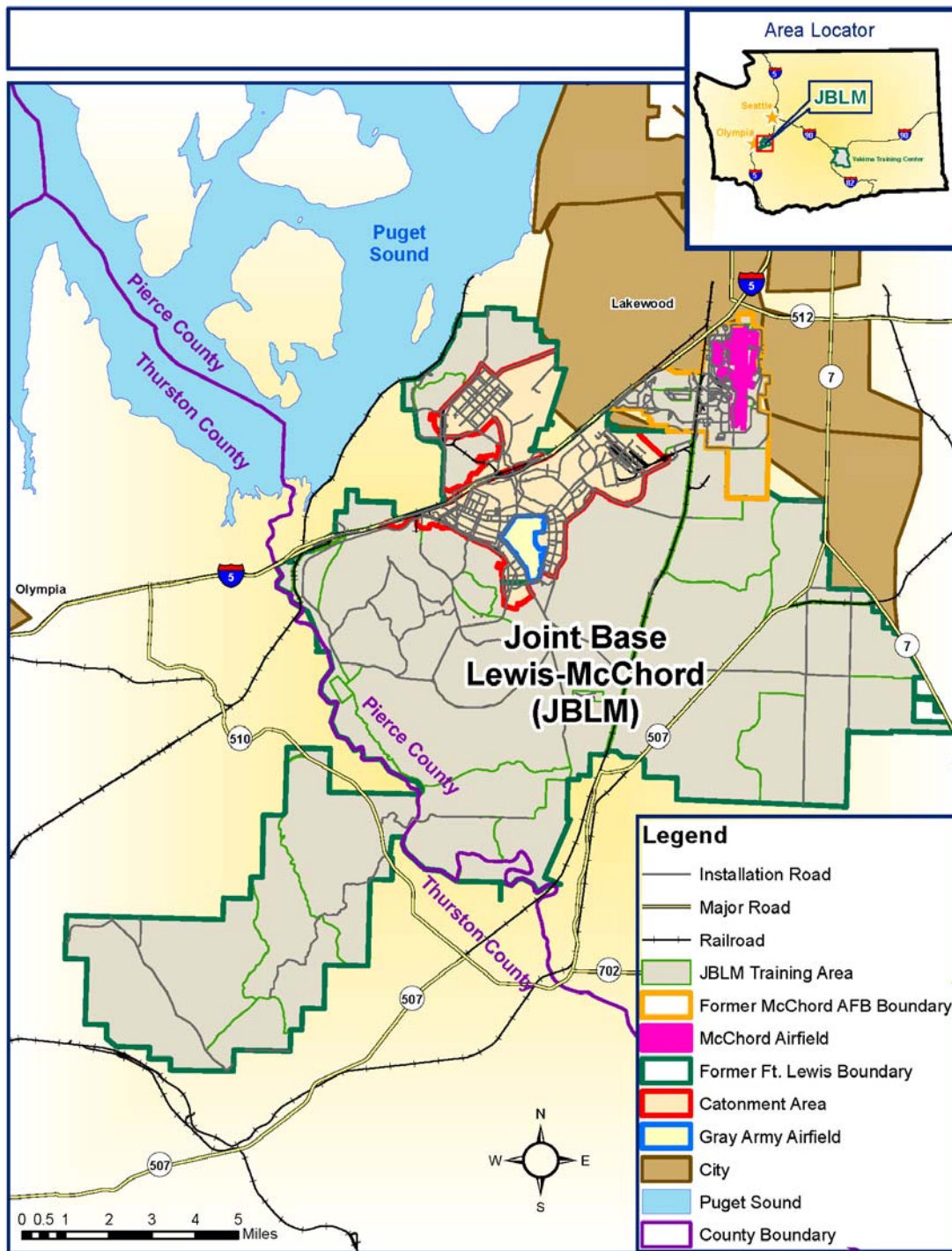
4120 **6.2. Location and Size**

4121 The specific locations and size of both JBLM and YTC are outlined.

4122 **Joint Base Lewis-McChord**

4123 JBLM is located in western Washington in Pierce and Thurston counties (Figure 9). It is bordered on the
4124 north by several municipalities, including the Lakewood, DuPont, and Steilacoom and on the east by
4125 urban and rural unincorporated areas of Pierce County. It is bordered on the south by the Yelm, Rainier
4126 and urban and rural unincorporated areas of Thurston County. It is bordered on the west by Puget Sound,
4127 the Nisqually National Wildlife Refuge, the Nisqually Indian Reservation, the city of Lacey, and other
4128 unincorporated areas of Thurston County. It is approximately one mile (1.6 km) south of Tacoma, 35
4129 miles (56 km) south of Seattle, and seven miles (11 km) east of Olympia. The Nisqually Indian
4130 Reservation is located adjacent to the Nisqually River west of the installation. The main transportation
4131 corridor in the Puget Sound region, I-5, runs through the installation.

4132



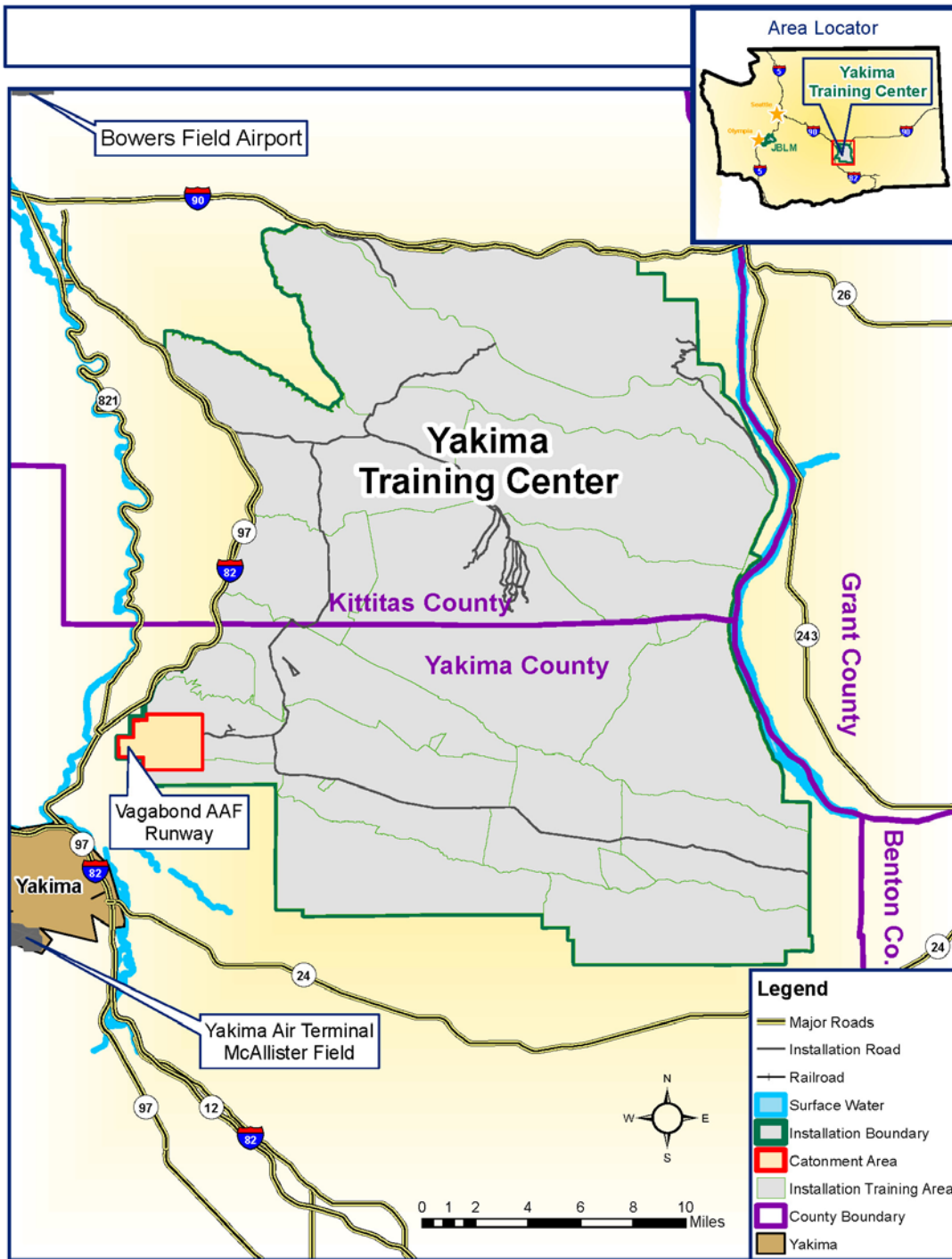
4133

4134 **Figure 9. JBLM, Washington**

4135 The Joint Base consists of approximately 90,600 acres (36,665 ha), of which approximately 86,000
4136 (34,803 ha) constitute the former Fort Lewis and approximately 4,600 (1,862 ha) the former McChord
4137 AFB. Approximately 65,000 acres (26,305 ha) are in maneuver areas.

4138 **Yakima Training Center**

4139 Approximately 180 miles (289.7 km) east of JBLM in central Washington is JBLM's maneuver training
4140 area, YTC, which lies in Yakima and Kittitas counties (Figure 10). It is bounded by I-90 and Badger
4141 Pocket to the north, the Columbia River to the east, the toe of the Yakima Ridge to the south, and I-82 to
4142 the west. It is located approximately 7 miles (11 km) northeast of the city of Yakima.



4143

4144 **Figure 10. YTC, Washington**

4145 YTC is approximately 327,000 acres (132,332 ha). The cantonment area, located in the southwestern
4146 corner of the facility, is approximately 1,000 acres (405 ha). Of the total, most of the maneuver area is
4147 suitable for vehicle and non-vehicular military training.

4148 **6.3. Climate**

4149 This section defines climatic elements of JBLM and YTC.

4150 **Joint Base Lewis-McChord**

4151 The region surrounding JBLM has a Pacific Coast marine climate of moderate temperature and gentle
4152 rainfall, influenced by the effects of ocean water in adjoining Puget Sound, winds from the Pacific Ocean,
4153 and the nearby Cascade Mountain Range, which includes Mt. Rainier, 14,411 feet (4,393 m) above MSL.
4154 The mean temperature ranges from 65° F (18° C) in the summer to 37° F (3° C) in the winter (Fort
4155 Lewis, 2007). Mean annual precipitation is about 43 inches (19 cm) per year with most rainfall occurring
4156 between October and March. December is the wettest month. Average annual snowfall in the region is
4157 16.7 inches (42.4 cm), typically with low accumulations close to Puget Sound and higher accumulations
4158 in surrounding mountain ranges.

4159 **Yakima Training Center**

4160 The region surrounding YTC is greatly influenced by the mountains, which shield the area from strong
4161 arctic winds, and the Cascade Range, which forms a barrier to the easterly movement of moist air from
4162 the Pacific Ocean (Gentry, 2006). The mean temperature ranges from 66° F (19° C) in the summer to 31°
4163 F (-0.5° C) in the winter (Gentry, 2006). Mean annual precipitation is about 8 inches (20.3 cm) per year
4164 with the highest monthly average rainfalls occurring November thru January. Average annual snowfall in
4165 around YTC is 14.1 inches (35.8 cm) (Gentry, 2006), usually occurring from November to March, with
4166 the heaviest average monthly snowfall occurring in December. In keeping with a semi-arid climate,
4167 relative humidity is generally low.

4168 **6.4. Land Use**

4169 Various land uses of JBLM and YTC are defined in the following section.

4170 **6.4.1. Affected Environment**

4171 This subsection defines the environments specifically affected.

4172 **Joint Base Lewis-McChord**

4173 **On-Post Land Use**

4174 The installation is divided into 32 training areas, four impact areas, the cantonment area of the former
4175 Fort Lewis, the former McChord AFB. Most of the developed land uses are located within the
4176 cantonment area (approximately 10,600 acres [4,290 ha]), which includes GAAF (approximately 550
4177 acres [223 ha]), and in the former McChord AFB (approximately 4,600 acres [1,862 ha]). The cantonment
4178 area is located in the northern portion of the installation and is divided by I-5. JBLM-Main was formerly
4179 known as Fort Lewis Main Post and JBLM-North was formerly known as Fort Lewis North Fort. The
4180 McChord area is located in the northwest portion of the installation. The McChord Airfield and associated
4181 land uses are located on the eastern and northern sides of the McChord area. GAAF is in the southern
4182 portion of the cantonment area. IAW the GAAF Master Plan, if needed, an option exists to extend the
4183 runway by 3,000 feet (914 m) to the south without affecting ranges, with the concurrent additional space
4184 for hangers and ramp parting along that extension. Most of the installation is generally unimproved,
4185 meaning it has either no permanent facilities or very limited facilities used by Soldiers to complete
4186 training missions. These generally unimproved land use areas include activities such as wheeled vehicle
4187 movement, gunnery practice, digging activities (tank ditches, vehicle positions, and foxholes), unit
4188 assembly areas, and unit deployment exercises. Approximately 62,000 acres (25,091 ha) are training areas
4189 and 12,900 acres (5,220 ha) are impact areas. Unimproved land use areas also include impact area buffer
4190 zones.

4191 Land use activities are restricted in certain portions of JBLM either seasonally or year-round. These
4192 Controlled Use Areas contain unique attributes that require preservation, conservation, or restoration, or
4193 pose a safety or human health hazard. Areas designated as Controlled Use Areas include wetlands and
4194 streams and their associated buffers, areas previously designated as Research Natural Areas, buffers for
4195 listed species, and other natural resource areas, cultural sites and environmental hazards such as landfills.

4196 JBLM also accommodates multiple nonmilitary uses, including commercial timber harvests; recreational
4197 uses, such as hunting, fishing, horseback riding, and other outdoor activities; and Native American
4198 traditional cultural practices followed by the Native American tribes. Timber harvests take place within
4199 the various forested training areas and on portions of the former McChord AFB. The JBLM Forestry
4200 Branch manages 55,000 acres of forest, woodland, and savanna for military training, biodiversity, and
4201 wildfire risk reduction. Management tools include commercial timber sales (primarily light thinning),
4202 precommercial thinning, reforestation, ecological restoration, and prescribed fire. Recreational activities
4203 may take place anywhere throughout the unrestricted areas of JBLM, depending on scheduled training
4204 exercises. Native American needs for access are discussed in Section 6.10.1.

4205 Residential, recreational, commercial, and industrial facilities and operations occur in the developed land
4206 uses. Most are in the cantonment area and the McChord area, such as administrative, maintenance,
4207 medical services, community support, recreation, supply and storage, classroom and simulation training,
4208 reserve component support, deployment facilities, Soldier and Family housing, and utilities. Aviation-
4209 related facilities are at GAAF and the McChord Airfield. Principal industrial operations at JBLM have
4210 been the repair and maintenance of vehicles and aircraft.

4211 **Surrounding Off-Post Land Use**

4212 Land uses adjacent to JBLM include urban, rural, and mixed residential areas; commercial districts and
4213 corridors; and recreational, agricultural, and other open space areas. Development to the north consists
4214 primarily of single- and multiple-family residential housing interspersed with commercial areas. The
4215 nearest off-Post residential communities and their associated commercial areas to the north are the cities
4216 of DuPont, Steilacoom, Lakewood, and Tacoma. In addition, the off-Post portion of American Lake and
4217 the associated recreational, commercial, and residential land uses are near the Fort Lewis cantonment
4218 area. The areas to the east and south of the installation are characterized by urban unincorporated and
4219 rural unincorporated areas in Pierce County and several small communities, such as Roy. To the west,
4220 areas surrounding the installation are bordered by Puget Sound, the Nisqually National Wildlife Refuge,
4221 the Nisqually Indian Reservation, and the Lacey and Yelm Urban Growth Areas.

4222 JBLM faces increased pressure from rapid urban growth and development, particularly along the Seattle-
4223 Tacoma-Olympia corridor. This development and growth is increasingly leading to land-use conflicts in
4224 the local area and region. The Fort Lewis Master Plan identifies the need to eliminate existing and

4225 developing land-use conflicts, to coordinate with adjacent jurisdictions to maximize opportunities for
4226 mutual benefit, and to minimize conflicts and developmental incompatibilities. One management tool
4227 used for the cantonment area of the former Fort Lewis, which includes GAAF, is a LandUse
4228 Deconfliction process, which allows installation representatives to ensure that integrated planning occurs
4229 and land use conflicts are minimized or eliminated (Fort Lewis, 2007).

4230 **Yakima Training Center**

4231 **On-Post Land Use**

4232 Developed land uses are located within the cantonment area (approximately 1,700 acres [688 ha]) and the
4233 Selah Airstrip and VAH (291,951 acres [118,148 ha]). The cantonment area includes residential,
4234 administrative, commercial, light industrial, and open space uses. The cantonment area serves as the
4235 administrative center for most training activities at YTC, except for range management, which is located
4236 at Range Control. Located in the southwest corner of the installation, the cantonment area includes VAH,
4237 which is used for rotary-wing aircraft (helicopters). Selah Airstrip is located in the range areas;
4238 specifically within Training Area 12.

4239 The generally unimproved land use areas are the training and impact areas (327,200 acres [132,413 ha]),
4240 which include maneuver, impact, range, and special uses. Special use areas include airborne training sites
4241 (drop zones). Training activities on maneuver areas at YTC include maneuver events, off-road tracked
4242 vehicle movement, wheeled vehicle movement, aerial maneuver and gunnery activities, gunnery practice,
4243 digging activities (tank ditches, vehicle positions, and foxholes), unit assembly areas, and river crossing
4244 exercises. Training activities are coordinated to preclude damage to sensitive habitats and species.
4245 Included in the unimproved land use areas is approximately 10,000 acres (4,047 ha) managed for
4246 significant and sensitive natural and/or cultural resources (e.g., wetlands, riparian areas, archaeological, or
4247 sacred sites) and approximately 44,300 acres (17,928 ha) in a Sage grouse Protection Area, further
4248 expanded on in Section 6.9.1.

4249 Nonmilitary land uses at YTC include recreational activities such as hunting, hiking, and horseback
4250 riding. These activities may take place anywhere throughout unrestricted areas of YTC, depending on
4251 scheduled training exercises and when approved by the Garrison Commander. A 22-mile (35 km) stretch
4252 of the John Wayne Trail, established by the State of Washington Parks Department, is located within, and

4253 owned and managed by YTC. The trail is used for nonmotorized types of recreation including hiking, trail
4254 rides, bicycling, and horseback riding.

4255 Numerous areas of YTC support traditional hunting and gathering practices of Yakama Nation tribal
4256 members and the Wanapum People. Native American needs for access are discussed in Section 6.10.1.

4257 **Surrounding Off-Post Land Use**

4258 YTC is bordered on the west and southwest by suburban residential development. Other land adjacent to
4259 YTC is used for agriculture, livestock grazing, and recreation, and includes ranges and residential areas,
4260 as well as various Federal- and State-owned parcels. The area north of I-90 contains a patchwork of
4261 private and government-owned land used primarily for grazing. There are two wind projects north of
4262 YTC's northern boundary, the operational Puget Sound Energy's (PSE) 230 megawatt (MW) Wild Horse
4263 Wind Project (15 miles [24 km] east of Ellensburg) on 8,600 acres (3,480 ha) and the Vantage Wind
4264 Project being built by Invenergy Wind North America (18 miles [29 km] east of Ellensburg on 4,750
4265 acres (1,922 ha). Gingko State Park and Wanapum State Park border YTC at its northeast corner. Several
4266 small communities are located within the larger area beyond the Columbia River to the east, which is used
4267 primarily for agriculture. Toward the southern end of YTC's eastern border, the Wanapum People live in
4268 a small village near Priest Rapids Dam, immediately adjacent to the installation boundary. The south
4269 slope of Yakima Ridge, at and beyond the southern installation boundary, is used primarily for livestock
4270 grazing and agriculture. Several urban and smaller residential communities, including Yakima, Selah,
4271 Moxee City, and Terrace Heights, are located at YTC's southwest corner. I-82 separates the western
4272 boundary of YTC from a collection of privately owned properties and other government lands, the
4273 Yakima River, and the L. T. Murray Wildlife Recreation Area. Finally, the area extending into YTC
4274 boundaries at its northwest corner, referred to as the Badger Pocket, consists of irrigated agricultural land
4275 with scattered residences and farm buildings.

4276 The extent of urbanization occurring around YTC is lower compared to other installations and is not
4277 currently impacting the training mission.

4278 **6.4.2. Environmental Consequences**

4279 **Alternatives 2 and 3**

4280 The impact from a decision to station a CAB at JBLM will be expected to be less than significant. Land
4281 use changes will impact internal use of military land, not use of private land. This decision will not
4282 change JBLM's former Fort Lewis cantonment area land use, former McChord AFB area land use, GAAF
4283 land use, or the land use at YTC. The CAB facilities will be constructed in the GAAF and East Division
4284 ADP areas. The East Division ADP is located east of GAAF and west of an impact area. Both areas are
4285 largely developed already, with undeveloped segments having been previously developed or disturbed.
4286 Renovations to existing buildings in the GAAF and East Division ADP area will also occur. The current
4287 GAAF land use and size will remain relatively unchanged. Land uses in the East Division Area will also
4288 remain relatively unchanged. There will be no change to nonmilitary land use on JBLM and YTC, such as
4289 recreation and access by tribes to cultural and natural resources. No new live-fire ranges or maneuver
4290 training areas are currently identified for the CAB. Live-fire training is expected to occur on ranges
4291 already present on the former Fort Lewis and YTC. Training area land use is expected to remain
4292 unchanged; however, there will be an increased frequency and intensity of use involving CAB training,
4293 including integrated training with ground maneuver BCTs. Integrated training is expected to occur on
4294 appropriate existing ranges at YTC.

4295 Effects to existing land uses will be an increase in the frequency of noise and visual intrusions of
4296 helicopter training over current levels. An increase in the frequency of training could affect nonmilitary
4297 land uses of recreation and access by tribes to cultural and natural resources. Currently, maneuver training
4298 areas are open to recreational uses when there is no scheduled maneuver training. However, the addition
4299 of CAB training at JBLM and YTC will increase the number of operating hours for maneuver training.
4300 The opportunities for access to training areas for recreation will be reduced in those areas that support
4301 recreation. Although the effect will be to reduce the availability of training areas for recreation, the
4302 increase in aviation training will not result in conflicts with existing land use zones.

4303

4304 A majority of CAB training will be conducted as air-ground integration training at YTC. In other words,
4305 if CAB units were not available to train with ground units at YTC, the ground units will still schedule and
4306 conduct maneuver training exercises at YTC with the same frequency independent of CAB stationing at

4307 JBLM. Exercises will still be scheduled, but ground unit maneuver training rotations that will still occur
4308 will not have the added training benefit of integrating with the CABs units as frequently. Only a small
4309 proportion of aviation training at YTC is projected to be in the form of aviation training that will not have
4310 otherwise occurred. Therefore, the impacts of CAB stationing at JBLM and its impacts on public access,
4311 land use, and recreational or other uses are expected to be less than significant.

4312 **Alternative 1 and the No-Action Alternative**

4313 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
4314 locations. There will be no change in land use impacts due to training or construction activities associated
4315 with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the
4316 Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY
4317 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected under
4318 Alternative 1 is other than JBLM.

4319 **6.4.3. Cumulative Effects**

4320 A CAB stationing to JBLM, to include CAB training at YTC, is expected to result in less than significant
4321 cumulative effects to land use. No Army reasonably foreseeable future actions were identified that will
4322 involve activities or actions that will be incompatible with existing military land uses or land use
4323 designations on JBLM or YTC. The only non-Army action identified with potential incompatible uses is
4324 an action still in the planning stages. PacifiCorp has proposed to construct a new high voltage
4325 transmission line that will extend from the East Selah Substation (west of YTC) to a substation east of the
4326 Wanapum Dam (east of YTC). A number of potential routes are being considered including a route that
4327 parallels an existing line crossing YTC and several others adjacent to the YTC boundary. Some route
4328 alternatives could have potential impacts to cultural and natural resources, as well as land use impacts
4329 with respect to CAB training activities. However the level of impacts from this action will not be known
4330 until analysis is complete for the various routes considered. A fuller discussion of cumulative impacts at
4331 JBLM and YTC can be found in JBLM's *Grow the Army* FEIS (JBLM, 2010a).

4332 **6.5. Air Quality and GHG**

4333 Air quality of JBLM and YTC are defined in the following section.

4334 **6.5.1. Affected Environment**

4335 **Joint Base Lewis-McChord**

4336 Air quality regulation is carried out by the PSCAA in Pierce County and by the Olympic Region Clean
4337 Air Agency in Thurston County. Opacity is regulated at JBLM under the jurisdiction of the local air
4338 pollution control agencies.

4339 **NAAQS Attainment Status**

4340 JBLM is located within the Air Quality Control Regions (AQCR) of the Puget Sound Intrastate AQCR
4341 and Olympic-Northwest Washington AQCR. All of Washington is in attainment with NAAQS criteria
4342 pollutants, or is designated as unclassified/attainment. Areas with the unclassified/attainment designation
4343 cannot be completely classified because of a lack of information, but are treated as attainment areas for
4344 regulatory purposes. The former Fort Lewis is located in an unclassifiable area for PM₁₀, and in an area
4345 that was previously designated as a nonattainment area for both O₃ and CO. As part of the redesignation
4346 process, the Washington State Department of Ecology (WS DOE) submitted a maintenance plan under
4347 which the former Fort Lewis can continue to maintain attainment standards for a 10-year period. Actions
4348 at Fort Lewis resulting in an increase of 100 tpy of O₃ precursors (NO_x and VOC) or CO will trigger a
4349 conformity analysis.

4350 Portions of JBLM are located in areas designated for CO and O₃ maintenance. Because of the more
4351 stringent standards for O₃, portions of JBLM could potentially be a nonattainment area for this pollutant
4352 in the near future. According to PSCAA, the nonattainment designation, should it occur, will likely be in
4353 a couple of years. Additionally, in 2008 the EPA designated a new PM_{2.5} nonattainment area in southern
4354 Tacoma (EPA, 2008). The boundary of this proposed area is adjacent to the northern and eastern
4355 boundary of JBLM, but does not include the installation.

4356 The closest PSD Class I area to JBLM is Mount Rainier National Park, which is located approximately 50
4357 miles (80 km) to the southeast.

4358 **Pollutants and Sources**

4359 The primary emission sources at JBLM are motor vehicles and industrial sources. The primary pollutants
4360 from motor vehicles include NO_x, CO, and VOCs. VOCs are emitted primarily from handling of organic
4361 liquids (i.e., refueling activities). Secondary pollutants include PM₁₀ and PM_{2.5} emissions as fugitive dust,
4362 caused by motor vehicles travelling on unpaved and/or gravel roads, project construction, demolition, and
4363 training exercises. Industrial stationary sources at JBLM include aerospace maintenance and rework
4364 operations, fuel burning, fuel storage and dispensing, degreasing, woodworking, and painting operations.
4365 The primary pollutants from fuel burning are NO_x, CO, SO₂, VOCs, and PM₁₀. The primary pollutants
4366 from fuel storage and painting are VOCs.

4367 **Permits, Management Plans, and Best Management Practices**

4368 Currently, for the former Fort Lewis, JBML maintains a Synthetic Minor operating permit with the
4369 PSCAA (Notice of Construction Number 9185), which means that any increase in stationary source
4370 emissions that exceed the Synthetic Minor Thresholds stated in the permit could require the transition
4371 back to major source status. Installation-wide emissions are limited to less than 99 tpy of any criteria
4372 pollutant and less than 25 tons (23 metric tons) per year of HAPs. JBLM will demonstrate compliance
4373 with all requirements listed in the permit, including monthly calculations of fuel usage and emissions. The
4374 Synthetic Minor Permits includes stationary emissions sources (such as boilers and emergency
4375 generators), the WWTP, and landfill gas. It does not include portable field generators, exhaust and
4376 fugitive dust from vehicle maneuvers, lawn equipment, helicopter exhaust emissions, or household paint.

4377 The PSD baseline date for the former Fort Lewis is August 23, 1979. In June 1979, the Army submitted
4378 an EIS that summarized the emissions at Fort Lewis and YTC. At Fort Lewis, particulate emissions were
4379 10,723 tons (9,723 metric tons) per year. This estimate did not include tracked vehicles, which were
4380 assumed to contribute additional particulate emissions of at least 10,000 tons (9,072 metric tons) per year.

4381 **Yakima Training Center**

4382 Air quality regulations are under the Washington Department of Ecology and, for YTC, carried out by
4383 that department's Central Regional Office for Kittitas County and by the Yakima Regional Clean Air
4384 Agency (YRCAA) for Yakima County.

4385 **NAAQS Attainment Status**

4386 Currently, YTC is a minor source of air pollution. A very small strip of YTC's western cantonment area
4387 (less than 100 acres [40 ha]) lies within a maintenance area for PM₁₀. Therefore, this portion of the
4388 cantonment area is subject to a general conformity threshold of 100 tpy for PM₁₀. There is also a
4389 maintenance area for CO in the city of Yakima, located more than 3 miles (4.8 km) southwest of the YTC
4390 boundary. Activities at YTC are unlikely to affect air quality in this maintenance area.

4391 The closest PSD Class I area to YTC is the Goat Rocks Wilderness Area, which is located approximately
4392 60 miles (96 km) to the southwest of the installation.

4393 **Pollutants and Sources**

4394 The major pollutants in the Yakima region and on YTC are vehicular emissions (primarily CO, NO_x, and
4395 VOCs) and greenhouse gas. In addition, particulate emissions (PM₁₀ and PM_{2.5}) are generated by military
4396 vehicles traveling on unpaved roads and off-road and by military aircraft. Impacts to air quality from
4397 Army activities also include emissions from training-related fires; stationary sources, such as heating
4398 plants; dust and exhaust emissions from mobile sources, such as construction equipment and personal
4399 vehicles; and hazardous emissions from building demolition, maintenance and repair shops, and other
4400 activities. The largest stationary source of air pollution at YTC is fuel-burning equipment, which includes
4401 generators and boilers.

4402 Air quality on YTC is generally considered good, although it can degrade locally rather quickly when PM
4403 pollutants are generated by rangeland fires and fugitive dust associated with maneuver training activities.
4404 However, PM pollutants commonly dissipate quickly because of the predominant winds from the
4405 west/southwest.

4406 **Permits, Management Plans, and Best Management Practices**

4407 Emission inventories for YTC from 1995 and 2000 showed that YTC did not generate sufficient air
4408 contaminants to require a Title V permit.

4409 No new construction is currently planned to occur at YTC in support of the CAB stationing action.
4410 However, should any new construction projects be identified in the future, those projects will be properly
4411 reviewed and permitted to comply with applicable air regulations.

4412 **6.5.2. Environmental Consequences**

4413 **Alternative 2 and 3**

4414 Air quality impacts will occur from the construction and operation of stationary sources for the CAB
4415 facilities and the associated tactical equipment sets and weapons systems involved in training CAB units.
4416 Air emissions from construction activities at JBLM will include construction traffic and equipment and
4417 will be temporary in nature. This CAB stationing is expected to have indirect impacts on the CO and O₃
4418 maintenance areas at JBLM by employees and their transportation activities, but no significant
4419 degradation is anticipated. Generation of CO and O₃ precursors for all alternatives of JBLM's *Grow the*
4420 *Army* FEIS, including CAB stationing, were predicted to have less than significant impacts to air quality.
4421 Table 4-22 of JBLM's *Grow the Army* FEIS presents estimated annual emissions of criteria air pollutants
4422 associated with CAB training. Emissions associated with aviation training include 163.57 tpy CO, 13.64
4423 tpy NO_x, 133.15 tpy VOCs, 4.75 tpy SO₂, 4.71 tpy PM₁₀, and 4.71 tpy PM_{2.5}. Emissions associated with
4424 CAB wheeled vehicle training include 7.36 tpy CO, 6.16 tpy NO_x, 6.165 tpy VOCs, 0.09 tpy SO₂, 20.59
4425 tpy PM₁₀, and 3.75 tpy PM_{2.5}. Air quality impacts at YTC are limited to fugitive dust emissions connected
4426 with CAB training activities. Operations of the CAB (excluding the above-mentioned training) will result
4427 in air emissions from boilers, emergency generators, equipment maintenance, and traffic from employees
4428 and deliveries.

4429 Air quality impacts will occur as a result of an increased number of privately-owned vehicles in the
4430 region. Using traffic estimates from Section 6.12.2, estimated emission levels potentially caused by the
4431 privately-owned vehicles of CAB Soldiers at JBLM were calculated (Table 15); however, this increase is
4432 not expected to cause a significant impact.

4433

4434 **Table 15. Estimated Annual Vehicle Emissions Generated from Increased Population brought on**
 4435 **by a CAB Stationing**

Emission Per Mile		Total Emissions	
Emission	Pounds Per Mile	Pounds	Tons
CO	0.00765475	522,238	261.1
NO _x	0.00077583	52,930	26.4
VOC	0.00079628	54,325	27.1
SO _x	0.00001073	732	0.4
PM ₁₀	0.00008979	6,126	3.1
PM _{2.5}	0.00005750	3,923	2.0
CO ₂	1.10152540	75,150,468	37,575.2
CH ₄	0.00007169	4,891	2.4

4436

4437 With increased training, there is a risk that there will be an increase in fires, which emit PM_{2.5}. However,
 4438 existing fire management actions will continue to minimize the risk of large fires. If additional fires
 4439 occurred, they are not expected to impact any PSD Class I areas. Effects to air quality will be temporary
 4440 and will not be expected to cause significant opacity effects outside of JBLM or YTC boundaries.

4441 Additionally, combustion of JP8 fuel by helicopters will generate 163.57 tons of CO, 13.64 tons of NO₂,
 4442 4.71 tons of PM₁₀/PM_{2.5}, 4.75 tons of SO₂, and 133.15 tons of VOCs annually during training exercises
 4443 (JBLM, 2010a).

4444 Should the Joint Base air permit status be a single joint synthetic minor for the entire Joint Base, the level
 4445 of increased emissions that will result from a CAB stationing at JBLM is expected to cause the
 4446 installation to exceed limits listed in the Fort Lewis synthetic minor permit. JBLM and PSCCA are
 4447 currently coordinating on the appropriate permitting status for the Joint Base, which, per Section 4.4.1,
 4448 became operational in 2010. The results of this coordinated action will be a permitting status for the Joint
 4449 Base that is appropriate for the operations of, and taking place on, the facility.

4450 JBLM and YTC demonstrated conformity in the Clean Air General Conformity Analyses in JBLM's
 4451 *Grow the Army* FEIS (JBLM, 2010a).

4452 For GHG and climate change, a rough estimate of the carbon emissions from CAB operations can be
 4453 obtained by taking the hours that will be flown by the aircraft, determining the gallons of fuel to be used,
 4454 and thereby determining the likely annual emissions (Table 16).

4455 **Table 16. Direct GHG Emissions from Aviation Asset Flight Operations**

Emissions Factor

Data¹

EEF (LBS/GAL)

GWP³

Carbon Dioxide	Nitrous Oxide²	Methane²
21.09	0.000683422	0.000595238
1	310	21

GHG Emission Calculations									
Group ID	Airframe Type	Total Annual Operational Time (hrs)	Max. Rated Fuel Use (lbs/hr)	Fuel Type	Fuel Density (lbs/gal)	Annual Fuel Use (gal)	CO₂ (tpy)	N₂O (tpy)	CH₄ (tpy)
1	UH-60	5,388	1,200	JP-8	6.7	965,014.93	10,176.1	0.3	0.3
2	AH64-D	10,420	1,200	JP-8	6.7	1,866,268.66	19,679.8	0.6	0.6
3	OH-58D	7,041	320	JP-8	6.7	336,286.57	3,546.1	0.1	0.1
4	UH-60	1,638	1,200	JP-8	6.7	293,373.13	3,093.6	0.1	0.1
5	CH-47	2,370	2,200	JP-8	6.7	778,208.96	8,206.2	0.3	0.2
6	15 UH-60	3,142	1,200	JP-8	6.7	562,746.27	5,934.2	0.2	0.2
Total Tons =							50,636.0	1.6	1.4
Total Annual GHG Emissions as CO_{2e} = 51,174.7 tons									

CO_{2e} = Carbon Dioxide Equivalents

Source: Meister, 2010

NOTE:

1. Emissions factors calculated from data in: (1) Energy Information Administration, Documentation for Emissions of GHG in the U.S. 2005, DOE/EIA-0638 (2005), October 2007, Tables 6-1, 6-4, and 6-5.
2. Source: U.S. EPA. Inventory of U.S. GHG Emissions and Sinks: 1990-2005, EPA 430-R-07-002, Annex 3.2, (April 2007), web site: <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>. Units converted from g/gal to lbs/gal.
3. GWP of gases (100-year time horizon) from the IPCC, SAR.

4456

4457 In addition to GHG impacts from helicopter training, it is estimated that the tactical ground vehicles of the
 4458 CAB will use approximately 148,400 gallons of JP-8 fuel annually. This will be estimated to contribute
 4459 up to an additional 10,608 tons of CO_{2e} per year given a high use scenario for these vehicles and assuming
 4460 they are not deployed and training at home station.

4461 Section D.6 of Appendix D in this PEIS discusses the transportation impacts of CAB stationing. This
4462 appendix predicts that the addition of CAB Soldiers and their Families will be expected to increase
4463 vehicle miles driven in and around the installations by 70,750,880 miles at each location annually.
4464 Assuming a privately owned vehicle fleet fuel efficiency average of approximately 24 miles per gallon, an
4465 additional combustion of approximately 2,947,950 gallons of gasoline will be expected to result in an
4466 additional 26,207 tons of CO equivalents according to calculations and conversions used by the EPA
4467 (www.epa.gov/cleanenergy/energy-resources/calculator.html).

4468 The cumulative impact from combustion of fossil fuels for tactical and privately owned vehicles, when
4469 combined, is anticipated to result in the release of an additional 87,989.7 tons of CO₂ GHG equivalents.
4470 This estimate includes additional use of helicopters and ground support vehicles, and indirect impacts of
4471 commuter traffic. These GHG impacts will only be realized on a global scale if a new CAB is added to
4472 the Army's force structure, and not in the case that existing units are realigned to form the CAB.

4473 It is recognized that additional energy for homes and offices will also increase the amount of GHGs
4474 produced as part of this action. JBLM is aggressively working towards installation sustainability goals
4475 IAW DA and DoD policy. In efforts to meet EO objectives as well as State and Federal regulations for
4476 renewable energy use, JBLM is working toward deriving a much larger amount of their energy from
4477 renewable sources in the next decade.

4478 For a CAB to be formed by consolidating existing units, there should be no net gain of carbon emissions.
4479 The aircraft are already flying somewhere and adding these carbon emissions to the global mix. For a
4480 CAB to be built, the emissions will be added to the global production of GHG. To put this in perspective,
4481 the 87,989.7 tons of CO₂^e represent 0.000013 percent of the U.S. emissions total. In this case, this is not a
4482 significant increase, but it does add to the global GHG emissions and therefore could contribute to the
4483 climate change phenomenon.

4484 The direct and cumulative impacts of implementing this decision will not contribute significantly to the
4485 degradation of air quality in the region and will not require General Conformity mitigation, PSD
4486 permitting, or produce violations to air quality.

4487 If a new CAB is stationed at JBLM, it will contribute GHGs to the earth's atmosphere by adding vehicles,
4488 personnel, facilities, and their associated emissions. The global concentration of CO₂ in our atmosphere

4489 today far exceeds the natural range over the past 650,000 years. Global surface temperatures have
4490 increased about 33.33° Fahrenheit (0.74° Celsius) (plus or minus 32.32° Fahrenheit [0.18° Celsius]) since
4491 the late 19th century (reference is <http://www.nesdis.noaa.gov/FAQs.html>). The increase in GHGs adds to
4492 the risk of changing climate, affects of which could include changes in species distribution, species
4493 viability, increased flooding, higher sea levels, population displacement, and increased risk of drought
4494 and desertification.

4495 **Alternative 1 and the No-Action Alternative**

4496 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
4497 locations. There will be no change in air quality impacts due to training or construction activities
4498 associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions,
4499 Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start
4500 of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected
4501 under Alternative 1 is other than JBLM.

4502 **6.5.3. Cumulative Effects**

4503 Army actions will be expected to contribute to cumulative impacts to air quality in the JBLM and YTC
4504 regions, but cumulative effects to air quality are expected to be less than significant. Development,
4505 industry, and population increases in the South Puget Sound region have resulted in cumulative impacts
4506 to air quality in the past. In the Yakima Valley, development, population increases (including wood
4507 burning during winter), and agriculture have contributed to pollutant emissions. Carbon monoxide
4508 emissions, in particular, have been a concern for the South Puget Sound region, largely because of
4509 increased traffic congestion in the region. Car emissions and winter wood smoke have been the primary
4510 regional source of CO₂ emissions around YTC. Sustainability efforts by JBLM to reduce traffic
4511 congestion on the installation and reduce overall energy consumption by 2025 will help decrease air
4512 emissions that originate on JBLM and/or are associated with fuel burning to provide energy sources for
4513 the installation. Efforts to conduct smoke-, dust-, and other pollutant-generating activities during periods
4514 with favorable weather (based on factors such as wind speed and direction) will minimize the effects of
4515 pollutants generated on JBLM affecting nearby communities. Continuing to follow fire management
4516 programs will help to minimize the amount of PM₁₀ generated by Army activities on YTC. A fuller

4517 discussion of cumulative impacts at JBLM and YTC can be found in JBLM's *Grow the Army* FEIS
4518 (JBLM, 2010a).

4519 **6.6. Noise**

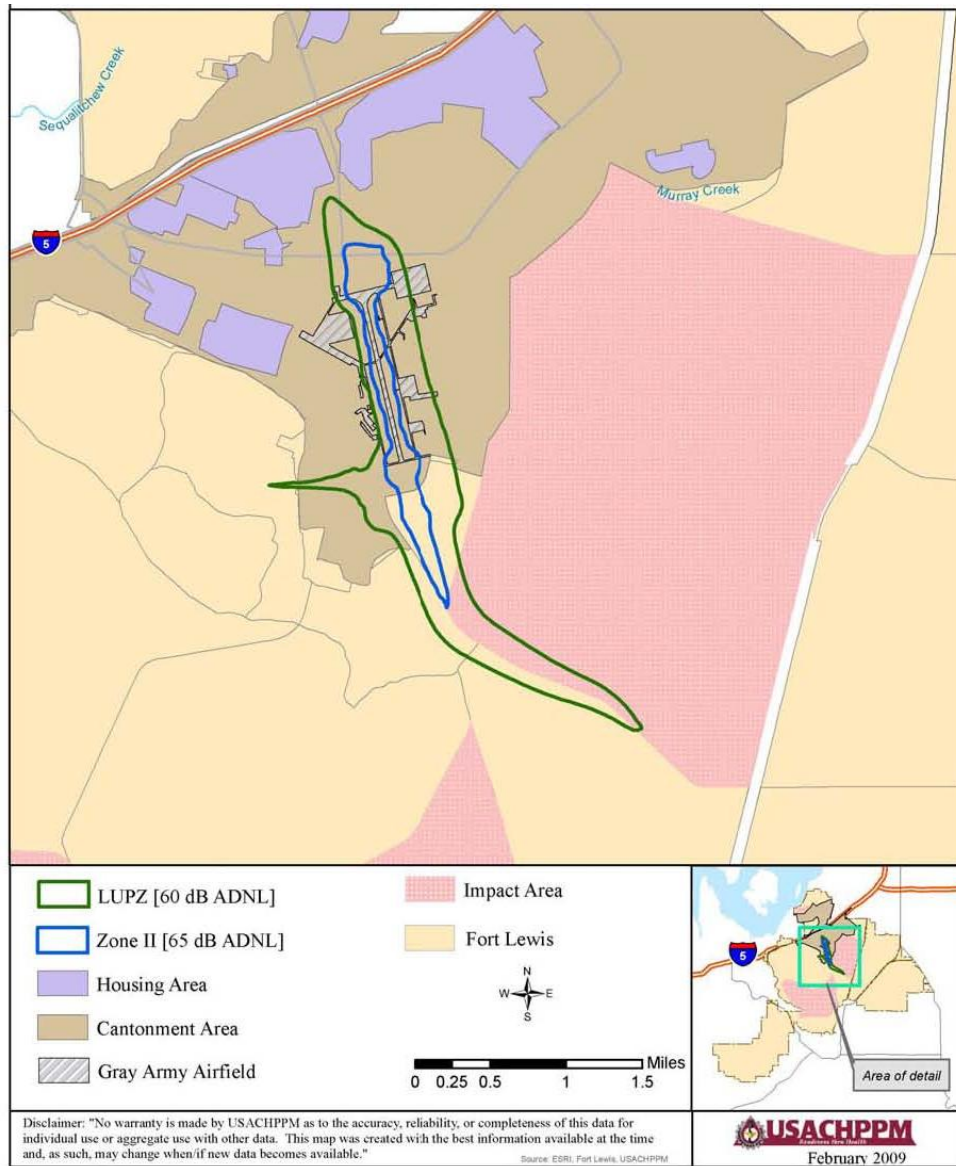
4520 Noise at JBLM and YTC is defined in the following section.

4521 **6.6.1. Affected Environment**

4522 **Joint Base Lewis-McChord**

4523 Existing sources of noise at JBLM include military aviation activities, small arms, artillery, large-caliber
4524 weapons training, and vehicular traffic. Noise from vehicular traffic is primarily located in the Lewis
4525 cantonment and McChord areas. The highest noise levels are produced by gunnery, demolition, and
4526 helicopter training. Noise resulting from the High Mobility Artillery Rocket System (HIMARS) unit will
4527 be eliminated as the HIMARS unit is scheduled to leave JBLM.

4528 The Army has developed noise contours for the former Fort Lewis (CHPPM, 2009) and results were
4529 included in the Fort Lewis *Grow the Army* FEIS (JBLM, 2010a); a copy is also provided in Appendix B
4530 of this PEIS. The Land Use Planning Zone (LUPZ) and Zone II noise contours for GAAF operations do
4531 not extend into the family housing areas or beyond the installation boundary (Figure 11). The low number
4532 of GAAF operations does not produce a Zone III noise contour. Demolition and large-caliber weapons
4533 noise contours include the NZ II extending beyond the installation boundary, encompassing the Nisqually
4534 Indian Reservation and the city of Roy. The NZ III contour for demolition and large-caliber weapons
4535 extends less than 0.3 mile (0.48 km) into the Nisqually Indian Reservation and approximately 660 feet
4536 (201 m) beyond the southeastern boundary near the city of Roy. Noise contours for small arms operations,
4537 based on peak levels rather than a cumulative or average level, include the Zone II noise contour
4538 extending into the Evergreen, Hillside, and Madigan housing areas. The Zone III noise contours for small
4539 arms operations do not extend into the housing areas.



4540

Source: CHPPM, 2009

4541 **Figure 11. GAAF Noise Contours**

4542 The USAF has developed noise contours for the former McChord AFB (HQ Air Mobility Command
 4543 [AMC], 2007) but as the proposed action will not affect land use or activities in the McChord area,
 4544 McChord data is not presented.

4545 Flight altitudes adhere to noise-abatement policies that minimize the aircraft noise footprint on and near
4546 the installation and within the local flying area in order to establish and sustain positive public relations.
4547 No aircraft will fly below 500 feet (152.4 m) along flight routes and all Army aircraft will maintain a
4548 minimum of 2,000 feet AGL (609 m AGL) of national parks, monuments, recreation areas and scenic
4549 river ways administered by the National Parks Service; national wildlife refuges, big game refuges or
4550 wildlife ranges administered by the USFWS; and wilderness and primitive areas administered by the
4551 USFS. Additionally, JBLM Regulation 95-1 imposes a 2,000 foot (609 m) altitude restriction for flight
4552 over congested areas off the installation. Exceptions to this regulation include emergency situations,
4553 periods when weather conditions dictate a lower altitude, or when the use of a lower altitude is mission-
4554 essential (Hummel, 2010).

4555 **Yakima Training Center**

4556 Existing sources of noise at YTC include military aviation activities, small arms artillery, large-caliber
4557 weapons training, and vehicular traffic. As with JBLM, noise from vehicular traffic is primarily located in
4558 the cantonment area.

4559 YTC noise contour data is also included in the Fort Lewis *Grow the Army* FEIS (JBLM, 2010a). The
4560 LUPZ, Zone II, and Zone III noise contours for demolition and large-caliber operational noise extends
4561 beyond the installation boundary in some areas to the west and south, but do not extend into the YTC
4562 cantonment area. The affected areas are either sparsely populated or unpopulated, with compatible land
4563 uses, including mountainous and agricultural areas. The LUPZ and Zone II noise contours for VAH do
4564 not extend beyond the installation boundary or near existing structures. The low number of VAH
4565 operations does not produce a Zone III noise contour. The Zone III noise contour for small arms
4566 operations, based on peak levels, does not extend into the YTC cantonment area nor beyond the
4567 installation boundary. The Zone II for small arms operations does not extend into the cantonment area and
4568 extends less than 3,900 feet (1,189 m) beyond the installation boundary.

4569 **6.6.2. Environmental Consequences**

4570 **Alternative 2 and 3**

4571 The addition of CAB facilities at the GAAF and East Division ADP areas will be short term in duration
4572 and construction does not generate the peak noise levels (as do large-caliber weapons) that could be
4573 exceeded 15 percent of the time. Consequently, the increase in noise associated with construction of new
4574 facilities will be less than significant.

4575 The addition of a CAB to the existing GAAF operations will be significant to noise receptors. With the
4576 stationing of a CAB, the increase in helicopter operations at GAAF will extend the LUPZ (60 ADNL [A-
4577 weighted day-night sound levels]) and Zone II (65 ADNL) noise contours into the cantonment area. With
4578 this extension of contours, an increase in the number of complaints about noise is expected from on-post.
4579 Per Section 6.6.1, the additional flight operations resulting from a CAB stationing at JBLM will increase
4580 JBLM and YTC air time combined to less than an annual average of 24,800 flying hours.

4581 Administration of Army and USAF flight training will not be changing in the foreseeable future, therefore
4582 the addition of a CAB will not affect the activities or noise contours at McChord Airfield.

4583 The additional VAH activity resulting from CAB training activities is expected to extend the LUPZ (60
4584 ADNL) beyond the western boundary of YTC approximately 2 miles (3 km). However, this land is zoned
4585 agricultural and is sparsely populated, therefore the impact will be less than significant. The Zone II (65
4586 ADNL) and Zone III (75 ADNL) noise contours for VAH do not extend beyond YTC's boundary.

4587 The addition of a CAB with its helicopters to maneuver training at JBLM will substantially increase the
4588 amount of noise generated by this type of training. Increasing the frequency of that noise will cause
4589 annoyance to adjoining communities. An increase in the number of complaints about noise is expected
4590 from off-post. Growth and stationing of a new CAB to JBLM, per Section 2.3, will increase air time at
4591 JBLM and YTC by an annual average of 24,800 flying hours. As detailed in Section 2.5.4, it is estimated
4592 that up to one third of total estimated CAB flight time (see Tables 3.3-1 and 3.3-2) may occur at YTC.
4593 The remote location of YTC and the surrounding mountainous terrain suggest a similar impact at YTC
4594 will be less than significant.

4595 Noise and wind disturbance associated with helicopters will result in a greater incidence of distractions to
4596 wildlife than under the other alternatives, and could cause some animals to flee the area. In most cases,
4597 animals will be able to resume normal activities after the disturbance ceased, although some long-term
4598 behavioral modification and interference with life requisite activities could occur. The species most
4599 susceptible to noise disturbance will be sensitive species, such as the bald eagle.

4600 The addition of a CAB will likely increase the frequency of aerial maneuver training at JBLM and
4601 between JBLM and YTC. However, peak noise levels will remain the same and the noise contours will
4602 not change from the current noise modeling predictions. There is potential that individual overflights of
4603 aircraft using the airspace at JBLM and YTC may cause some limited additional disturbance to those
4604 living nearby. However, the low number of operations, minimum flight altitudes, and stand-off distances
4605 imposed for NOE operations will greatly reduce this potential.

4606 At both JBLM and YTC, there will be an increase in the potential for noise impacts to wildlife species as
4607 a result of implementing the proposed action. Impacts will include increased disturbance to sensitive
4608 species and a potential reduction in reproductive success and survivorship. IAW the installation's
4609 Regulation 420-5, JBLM and YTC take active measures to avoid and prohibit training activities, which
4610 will generate noise or otherwise disturb sensitive species. Specifically, CAB training activities and
4611 overflights within designated areas will be avoided during the nesting period. Overflight restrictions are
4612 nest specific and include minimum approach distances of aircraft to reduce noise impacts. Restrictions
4613 include limitations on flight routes during particular times of the year.

4614 The increase in potential adverse noise impacts is mitigated for those species of management concern
4615 listed in the installation's Regulation 420-5 (e.g., bald eagle, golden eagle, greater sage grouse, and
4616 Ferruginous hawk). Impacts to wildlife from noise associated with the proposed action are anticipated to
4617 be less than significant.

4618 **Alternative 1 and the No-Action Alternative**

4619 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
4620 locations. There will be no change in noise impacts due to training or construction activities associated
4621 with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the
4622 Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY

4623 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected under
4624 Alternative 1 is other than JBLM.

4625 **6.6.3. Cumulative Effects**

4626 Cumulative effects to noise in the JBLM region are significant when considering all past, current, and
4627 planned future actions. A CAB stationing will significantly affect GAAF noise, extending noise contours
4628 into the cantonment area. CAB training activities will also increase the frequency that noise will cause
4629 annoyance to adjoining communities.

4630 While there will be additive noise impacts from CAB training and other planned activities, in conjunction
4631 with current noise-generating activities and actions at YTC and in the region, cumulatively, these effects
4632 will be less than significant. The principle activities within the YTC region that contribute to noise are
4633 those mission activities occurring at YTC, including training by visiting units.

4634 As noted earlier, the HIMARS unit will be leaving JBLM. This will reduce cumulative noise impacts at
4635 JBLM and YTC as artillery firing activities from this unit will no longer occur. A fuller discussion of
4636 cumulative impacts at JBLM and YTC can be found in JBLM's *Grow the Army* FEIS (JBLM, 2010a).

4637 **6.7. Geology and Soils**

4638 The affect on geology and soils is defined in the following subsections.

4639 **6.7.1. Affected Environment**

4640 **Joint Base Lewis-McChord**

4641 **Geology**

4642 JBLM lies within the Puget Trough, a long north-south trending lowland between the Cascade Mountains
4643 on the east and the Olympic Mountains on the west. Seventy-three percent of JBLM is outwash gravel
4644 and sand, 23 percent is till and moraine, and two percent is alluvial deposits. Its geology is a result of
4645 volcanic activity and lava from fissures, sedimentation, deformation-producing mountains, erosion, and
4646 glaciations. The area is predominantly a drift-covered glacial plain rimmed by Tertiary, or prePleistocene,
4647 hills forming barriers against which the ice mass terminated in many places (Wallace, 1961). The last

4648 major glaciation, during the Pleistocene (the Vashon Glacier), is responsible for most of the present day
4649 topography and surface features. Following the glacial retreat, a number of smaller lakes were formed in
4650 surface depressions. Since the retreat of the Vashon Glacier, geologic processes have included weathering
4651 of the glacial drift, reworking of and redeposition of the drift by streams, peat accumulation in local
4652 depressions, marine erosion and deposits, and deposits of mud flows primarily from Mount Rainier
4653 (Pierce County, 2002).

4654 The topography of JBLM is typically flat to gently rolling with localized areas of moderately sloping
4655 lands. The slopes are generally less than 15 percent, except along the steep escarpments along the
4656 Nisqually River and Puget Sound.

4657 Earthquakes occur in the State of Washington, with most of the large magnitude earthquakes (greater than
4658 6.0) having occurred in the Puget Sound region between Olympia and the Canadian border in the Cascade
4659 Mountains, and along the Washington-Oregon border (Pierce County, 2002). The Puget Sound area is in
4660 Seismic Zone 3, based on a scale of zero to four, with four being the highest risk (Fort Lewis, 2007).

4661 Mount Rainier is the nearest volcano to JBLM, located approximately 50 miles (80 km) to the southeast.
4662 Hazards from a potential eruption of Mount Rainier include ashfall, flooding, and debris flows. The
4663 hazard from ashfall will be minimal, given the distance from the installation to Mount Rainier, while
4664 flooding and debris will be limited to the valley of the Nisqually River (Fort Lewis, 2007).

4665 Mineral resources at JBLM consist primarily of sand and gravel present in the outwash materials.

4666 **Soils**

4667 The soil types on JBLM are dominated by the Spanaway-Nisqually association (Pringle, 1990; USDA-
4668 NRSC, 2010; Fort Lewis, 2007). Spanaway soils, where most JBLM prairies are found, are formed on
4669 gravelly glacial outwash and are typically gravelly sandy loam, whereas the Nisqually soils are formed on
4670 sandy glacial outwash and are loamy fine sands. Other major soil types include moderately well-drained,
4671 sandy-gravelly forest soils over glacial till, which are common in the southern portion of Fort Lewis
4672 located in Thurston County. These soil types are represented by the Alderwood-Everett association and
4673 typically support forest vegetation.

4674 The NRCS is currently conducting a new soil survey of JBLM, which will result in some substantial
4675 revisions to the existing soil surveys (Foster, 2010). The new survey is expected to be completed before
4676 the end of FY 11.

4677 Within training areas on JBLM prairies, most soil disturbance is caused by training (Fort Lewis, 2007).
4678 Active management occurs to mitigate impacts caused by training, such as those management actions
4679 performed under the ITAM program.

4680 **Yakima Training Center**

4681 **Geology**

4682 YTC lies within the Columbia Plateau physiographic province. YTC topography is dominated by east-
4683 west trending anticlinal and synclinal ridges and south trending ephemeral drainages that dissect the
4684 valleys between ridges. Five ridges cross the installation and vary from rounded hills to mountains with
4685 slopes ranging from 8 to 60 percent. Mainstem drainages parallel the ridges and most seasonally
4686 contribute water and sediment to the Columbia River on the east and the Yakima River on the west.
4687 Elevations at YTC range from approximately 500 feet (152 m) above MSL at Priest Rapids Dam on the
4688 Columbia River to 4,216 feet (1,285 m) at the top of Cairn Hope Peak.

4689 The majority of folding and uplift that produced the ridges at YTC occurred approximately 9 million to
4690 1.8 million years ago. This disturbance occurred after the deposition of extensive flood basalts during the
4691 Miocene period (YTC, 2002). Although uplift has slowed, tilted fan piedmonts indicate continued
4692 faulting.

4693 Although Pleistocene glaciers did not reach YTC, humid conditions associated with the glaciations
4694 resulted in increased deposition of loess (windblown silt) in the area. Also during the Pleistocene, a series
4695 of approximately 40 catastrophic floods from breaks in ice dams inundated the area. Downstream ponding
4696 of the floodwaters at Wallula Gap caused the deposition of granite erratics (up to 5m in diameter), silts,
4697 sands, and gravel (YTC, 2002).

4698 **Soils**

4699 Soils at YTC have formed from a variety of parent materials and at several landscape positions. Major
4700 soil associations fall into four groups, depending on the surface material from which they have formed
4701 and local topography; and are characteristic of arid and semi-arid uplands and terraces:

- 4702 • Soils that have formed in glacial outwash, loess, alluvium, and lacustrine sediments on terraces,
4703 terrace escarpments, and benches in areas of channeled scabland (Malaga-Starbuck-Sagehill
4704 soils);
- 4705 • Soils that formed in loess, slope alluvium, and alluvium on alluvial fans and terraces (Wanapum-
4706 Drysel-Scoon and Benwy-Selah-Manastash soils);
- 4707 • Soils that formed in residuum and colluvium derived from basalt and in loess on hillslopes,
4708 ridgetops, and benches (Nevo-Fortyday-Drino, Vantage-Clerf-Argabak, and Camaspatch-
4709 Whiskeydick soils);
- 4710 • Soils that formed in loess, slope alluvium, and residuum and colluvium derived from basalt on
4711 plateaus, benches, ridgetops, and hillsides (Levnik-Nosser-Disage and Marlic-Zen soils) (Gentry,
4712 2006).

4713 The majority of YTC soils are highly erodible as a result of physical properties, steep slopes, and limited
4714 vegetative cover. Most erosion and runoff at YTC result from short-duration, high-intensity rain-or-snow
4715 events, commonly in areas of frozen or partially frozen soil. Summer thunderstorms are also a significant
4716 source of runoff (Wigmosta, et.al., 2007). Often, unimproved roads and firebreaks contribute
4717 disproportionate amounts of sediment load within a given watershed (i.e., they yield more sediment per
4718 unit area) than the surrounding rangeland (Wigmosta, et al, 2007). Other disturbances at YTC influencing
4719 soil erosion include excavations, intensive off-road vehicle travel, weapons fire, bivouacs, and wildland
4720 fire (YTC, 2002). Silt loams and very cobbly loams make up about 70 percent of YTC soils (YTC, 2002).

4721 A restoration program exists at YTC to reduce and minimize discharge of sediment to both the Yakima
4722 and Columbia Rivers (YTC, 2002; JBLM, 2010a), which helps address a water quality concern identified
4723 below in Section 6.8.1. The program includes management and rotation of training areas to allow

4724 vegetation to recover, active restoration by planting, construction of sediment trapping check dams at
4725 critical locations, and protection of critical riparian vegetation corridors by restricting use of those areas.

4726 **6.7.2. Environmental Consequences**

4727 **Alternative 2 and 3**

4728 **Geology**

4729 Implementation of this stationing decision is not predicted to cause significant impacts to the geological
4730 character of JBLM or YTC.

4731 **Soils**

4732 Existing soils, topography, and climate conditions are such that significant impacts are not anticipated.
4733 Temporary impacts to soils previously disturbed are anticipated as a result of construction and renovation
4734 activities for CAB facilities at JBLM. Proposed CAB facilities are expected to be on generally flat land
4735 with low soil erosion potential. Construction and renovation site disturbance will temporarily destabilize
4736 soils and increase wind and water erosion.

4737 The primary impacts to soils are predicted to result from aviation maneuvers of the CAB at both JBLM
4738 and YTC. Because of the generally damp nature of JBLM soils, the general presence of ground cover, and
4739 the short-term exposure of soils to rotor wash, the effects to soil erosion are expected to be less than
4740 significant. Also, due to the coarse nature of the glacial deposits, JBLM soils are highly resistant to
4741 compaction. Because many of the soils at YTC are susceptible to wind erosion, flight training, such as
4742 landing/takeoff operations in maneuver areas or other training ranges will be expected to impact YTC soil
4743 erosion. Wind erosion impacts at YTC are predicted to be mitigable to less than significant through
4744 training and environmental management procedures. In addition, dust clouds in these areas could lead to
4745 pilot vision impairment and increased helicopter maintenance needs. Direct and indirect impacts to soil
4746 erosion from live-fire training munitions impacts and potential wildfires are expected to increase;
4747 however, the increase in training will not impair the effective maintenance of training areas or conflict
4748 with statutes or regulations. Maneuver training by the CAB's support vehicles is not expected to
4749 contribute measurably to the effects of soil erosion at JBLM or YTC.

4750 **Alternative 1 and the No-Action Alternative**

4751 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
4752 locations. There will be no change in geology and soil impacts due to training or construction activities
4753 associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions,
4754 Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start
4755 of FY 2013 (October 1, 2012). The same “no impacts” will occur for Alternative 1 as the stationing
4756 location selected under Alternative 1 is other than JBLM.

4757 **6.7.3. Cumulative Effects**

4758 Cumulative effects on soil erosion at JBLM and YTC are not expected to increase significantly beyond
4759 current levels when soils are properly maintained through an adaptive management program. At Fort
4760 Lewis, low slope gradients, climatic conditions, and soil textures have produced a pedogenic environment
4761 that is naturally resistant to erosion. Although YTC’s semi-arid climate, steep slopes, and sparse
4762 vegetation contribute to highly erodible soils, adaptation of current soil management practices and
4763 policies in light of increased training levels will continue to maintain soil erosion at levels that will not
4764 exceed any of the resource-specific significance criteria. A fuller discussion of cumulative impacts at
4765 JBLM and YTC can be found in JBLM’s *Grow the Army* FEIS (JBLM, 2010a).

4766 **6.8. Water Resources**

4767 The affect on water resources is defined in the following subsections.

4768 **6.8.1. Affected Environment**

4769 **Joint Base Lewis-McChord**

4770 **Surface Water and Watersheds**

4771 JBLM lies within three Water Resource Inventory Areas (WRIAs) that were designated by the WS DOE,
4772 WDNR, and Washington Department of Fish and Wildlife (WDFW) to facilitate watershed planning. In
4773 addition, WDNR further divides the WRIAs into smaller Watershed Administrative Unit (WAU). The
4774 three WRIAs are Nisqually River (WRIA 11), Chambers-Clover (WRIA 12), and Deschutes River Basin

4775 (WRIA 13). The five WAUs are Chambers-Clover, Muck Creek, Yelm Creek, McAllister, and Lower
4776 Deschutes.

4777 Nisqually River is the main surface water feature of JBLM, crossing JBLM in a southeast to northwest
4778 direction and discharging into the Nisqually Reach of Puget Sound. Data on Nisqually River stream flows
4779 is available from USGS gaging stations. The average annual water flow of Nisqually River upstream of
4780 JBLM, at the McKenna gauging station (12089500), is 1,288 cfs (36.5 cms) (period of record is 1948 –
4781 2009) (USGS, 2010).

4782 Due to geological history, the pervious nature of surface soils and presence of groundwater near the
4783 surface of the land, several surface water bodies exist as surface expressions of the shallow groundwater
4784 table. Examples are American Lake; Sequelitchew Lake; several wetlands; at times, Sequelitchew Creek
4785 and Murray Creek in the cantonment area; and numerous other lakes, wetlands, and some tributaries to
4786 Muck Creek. Some of these areas are both groundwater discharge and recharge areas, depending on
4787 seasonal changes in groundwater elevation and on the direction of groundwater flow.

4788 Surface water quality problems have resulted in several water bodies in the WRIAs of Nisqually,
4789 Chamber-Clovers, and Deschutes being placed on the 303(d) list for impairment. These off-post
4790 impairments are results of fecal coliform, dissolved oxygen, temperature, and/or phosphorus. American
4791 Lake, half of which is within JBLM's boundary, is listed as impaired within the boundary of JBLM; it is
4792 impaired by phosphorus (WS DOE, 2008; JBLM, 2010a). Spanaway Lake, also on the 303(d) list, is
4793 located outside of JBLM's boundary but waters from on-post do flow into Spanaway Lake. However,
4794 Spanaway Lake's contamination is not derived from the inflow of JBLM waters.

4795 **Groundwater**

4796 Numerous aquifers underlie JBLM, from the shallow Vashon Drift aquifer to deeper aquifers such as the
4797 Salmon Springs Drift, Stuck Drift, and Orting Drift. Also underlying most of the JBLM region is the
4798 Central Pierce County Aquifer, which EPA designated as a sole-source aquifer since it supplies at least 50
4799 percent of the drinking water consumed in the area (JBLM, 2010a). At the request of the Tacoma-Pierce
4800 County Health Department, EPA designated the Clover/Chambers Creek basin under Pierce County as a
4801 sole-source aquifer. Thurston County never applied for this status (Fort Lewis, 2007). Groundwater in the
4802 shallow Vashon Drift aquifer generally flows in a west-to-northwest direction across JBLM, with

4803 localized changes in flow direction near discharge areas (major lakes, creeks, and the Nisqually River).
4804 Flow of groundwater in the deeper aquifers is also generally west to northwest. Groundwater elevations
4805 decrease with aquifer depth, indicating a downward vertical gradient. Groundwater velocities have been
4806 estimated at 0.02 feet (0.06 m) per day to 2 feet (0.6 m) per day for the shallow Vashon Drift aquifer and
4807 0.1 foot (0.03 m) per day to 1 foot (0.3 m) per day for the Salmon Springs aquifer (Fort Lewis, 1994).

4808 Groundwater recharge on a regional scale originates as precipitation on the western flank of the Cascade
4809 Mountains and is transmitted in a generally westerly direction through the hydrostratigraphic system. It
4810 then discharges to the Puyallup and Nisqually river valleys and Puget Sound. Local recharge of
4811 groundwater is provided by infiltration of precipitation, stormwater runoff, and lakes and streams that lie
4812 above the prevailing water table.

4813 Most of the groundwater quality problems in the regional area are attributed to natural conditions and are
4814 generally related to iron and manganese. The exceptions are discussed in JBLM's *Grow the Army* FEIS
4815 (JBLM, 2010a). In terms of meeting drinking water standards, groundwater quality appears to be good
4816 and monitoring records for the former Fort Lewis water system indicate that, with few exceptions, water
4817 quality complies with requirements for water supplies (Gray & Osborne, 1991). Nitrate is the most
4818 widespread pollutant in shallow aquifers, and although it is not a problem throughout the entire region,
4819 there are localized areas that exhibit elevated nitrate levels (Golder Associates, 2003).

4820 **Floodplains**

4821 The Federal Emergency Management Agency/Flood Insurance Rate Map (FEMA/FIRM) "Special Flood
4822 Hazard Areas" maps suggest that the Nisqually River and Muck Creek are the only drainages subject to
4823 major flooding (WS DOE, 2010). Some local flooding occurs in the cantonment area due to backups in
4824 the storm drainage system or blocked drain inlets.

4825 **Water Rights**

4826 The former Fort Lewis asserts a Federally reserved water right for all its consumptive uses, present and
4827 future and currently holds water rights claims for several of its sources.

4828 **Yakima Training Center**

4829 **Surface Water and Watersheds**

4830 YTC lies within the WRIAs of Lower Yakima (WRIA 37), Upper Yakima (WRIA 39), and
4831 Alkaki/Squilchuck (WRIA 40). Surface water from YTC drains into two major basins: the Columbia
4832 River Basin to the east and the Yakima River Basin to the west. Surface water resources at YTC include
4833 streams, seeps, springs, and 21 artificial ponds. Thirteen man-made sediment retention ponds are
4834 maintained for erosion control and monitoring, three for recreation, and five for firefighting and training
4835 support (YTC, 2002). Major streams discharging into the Columbia River include Alkali, Hanson, and
4836 Johnson creeks, which are at least partially perennial; and Sourdough, Middle, and Corral Canyon creeks,
4837 which are intermittent. Intermittent Cold Creek, as well as Selah and Lmuma creeks, which are perennial
4838 in their lower reaches, discharge into the Yakima River. The remaining drainages on YTC are ephemeral
4839 or intermittent flowing for a short time in the spring or immediately following a large storm event.

4840 Hydrologic conditions vary annually depending on seasonal snowpack and runoff characteristics. Data on
4841 stream flows near YTC are available from USGS gaging stations on the Yakima and Columbia Rivers.
4842 For the Yakima River, the USGS station at Umtanum (12484500) is located near the upstream boundary
4843 of YTC, and a station at Union Gap (12500450) is located downstream of YTC. Annual flows in the
4844 Yakima River averaged 2,429 cfs (68.8 cms) at the Umtanum station (period of record 1934 – 2009) and
4845 3,552 cfs (100.6 cms) at Union Gap station (period of record 1967 – 2009) (USGS, 2010).

4846 Flows in the Columbia River are regulated by a series of dams. Two of these dams are the Wanapum Dam
4847 and Priest Rapids Dam, both of which are adjacent to the eastern boundary of YTC. Annual flows in the
4848 Columbia River at the gaging station below Priest Rapids Dam (12472800), downstream from YTC,
4849 averaged 132,883 cfs (3,763 cms) (period of record 1918 – 2009) (USGS, 2010).

4850 Most streams on YTC are intermittent. Discharge of suspended sediments from streams at YTC increases
4851 during infrequent high flows, over very short time periods. However, monitoring data indicate that YTC
4852 is not contributing large amounts of suspended solids compared to existing loads in the river.

4853 There are no Section 303(d) impaired water bodies on YTC. However, historic monitoring data reveals
4854 there are various impaired water bodies in the Lower Yakima, Upper Yakima, and Alkaki/Squilchuck

4855 WRIAs. Impairments include pH, temperature, pesticides, and fecal coliform (WS DOE, 2008; JBLM,
4856 2010a).

4857 The primary water quality concern at YTC is introduction of fine sediment into streams with subsequent
4858 discharge to the Yakima and Columbia Rivers. Discharge of fine sediment is most likely following high,
4859 short-duration flow events, which typically involve rain falling on snow or frozen ground. Sources of fine
4860 sediment include degraded upland areas, improperly designed and located roads, degraded channels
4861 resulting from mass wasting, and natural erosion processes. To date, conclusions based on analyzed data
4862 indicate that sediment loads from YTC contribute a small fraction of total sediment loads in the Columbia
4863 and Yakima systems. However, the effect of timing and extent of discharge is not known. Due to high
4864 variability in dryland hydrology and weather, it will be difficult to determine whether changes in water
4865 quality are due to management practices or natural processes associated with dryland hydrology.

4866 Discharges of sediment to the Yakima River are more critical than those to the Columbia River because
4867 the Yakima River basin has high sediment inputs from other existing sources, primarily runoff from
4868 agricultural lands, and, in particular, irrigation return flows. Most of the agricultural loading of suspended
4869 sediment occurs downstream from YTC, although some occurs in the Kittitas Valley and from tributaries
4870 west of YTC that drain similar terrain. In 1998, the EPA approved a Water Cleanup Plan designed to
4871 reduce suspended sediments and pesticides in the Yakima River. Subsequently, WS DOE re-evaluated
4872 suspended solids loads at the Kiona Station and concluded that the loads have been greatly reduced (by 50
4873 to 70 percent) compared to previous decades (Coffin, et.al., 2006). Section 6.7.1 above briefly describes a
4874 restoration program to reduce and minimize discharge of sediment to both the Yakima and Columbia
4875 Rivers.

4876 **Groundwater**

4877 Groundwater at YTC is stored in four principal aquifers. Although precipitation is low within the region,
4878 approximately 200 springs are present on YTC, ranging from seasonal to perennial. Deeper aquifers are
4879 recharged mainly from areas west of the installation, whereas shallower aquifers are recharged primarily
4880 by precipitation falling at higher elevations on YTC. Regional groundwater flow is generally outward
4881 from higher elevations at the center of the installation, toward the Yakima and Columbia rivers.

4882 YTC's groundwater resources support domestic supplies, fire suppression, and fish and wildlife habitat
4883 and are also a source of potable water, monitored to maintain compliance with the Safe Drinking Water
4884 Act (SDWA).

4885 **Floodplains**

4886 Based on the FEMA/FIRM maps, some flooding potential exists on the Yakima River downstream from
4887 Selah Creek. Due to dam control, flooding is not an issue on the Columbia River. Also, based on the
4888 FEMA/FIRM maps, flooding is not an issue within YTC boundaries (WS DOE, 2010).

4889 **Water Rights**

4890 YTC asserts a Federally reserved water right for all its consumptive uses, present and future. YTC
4891 currently holds water rights claims for several of its sources.

4892 **6.8.2. Environmental Consequences**

4893 **Alternative 2 and 3**

4894 Construction of the new CAB facilities, operation of CAB facilities, and execution of CAB training
4895 activities will increase the use of fuels, solvents, and other hazardous and toxic substances, which could,
4896 if accidentally released into the environment, result in an indirect effect to JBLM surface water, as well as
4897 the shallow Vashon aquifer underlying JBLM groundwater.

4898 Increased groundwater withdrawals at JBLM as a result of a population increase due to a CAB stationing
4899 will not be expected to affect other area groundwater users adversely. Impacts to YTC groundwater as a
4900 result of CAB Soldiers training at YTC are also expected to be less than significant.

4901 At JBLM and YTC, increased training could result in increased surface water sedimentation. At JBLM,
4902 impacts are expected to be less than significant and effects to surface water quantity and quality are not
4903 expected to exceed significance criteria thresholds. At YTC, impacts are expected to be mitigable to less
4904 than significant. CAB construction activities are not near any 303(d) impaired surface waters, therefore
4905 impacts to impaired waters will be limited.

4906 Puget Sound water quality may be impacted as the greater increase in demand on the Solo Point WWTP
4907 is expected to result in more frequent discharges that will violate permit treatment requirements. The
4908 Army expects that the greater increase in demand that will occur under this alternative combined with
4909 more stringent requirements for discharges under future NPDES permits will render the Solo Point
4910 WWTP insufficiently protective of Puget Sound water quality. Without substantial modification or
4911 replacement of the Solo Point WWTP, effects are expected to be significant. With replacement, the
4912 effects will be significant, but mitigable to less than significant effects. Funding for the replacement of
4913 Solo Point WWTP is currently among the Army's top priorities for FY 2013.

4914 No significant impacts are expected to occur to floodplains, hydrogeology, or groundwater as a result of
4915 this CAB stationing decision. No changes or expansions in water rights are expected as a result of this
4916 action.

4917 **Alternative 1 and the No-Action Alternative**

4918 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
4919 locations. There will be no change in water resource impacts due to training or construction activities
4920 associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions,
4921 Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start
4922 of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected
4923 under Alternative 1 is other than JBLM.

4924 **6.8.3. Cumulative Effects**

4925 Cumulative effects to surface water at JBLM and YTC could occur as a result of vegetation removal and
4926 soil disturbance, contributing to erosion, sedimentation, increased surface runoff, and degradation of
4927 stream channels. Historically, Yakima River basin has received high sediment inputs from sources such as
4928 runoff from agricultural lands, particularly irrigation return flows. Cumulative effects on surface water
4929 resources at JBLM will be highest shortly after construction begins and will decrease over time in
4930 response to site reclamation. Potential cumulative effects to groundwater quality and quantity include the
4931 impacts of increased demand for potable water at JBLM in combination with increased population growth
4932 and increased potential for spills and leaks related to construction (JBLM) and training (JBLM and YTC)
4933 activities. BMPs to control adverse impacts will ensure that activities have minimal effects on water

4934 resources and do not exceed significance criteria thresholds. Cumulative effects to the quality of water in
4935 Puget Sound will be significant if the current Solo Point WWTP is left in place. With replacement of the
4936 Solo Point WWTP, the cumulative effects from the four alternatives will be significant, but mitigable to
4937 less than significant effects. A fuller discussion of cumulative impacts at JBLM and YTC can be found in
4938 JBLM's *Grow the Army* FEIS (JBLM, 2010a).

4939 **6.9. Biological Resources**

4940 The affect on biological resources is defined in the following section.

4941 **6.9.1. Affected Environment**

4942 **Joint Base Lewis-McChord**

4943 **Vegetation and Wildlife, including Threatened and Endangered Species**

4944 JBLM is in the Puget Trough ecoregion, which runs the length of Washington between the Cascade
4945 Mountains on the east and the Olympic Mountains and Willapa Hills on the west. Plant communities on
4946 JBLM generally fall into one of four broad habitat types: coniferous forests, grasslands (commonly
4947 known as prairies), oak/oak-mixed woodlands, and wetlands/riparian zones. Nearly two-thirds of the
4948 former Fort Lewis (approximately 54,800 acres [22,200 ha]) is dominated by closed forest, and includes
4949 prairie colonization forest. On the former Fort Lewis, the prairie colonization forest, dominated by
4950 Douglas-fir (approximately 30,300 acres [12,200 ha]), consist of first-generation stands growing on
4951 prairie soils. Forestlands adjacent to JBLM are mostly fragmented and less valuable to forest-dependent
4952 species than forests on the installation. Approximately 16,500 acres (6,677 ha) of the former Fort Lewis is
4953 grassland habitat and, of that, only 18 percent of surveyed prairies are estimated to have more than 50
4954 percent cover of native graminoids (Randolph, 2008, as cited in JBLM, 2010a). Given that less than 10
4955 percent of the original prairie grasslands in the south Puget Sound region remain (Crawford and Hall,
4956 1997), and that JBLM contains some of the largest tracts of remaining prairie habitat in the region, JBLM
4957 prairies are very important from a regional landscape perspective. Additionally, prairies on JBLM provide
4958 habitat for numerous special-status plant and animal species. The oak/oak-mixed woodlands are also
4959 regionally important as it's estimated that the former Fort Lewis contains 35 percent of the remaining oak
4960 habitat in western Washington State (GBA Forestry Inc., 2002). Listed plant species in Pierce and

4961 Thurston counties are the endangered Marsh Sandwort (*Arenaria paludicola*), threatened Golden
4962 Paintbrush (*Castilleja levisecta*) and threatened Water howellia (*Howellia aquatilis*) (FWS, 2010).
4963 Noxious weeds are found in all habitat types on JBLM, and management of invasive species is guided by
4964 the installation's IPMP, which takes county noxious weed control boards priorities into consideration.
4965 Most of the former Fort Lewis cantonment area has been developed or consists of previously disturbed
4966 soils and vegetation. Further details on vegetation, to include ESA threatened and endangered species,
4967 other plant species of special status, and noxious weeds is available from JBLM's *Grow the Army* FEIS
4968 (JBLM, 2010a).

4969 JBLM is home to numerous wildlife species, including some species protected under the ESA. For
4970 wildlife species found in Pierce and Thurston counties, two bird species are listed as threatened, one fish
4971 species as threatened, and one mammal species as threatened. There are no wildlife species listed as
4972 endangered (FWS, 2010). At least 25 fish species live in lakes, ponds, marshes, rivers, and streams on
4973 Fort Lewis. Populations include resident, anadromous, and warm water fish species that live in aquatic
4974 habitats on Fort Lewis. Common resident and anadromous fish species that may occur on Fort Lewis
4975 include steelhead/rainbow trout, Chinook salmon, chum salmon, coho salmon, pink salmon, sockeye
4976 salmon/kokanee, cutthroat trout, bull trout, and mountain whitefish. For anadromous fish species,
4977 incubation of eggs and rearing of juveniles occurs in freshwater before the fish migrate to seawater for
4978 adult development, later returning to freshwater to spawn. Common warm water fish species found on
4979 Fort Lewis include rock bass, largemouth bass, brown bullhead, bluegill sunfish, pumpkinseed sunfish,
4980 black crappie, and yellow perch. Chambers Lake, Johnson Marsh, and Halverson Marsh in the Muck
4981 Creek system provide rearing habitat for both sea-run and resident coastal cutthroat trout (JBLM, 2010a).

4982 Three salmonids species that are Federally listed as threatened may occur on or near Fort Lewis: the
4983 Puget Sound Evolutionary Significant Unit (ESU) of Chinook salmon and steelhead, and the Puget Sound
4984 Distinct Population Segment (DPS) of bull trout may occur near Fort Lewis. Additionally, three Federally
4985 listed rockfish species occur in Puget Sound near Fort Lewis: the Georgia Basin DPS of bocaccio
4986 (endangered), the Georgia Basin DPS of canary rockfish (threatened), and the Georgia Basin DPS of
4987 yelloweye rockfish (threatened). The Hood Canal ESU for summer-run chum salmon is also Federally
4988 listed as threatened in the Puget Sound; however, there are no listed runs of this species within the
4989 vicinity of either the Nisqually River drainage or Fort Lewis. The sea-run cutthroat trout, Puget
4990 Sound/Strait of Georgia ESU coho salmon, and the Pacific and river lampreys are all species of concern at

4991 the Federal level. Many bird species are year-round residents on JBLM, but there are migratory birds that
4992 spend only a portion of their year on JBLM, such as kinglets, flycatchers, and warblers. Migratory birds
4993 may winter or breed on JBLM, or may just use the installation for short periods while migrating between
4994 their breeding grounds to the north and wintering grounds to the south. The streaked horned lark
4995 (*Eremophila alpestris strigata*), listed as endangered by the State of Washington, has known active
4996 breeding sites on JBLM, to include active nests near GAAF (JBLM, 2007; JBLM, 2010a). Some special
4997 status, nonmigratory butterfly species typically associated with high-quality prairie habitat are on JBLM,
4998 such as the mardon skipper (*Polites mardon*) and Taylor's checkerspot (*Euphydryas editha taylori*).
4999 Hunting and fishing are allowed on much of JBLM in locations that do not interfere with military training
5000 activities. Game species on JBLM include black bear and Columbia blacktailed deer, 11 additional
5001 species of mammals, 8 species of upland birds, 24 species of waterfowl, and 24 species of fish. JBLM's
5002 *Grow the Army* FEIS presents further information on JBLM wildlife and associated management
5003 activities (JBLM, 2010a), as does the installation's INRMP, which includes endangered species
5004 management plans (Fort Lewis, 2007).

5005 Wildland fire management is a tool used to manage some JBLM habitat (e.g., pine restoration process and
5006 prairie ecosystems) and reduce the risk of wildfires causing damage to life and property. The combination
5007 of climate (relatively mild) and vegetation at JBLM contribute to a low to moderate wildfire danger at the
5008 installation for the majority of the year. For most of the year, precipitation maintains a high-moisture
5009 content in the installation's vegetation and reduces its ability to burn. However, the warmer, drier summer
5010 months (between June and October) can create a high fire danger. The intensive troop training over the
5011 entire installation, and the use of incendiary devices for training purposes, creates the potential for
5012 numerous fires in grass, brush, and timber. JBLM's recently updated *Wildland Fire Management Plan*
5013 sets forth the responsibilities and procedures needed to safely control and use wildfire on JBLM,
5014 maximizing military training while at the same time protecting government property, natural resources,
5015 and adjoining properties (JBLM, 2010b).

5016 **Wetlands**

5017 Because of historical land use practices prior to government acquisition, many wetlands on JBLM were
5018 ditched and drained for agricultural purposes, which severely degraded many aquatic habitats on the
5019 installation. Extensive restoration of lakes and marshes on JBLM occurred during the 1970s and 1980s.

5020 Today, on JBLM, the former Fort Lewis contains approximately 4,100 acres (1,700 ha) of wetlands that
5021 are widely distributed on the installation (JBLM, 2010a). Wetland types include aquatic beds, emergent
5022 wetlands, scrub-shrub habitats, and forested wetlands. Wetlands on JBLM are managed to maintain
5023 wetland training opportunities, enhance anadromous fish habitat, provide recreational opportunities, and
5024 control noninvasive species (Fort Lewis, 2007). The primary means of wetland management on JBLM is
5025 enforcement of regulations that protect wetland habitat, including limiting the types of activities that can
5026 occur within 164.04 feet (50 m) of wetlands (Fort Lewis, 2007). As mentioned in Section 6.4.1,
5027 Controlled Used Areas include wetlands.

5028 Approximately 620 acres (250 ha) of freshwater wetland and 260 acres (105 ha) of riparian/forested
5029 wetland habitat are found on the Nisqually National Wildlife Refuge, located northwest of JBLM. These
5030 habitats support wildlife that are similar in species composition to those found on JBLM. More than
5031 20,000 waterfowl use the refuge during winter. Also, numerous other wetlands are found in the South
5032 Puget Sound region near JBLM.

5033 **Yakima Training Center**

5034 **Vegetation and Wildlife, including Threatened and Endangered Species**

5035 YTC falls within the Lower Columbia Basin Ecosystem of the Columbia Plateau ecoregion. Like much of
5036 the Lower Columbia River Basin, YTC is characterized by shrub-steppe vegetation. These are vegetation
5037 communities characterized by shrub-dominated overstories (often composed of several species of
5038 *Artemisia*) coupled with perennial bunchgrass understories (often dominated by species of
5039 *Pseudoroegneria*, *Poa*, *Festuca*, and/or *Stipa*) (YTC, 2002). The installation lies within the core of the
5040 largest remaining contiguous block of shrub-steppe in Washington State. Over 241,000 acres (97,529 ha)
5041 of the installation is dominated by big sagebrush (*Artemisia tridentata*), three tip sagebrush (*Artemisia*
5042 *tripartita*), and stiff sagebrush (*Artemisia rigida*) plant communities (YTC, 2002). Other diverse
5043 vegetation communities occur in riparian bottoms, springs, along cliffs and rock outcrops, and on thin,
5044 shallow soils. Listed plant species in Yakima and Kittitas counties are the threatened Ute ladies'-tresses
5045 (*Spiranthes diluvialis*). There are no endangered plant species listed (FWS, 2010). Like JBLM, noxious
5046 weed management is through an integrated pest management approach, as documented in the
5047 installation's IPMP. At YTC, primary focus of noxious weed control in training areas is on kochia
5048 (*Kochia scoparia*) and various species of knapweed (*Centaurea sp.*). Further details on vegetation, to

5049 include ESA listed species, other plant species of special status, and noxious weeds is available from
5050 JBLM's *Grow the Army* FEIS (JBLM, 2010a).

5051 The wildlife at YTC uses three predominant habitat types IAW their specific life history requirements:
5052 shrub-steppe uplands, cliffs and talus slopes, and riparian and permanently wet areas. Shrub-steppe
5053 uplands account for more than 95 percent of land coverage at YTC and provide life requisites for the
5054 majority of wildlife species that permanently or seasonally inhabit the installation (YTC, 2002). The
5055 open, shrubby habitats support numerous shrub-nesting and ground-nesting birds and mammals. In
5056 addition, reptiles and raptors feed on the diversity of small mammals and invertebrates that are found in
5057 the sage complexes of YTC. Cliffs and talus slope habitats provide shade, cover, and rearing sites.
5058 Habitats associated with watercourses, springs, and riparian communities support a wide variety of
5059 wildlife by providing drinking water, cover, and in some cases, important food and nesting opportunities.
5060 Listed wildlife species in Yakima and Kittitas counties are the threatened Northern spotted owl (*Strix*
5061 *occidentalis caurina*), marbled murrelet (*Brachyramphus marmoratus*), bull trout (*Salvelinus*
5062 *confluentus*), Grizzly bear (*Ursus arctos horribilis*), and Canada lynx (*Lynx canadensis*); the Proposed
5063 Similarity of Appearance (Threatened) Dolly Varden (*Salvelinus malma*); there are no endangered
5064 wildlife species listed (FWS, 2010). YTC management efforts help address species of special concern,
5065 such as having all known active Western burrowing owl (*Athene cunicularia hypugea*) nests sites
5066 protected from vehicle maneuvers by Seibert stakes. In another example, portions of designated flight
5067 corridors, used to coordinate movement of rotary aircraft throughout the installation, have seasonal
5068 restrictions due to environmental concerns for select bird species, such as the Greater sage grouse
5069 (*Centrocercus urophasianus*) (YTC, 2002). JBLM's *Grow the Army* FEIS presents further information on
5070 YTC wildlife and associated management activities (JBLM, 2010a), as does the YTC's natural resource
5071 management plan (YTC, 2002).

5072 **Wildfires**

5073 Wildfires are an unavoidable hazard associated with certain aspects of military training at YTC,
5074 particularly during the fire danger season (May through October). Since the large-scale fire in 1996, the
5075 cumulative average of burned areas at YTC has declined due to enhancements of fire management policy
5076 related to presuppression and suppression activities, implementation of a risk assessment, improved
5077 suppression resources, and improved personnel training (JBLM, 2010a). YTC's *Integrated Wildland Fire*

5078 *Management Plan* establishes wildfire risks, management goals, and strategies to be used to reduce the
5079 risk of fires on the installation and improve YTC's ability to reduce fire losses (YTC, 2004). Prescribed
5080 burning is included as one of the management tools used to help control noxious weeds, enable growth of
5081 indigenous habitats, and reduce the risk of wildfires causing damage to life and property.

5082 **Wetlands**

5083 On YTC, wetlands are limited to the immediate vicinity of perennial streams and the numerous springs
5084 emanating from hill slopes (ENSR, 1992). Because water is an important limiting factor in this arid
5085 climate, plant and animal life depends on this resource, especially during dry times of the year. Major
5086 drainages include Selah Creek, Lmumma Creek (including the North Fork), Alkali Canyon, Hanson
5087 Creek, Cold Creek, Middle Canyon, and Johnson Creek. Wetlands formed in these channels are
5088 composed of cattails, rushes, and sedges with occasional patches of scrub-shrub vegetation such as
5089 willows and small cottonwoods. Many of these channels have been disturbed by training activities and
5090 grazing in the past, with an overall loss of plant community structure.

5091 **6.9.2. Environmental Consequences**

5092 **Alternative 2 and 3**

5093 Construction of support facilities and housing for the CAB on JBLM will require clearing of
5094 approximately 110 acres (45 ha) of vegetation in the former Fort Lewis Main Post and North Fort. Most
5095 of this area has been developed and disturbed in the past and supports predominantly grasses, forbs, and
5096 second-growth Douglas fir trees. New development and redevelopment within the cantonment has
5097 resulted in loss of oak woodlands and ponderosa pine; such loss could occur with CAB infrastructure
5098 construction. Because the proposed construction activities will occur on previously disturbed areas or
5099 areas with limited native vegetation, a loss of unique or high-quality plant communities or rare plant
5100 species will be unlikely. Additionally, since the construction will occur in areas where non-native species
5101 are already present, it will not result in an introduction of noxious weed species into intact native plant
5102 communities.

5103 CAB training activities, including high altitude helicopter training, will have some impact to existing
5104 wildlife and native vegetation. Additional training will increase wildlife and vegetative disturbance on

5105 JBLM and YTC and could result in an increased presence of noxious weeds. Although NOE flight mode
5106 could affect vegetation through rotor wash (downward wind generated by the rotors), it is expected that
5107 seeds of non-native species will be dispersed substantially greater distances than under normal dispersal
5108 scenarios resulting in the increase of noxious weed seed dispersion.

5109 Increased training, to include air-ground integration operations, could also result in increased incidence of
5110 wildland fire. On JBLM, existing fire management practices will minimize the risk of large, destructive
5111 fires, keeping wildfire impacts to less than significant. On YTC, despite ongoing fire management
5112 programs, additional gunnery training conducted by the CAB will likely increase the risk of wildland fire.
5113 Effects to native plant communities and sensitive species as a result of wildland fires will result in
5114 significant adverse results. While the average number of acres burned annually at YTC has decreased
5115 since 1996, the locations of fires since then have been in areas where no fire history exists. This has
5116 resulted in the increased loss of mid- and late-seral shrub steppe habitat. This habitat loss has had
5117 significant impacts on species that depend on that habitat.

5118 There are projected to be less than significant impacts to migratory birds. Direct impacts could include an
5119 increase in bird airstrike events and noise disturbance. The frequency of such events are not projected to
5120 significantly increase.

5121 CAB training could result in indirect impacts to wetlands from potential upland erosion and
5122 sedimentation processes. JBLM's Biological Assessment related to a potential CAB stationing
5123 determined that such proposed Army activities will be unlikely to adversely affect Federally listed plant
5124 species on JBLM or YTC. The effects of the impacts on wildlife and plants are not expected to be
5125 significant, except for possible significant impacts on YTC from potential wildfires.

5126 Additional wastewater produced as part of this proposed action could cause pollution exceedances that
5127 might affect the endangered fish species in the Puget Sound. The project to replace the Solo Point WWTP
5128 is currently one of the Army's top priorities for funding in FY 2013.

5129 Impacts to biological resources from CAB stationing are anticipated to be significant. See JBLM's *Grow*
5130 *the Army* FEIS for further detail on potential impacts to biological resources (JBLM, 2010a).

5131 **Alternative 1 and the No-Action Alternative**

5132 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
5133 locations. There will be no change in biological resource impacts due to training or construction activities
5134 associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions,
5135 Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start
5136 of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected
5137 under Alternative 1 is other than JBLM.

5138 **6.9.3. Cumulative Effects**

5139 Off-road travel by CAB vehicles could result in a greater annual loss of plant cover in maneuver areas on
5140 JBLM and YTC. Although the impact by CAB vehicles will be less than significant, other past and
5141 planned future actions (e.g., other *Grow the Army* actions) have identified significant effects to
5142 vegetation. Other past, present, and future activities that could contribute to loss of native vegetation
5143 include residential and commercial development and construction of supporting infrastructure,
5144 agricultural activities (including farming, ranching, and timber harvest), recreational activities (golf
5145 courses, all-terrain vehicle use, and other recreation facilities), and construction of highway infrastructure.
5146 Past disturbances on JBLM and YTC have favored the spread of noxious weeds and other invasive
5147 species to the detriment of native species. Use of BMPs, including revegetation of disturbed sites with
5148 native vegetation, will reduce erosion rates and encourage the regrowth of vegetation on disturbed sites.

5149 Off-post, an increase in the population in the JBLM area will lead to more development, loss of and injury
5150 to wildlife, and loss of habitat, to include native prairie habitat. Regional population increases around
5151 YTC will lead to more residential and commercial development and conversion of lands to agriculture,
5152 resulting in mortality and injury to wildlife and loss and fragmentation of habitat. Throughout much of the
5153 region, habitat fragmentation continues as a result of development, leaving JBLM as one of the few
5154 remaining sites of large contiguous tracts of habitat. JBLM actively manages its prairies and oak
5155 woodlands and has set aside areas on its prairies for protection. Off-post, the WDNR (Mima Mounds and
5156 Rocky Prairie Natural Area Preserves), WDFW (Scatter Creek Wildlife Area and West Rocky Prairie
5157 Wildlife Area), and Thurston County (Glacial Heritage Reserve) have protected tracts of high-quality
5158 prairie lands. TNC assists in the management and restoration of several of these areas. Additionally,
5159 through its participation in the ACUB program, JBLM is underwriting native prairie restoration and

5160 research, monitoring, and reintroduction of the four Federal candidate species at these off-post sites. Both
5161 Thurston County and Pierce County have critical areas regulations in place to protect oak woodlands,
5162 while Thurston County additionally protects prairies with its critical areas ordinance. These actions
5163 should slow, but not stop, the rate of loss and fragmentation of native habitat in the South Puget Sound
5164 region.

5165 Increased erosion, resulting in increased sedimentation to surface waters, could potentially impact fish
5166 resources at JBLM and YTC; however a CAB stationing will not significantly add to any cumulative
5167 impacts to fish resources.

5168 Increased training could result in increased incidence of wildfire at JBLM and YTC, resulting in
5169 significant impacts to vegetation and wildlife, to include habitat fragmentation. Natural and man-caused
5170 fires burn several thousand acres annually on YTC.

5171 Impacts resulting from wildfire at JBLM and YTC are significant. While management practices reduce
5172 wildfire impacts for most fires that may occur from training and other activities, the impacts of fires can
5173 effect unique habitats that are not adapted to an altered fire ecology. Wildfire effects will be cumulative to
5174 other regional causes of habitat fragmentation, such as fires at the Hanford Reservation that eliminated
5175 certain components of shrub-steppe communities in many areas.

5176 Implementation of a CAB stationing, to include CAB training activities, could cause the injury and loss of
5177 migratory birds, but will not result in significant adverse effects on bird populations.

5178 Noise and disturbance associated with military training and other activities has the potential to increase
5179 wildlife disturbance. Increased training as a result of JBLM actions under the *Grow the Army* initiative,
5180 which includes a potential CAB stationing, as well as future stationing actions, will add to the noise and
5181 disturbance on JBLM and YTC. Although most loud noises have only short-term impacts on wildlife
5182 behavior as wildlife can in some cases habituate to noise, disturbance effects to wildlife cannot be
5183 completely avoided.

5184 Despite legal measures, wetlands are still disappearing regionally. Implementation of BMPs and
5185 mitigation measures identified during any installation permitting actions will limit the cumulative effects
5186 to wetlands resulting from a CAB stationing decision to less than significant. Limited wetlands impacts

5187 are anticipated at both JBLM and YTC in connection with construction of facilities or CAB training and,
5188 therefore, cumulative effects with regard to wetlands are also anticipated to be minimal.

5189 For additional discussion of cumulative effects, see JBLM's *Grow the Army* FEIS (JBLM, 2010a).

5190 **6.10. Cultural Resources**

5191 The affect on cultural resources is defined in the following section.

5192 **6.10.1. Affected Environment**

5193 **Joint Base Lewis-McChord**

5194 Three historic districts and numerous individual buildings, structures, and objects have been inventoried
5195 on the former Fort Lewis. Some of these resources date to the earliest years of the former Fort Lewis, and
5196 many are associated with expansion of the installation during the World War II period. These Districts
5197 include 411 contributing buildings, structures, and objects.

5198 Approximately 74 percent of the former Fort Lewis area of JBLM has been surveyed for archaeological
5199 resources. Archaeological survey efforts on the former Fort Lewis to date have recorded 382
5200 archaeological sites spanning 8,000 years of history and prehistory, including American Indian villages,
5201 camps, and households dating from 8,500 years ago to the Nisqually Reservation period (1854-1917);
5202 British farms operated by the Hudson's Bay Company, 1832-1869; American pioneer homesteads, 1846-
5203 1942; and WWI, WWII, Korean War, and Vietnam-era military training features. The inventory includes
5204 334 historic period sites, 26 sites that date to the prehistoric period, and 20 sites that contain both
5205 prehistoric and historic components. To date, 216 of the sites have been filed with the Washington State
5206 Department of Archaeology and Historic Preservation (DAHP). Of these, 24 have been formally
5207 evaluated, with four sites determined eligible for listing in the National Register. Approximately 90
5208 percent of the former Fort Lewis cantonment area that is suitable for development has been surveyed for
5209 archaeological resources. Twenty-nine archaeological sites have been identified in the cantonment area,
5210 of which 26 are historic-period sites, two are prehistoric sites, and one is a multi-component site. Five
5211 historic cemeteries are known to exist on the former Fort Lewis that are managed and protected as
5212 archaeological sites.

5213 As discussed in Section 4.6.8.1 of the JBLM *Grow the Army* FEIS, the former Fort Lewis developed a PA
5214 in consultation with the Washington SHPO and the Nisqually, Squaxin Island, Puyallup, Yakama, and
5215 Wanapum tribes pursuant to NHPA Section 106 regulations at 36 CFR 800.14. It stipulates measures the
5216 installation will implement to avoid, minimize, or mitigate adverse effects to historic and archaeological
5217 properties from Grow the Army undertaking (which include a potential CAB stationing action), and
5218 fulfills the installation's responsibilities under Section 106.

5219 Present-day JBLM is located within the traditional territories of the Nisqually and Puyallup tribes as they
5220 were documented in the early 19th century. Places and resources that are important to the ongoing
5221 traditional or ceremonial practices of the Nisqually and Puyallup tribes (and other area tribes) are present
5222 on JBLM.

5223 Section 106 consultation IAW the NHPA was initiated with the Nisqually, Puyallup, and Squaxin Island
5224 tribes in January 2009 for Fort Lewis (now JBLM) *Grow the Army* initiatives, which included a potential
5225 CAB stationing (JBLM, 2010a).

5226 Further details on JBLM's cultural resources, management of those resources, Native American needs for
5227 access and consultation actions related to those resources and Native American tribes is available in
5228 JBLM's *Grow the Army* FEIS (JBLM, 2010a) and the former Fort Lewis' *Integrated Cultural Resources*
5229 *Management Plan* (Fort Lewis, 2005b).

5230 **Yakima Training Center**

5231 Compared with JBLM, there are relatively few historic buildings and structures on YTC, and no historic
5232 districts. The cantonment area contains Cold War-era buildings and structures that date to the 1950s. The
5233 majority of these historic resources were intended as temporary buildings/structures and are managed
5234 under a Section 106 PA between the Army, the ACHP, and the Washington SHPO.

5235 Approximately 280,000 acres (110,000 ha) of the 325,500 acres (131,700 ha) available for training and
5236 impact areas operations on YTC have been surveyed for archaeological resources, as well as the
5237 cantonment area. Compared to JBLM, YTC has a far greater number of archaeological sites (a total of
5238 1,353), all of which are located outside of the cantonment area. To date, 140 of the archaeological sites
5239 inventoried on YTC have been determined eligible for the National Register. More than 85 percent

5240 (1,180) of the archaeological sites on YTC date to the prehistoric period and represent at least 10,000
5241 years of settlement and land use history. Relatively few historic-period archaeological sites have been
5242 recorded on YTC, with 133 inventoried to date. All of these historic-period sites relate to homesteading,
5243 mining, railroad transportation, and ranching during the late 19th and early 20th centuries.

5244 Two archaeological districts are present on YTC: the Wa Pai Xie Archaeological District, which contains
5245 11 sites, and the Tributary Headwaters Archaeological District, which contains nearly 100 sites. Ten of
5246 those 100 sites are protected by a conservation easement. Both archaeological districts are eligible for
5247 listing on the National Register.

5248 Native American traditional cultural resources on YTC are places and resources that are important in the
5249 ongoing traditional or spiritual practices of the Wanapum and Yakama tribes (and other area tribes).

5250 Section 106 consultation IAW the NHPA was initiated with the Wanapum and Yakama tribes in January
5251 2009 for Fort Lewis (now JBLM) *Grow the Army* initiatives, which included a potential CAB stationing.

5252 Further details on YTC's cultural resources, management of those resources, Native American needs for
5253 access and consultation actions related to those resources and Native American tribes is available in
5254 JBLM's *Grow the Army* FEIS (JBLM, 2010a) and YTC's *Integrated Cultural Resources Management*
5255 *Plan* (YTC, 2009).

5256 **6.10.2. Environmental Consequences**

5257 **Alternative 2 and 3**

5258 CAB-related construction impacts to cultural resources are expected to be significant but mitigable to less
5259 than significant. Construction of facilities to accommodate a CAB will take place on or near GAAF and
5260 the East Division Area on JBLM. The oldest structure still in use at GAAF is Building #3063, an aircraft
5261 hangar built in 1942, which has not been evaluated for National Register eligibility. JBLM is currently
5262 planning National Register evaluations of this resource and several other airfield structures that have
5263 recently reached the 50-year age threshold to qualify as National Register-eligible historic properties.
5264 SHPO consultation will be performed as appropriate, based on evaluations of these resources and
5265 structures that have recently reached the 50-year threshold. No archaeological survey has been conducted
5266 on GAAF. Impacts to unknown archaeological resources discovered during construction can be avoided

5267 or minimized by conducting surveys prior to ground disturbance. Consultation with the Native American
5268 tribes for JBLM's *Grow the Army* analysis, which included a potential CAB stationing, has not identified
5269 impacts to traditional cultural or ceremonial places or resources from proposed construction in
5270 cantonment or training ranges, or GAAF (JBLM, 2010a). CAB-related construction is not planned at
5271 YTC.

5272 CAB ground vehicles could potentially impact archaeological sites in JBLM and YTC training areas.
5273 However, as a CAB will primarily involve aviation-based training activities, CAB activities are not
5274 expected to significantly impact archaeological sites in range/training areas. A CAB stationing will not
5275 add any JBLM access restrictions to the Nisqually, Puyallup, and Squaxin Island tribes nor is noise
5276 related to CAB training expected to adversely impact the use of Native American traditional or
5277 ceremonial places or resources. Consultation to date with the Yakama and Wanapum tribes has not
5278 identified impacts to traditional cultural places or resources from incompatible noise levels or restricted
5279 access associated with aviation-based training on YTC.

5280 JBLM staff conducted a tribal consultation under the JBLM *Grow the Army* FEIS, which included a
5281 potential CAB stationing. This consultation with the Nisqually, Puyallup, and Squaxin Island tribes
5282 determined that the tribes wish to access important tribal cultural resources within maneuver training
5283 areas, which are restricted for military use 365 days per year. Access to these resources is important to the
5284 cultural values of the tribes, particularly at specific times of the year when such resources are traditionally
5285 collected, used, or visited. JBLM maintains a policy of scheduling access to training areas for tribal
5286 members at least twice yearly as the mission allows.

5287 JBLM consultation with the Yakama and Wanapum tribes to date has not identified noise impacts to the
5288 use of places or resources that are important to the tribes, thus cumulative effects from increased noise to
5289 levels seems unlikely. YTC has been able to coordinate acceptable access to important tribal cultural
5290 resources with the tribes because no adverse impacts from restricted access have been identified and the
5291 potential for significant impacts (i.e., long-term or permanent interruption) to traditional tribal practices is
5292 unlikely.

5293 **Alternative 1 and the No-Action Alternative**

5294 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
5295 locations. There will be no change in cultural resource impacts due to training or construction activities
5296 associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions,
5297 Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start
5298 of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected
5299 under Alternative 1 is other than JBLM.

5300 **6.10.3. Cumulative Effects**

5301 Potential impacts to archaeological sites from past, present, and planned future activities from the failure
5302 of site protection measures could result in the eventual loss of important archaeological data. Such a
5303 cumulative loss may eventually become significant. However, because the conditions under which current
5304 site protection measures fail are unknown and the specific sites that may be impacted cannot be predicted,
5305 the threshold at which a cumulative loss of archaeological data becomes significant cannot be determined.
5306 Ongoing efforts to increase awareness of the need to protect archaeological sites on JBLM and YTC are
5307 likely to improve the rate of success of site protection measures and thus prevent further loss of
5308 archaeological data. Mitigation actions currently being taken by JBLM (to include YTC), as detailed in
5309 the JBLM *Grow the Army* FEIS (JBLM, 2010a), also work to reduce potentially significant impacts to
5310 less than significant.

5311 Intensified use of range and training areas at JBLM and YTC could lead to permanent degradation of
5312 specific plant or animal habitat associated with traditional or ceremonial practices of Native American
5313 tribes. A CAB stationing will not add any JBLM access restrictions for Native American tribes. YTC has
5314 been able to coordinate acceptable access to important tribal cultural resources with the tribes to date;
5315 because no adverse impacts from restricted access have been identified, the potential for significant
5316 impacts (i.e., long-term or permanent interruption) to traditional tribal practices is unlikely.

5317 For additional discussion of cultural resource impacts and consultation activities, see the JBLM *Grow the*
5318 *Army* FEIS, 2010.

5319 **6.11. Socioeconomics**

5320 The potential impact on socioeconomics in the area is described in the following section.

5321 **6.11.1. Affected Environment**

5322 **Joint Base Lewis-McChord**

5323 The defined ROI for JBLM includes two counties: Pierce and Thurston. Summaries of the analysis
5324 conducted in the JBLM *Grow the Army* FEIS (JBLM, 2010a) are provided herein in order to establish a
5325 backdrop for impact evaluation. See JBLM's FEIS for additional details.

5326 The estimated population of the ROI totaled 1,050,700 in April 2008, an increase of more than 15.6
5327 percent since 2000. Several large communities are located in the ROI: the city of Tacoma, located north
5328 of JBLM, with an estimated 2008 population of 202,700; the city of Olympia, located to the west-
5329 southwest of JBLM with an estimated 2008 population of 44,800; the city of Lakewood, located west-
5330 northwest of JBLM with an estimated 2008 population of 58,780; and the city of Lacey, located west-
5331 southwest of JBLM, with a 2008 population of approximately 38,040 residents.

5332 More than 10,200 civilian workers are employed at JBLM's former Fort Lewis. Assuming each is a head
5333 of household, this will represent a population of approximately 26,520 persons (applying an average
5334 household size of 2.6 as contained in the 2000 Census). The 31,350 active duty military personnel are
5335 accompanied by approximately 46,142 Family members, which results in a total connected population of
5336 about 77,492 persons, or approximately 7.4 percent of the entire 2008 population of the ROI.

5337 JBLM has on-post housing units for both unaccompanied and accompanied personnel. On the former Fort
5338 Lewis area, there are currently 3,492 family housing units of various types for accompanied Soldiers.

5339 According to the 2007 Joint Housing Market Analysis, there is a validated on-post housing requirement
5340 for 6,093 family housing units by 2012 on the former Fort Lewis area. With a current inventory of 3,492
5341 family housing units on the former Fort Lewis area, a housing deficiency exists on-post that will continue
5342 to grow. By 2013, an additional 1,743 barracks spaces will be needed at JBLM's former Fort Lewis area
5343 (RDN, 2008, as referenced in JBLM, 2010a).

5344 An estimated 370,306 housing units are located in the ROI. The proportion of owner-occupied housing
5345 units is 62.2 percent. The off-post population in the JBLM market area (within a 20-mile (32 km)
5346 commute of the installation's main work areas) is estimated at 901,488 persons, having increased at an
5347 average rate of 1.7 percent per year since 2000; population growth increased at an average rate of 1.9
5348 percent per year from 1990 to 2000. The annual growth rate is projected to continue to climb 1.4 percent
5349 through 2012, resulting in an estimated population of 966,384 in 2012.

5350 Vacancy rates and rentals in all areas within the ROI are fairly stable through time. The rental vacancy
5351 rate was estimated to be 5.4 percent in 2007; which is lower than observed in 1990 and 2000. Of the
5352 overall rental housing stock, 30.9 percent is considered substandard and 28.8 percent of the immobile
5353 home rental inventory is classified as unsuitable by DoD criteria.

5354 In 2006, more than 3.8 million jobs existed in the State of Washington, of which about 146,380 were
5355 military and Federal/civilian jobs. More than 374,000 people were employed in the ROI in 2007, 73.4
5356 percent of whom worked in Pierce County (Bureau of Labor Statistics, 2008). In Pierce County, the
5357 largest share of employment is concentrated in the health care industry, with 12.5 percent of jobs. Local
5358 government employed 12.1 percent, the retail trade sector employed 11.9 percent, and construction
5359 accounted for an 8.6 percent of workers. The largest employer in Pierce County is JBLM. The
5360 unemployment rate in both counties of the ROI gradually increased from lows of between 4.6 percent in
5361 Thurston County and five percent in Pierce County to an average 5.3 percent for the first 11 months of
5362 2008 in Thurston County and 5.4 percent in Pierce County.

5363 Total nonfarm wage and salary earnings in the ROI totaled just more than \$35 billion in 2006,
5364 approximately 76 percent of which was contributed by Pierce County. The contribution to total earnings
5365 by the military sector is higher in Pierce County (approximately 9.8 percent) compared to 2.4 percent for
5366 the State and 0.4 percent for Thurston County. Personal income associated with the military totaled \$2.66
5367 billion in 2006 in Pierce and Thurston counties. Wages paid to personnel (active duty and civilian) at the
5368 former Fort Lewis area of JBLM totaled more than \$2.02 billion in 2007.

5369 Expenditures on grants and contracts by the installation can vary measurably from year to year. The value
5370 of grants and contracts let by the Army in FY 2006 in Pierce and Thurston counties, as reported by the
5371 DoD, was \$453.3 million. The large majority (greater than 99 percent) of DoD prime contracts awarded
5372 to firms in the ROI have been made to companies located in Pierce County; these account for

5373 approximately 9.4 percent of all DoD awards statewide. The value of prime contract awards from the
5374 Army in Pierce County totaled more than \$449 million in FY 2006. In 2007, expenditures at Fort Lewis
5375 that had the greatest effect on the local economy (after earnings paid to personnel) were contracts,
5376 services, and construction; military construction; and Federal impact aid funding. During 2007, contracts,
5377 services, and construction accounted for approximately \$336.3 million in expenditures and military
5378 construction accounted for approximately \$312 million. Federal impact aid funding accounted for another
5379 \$13 million in expenditures at the former Fort Lewis.

5380 The primary sources of revenue for Pierce and Thurston counties are: sales taxes, property taxes, transfers
5381 from the State government, and transfers from the Federal government. In 2008, property taxes and
5382 intergovernmental transfers were the largest sources of revenue for both counties. Property taxes
5383 accounted for 19.2 percent of Pierce County's revenue and 22.7 percent of Thurston County's 2008
5384 revenue. Intergovernmental transfers accounted for 21.6 percent of Pierce County's revenue and 11.3
5385 percent of Thurston County's 2008 revenue. Charges for services and fees make up 14.9 percent of Pierce
5386 County's revenues and 12 percent of Thurston County's revenues.

5387 The major operating expenditure categories for the counties are: public safety, health and social services,
5388 utilities, capital expenditures, and transportation. The provision of health and social services consumes
5389 approximately 14 percent of operating expenditures in Pierce County and 21 percent in Thurston County.
5390 Expenditures on public safety comprise approximately 19 percent of the operating expenditures for each
5391 county.

5392 Numerous facilities and services located on JBLM contribute to the Quality of Life of on-post residents
5393 and military personnel and their Families residing off-post. These include child care, health care, public
5394 schools, and other facilities.

5395 The communities that surround JBLM provide numerous recreational, medical, retail, food, and other
5396 community services and facilities. Of the wide array of off-post services and facilities, public schools are
5397 highly important.

5398 Minority populations within the ROI comprise approximately 24 percent of the overall population in
5399 Pierce County and 16.6 percent of the overall population in Thurston County. Sixty-four percent of the
5400 population on the Nisqually Indian Reservation is identified as American Indian and Alaska Native alone

5401 or in any combination. The populations of the census tracts adjacent to JBLM have a higher percentage of
5402 minority population than across the ROI as a whole; the proportion of these minority populations.
5403 JBLM's residential population, as with other military populations, contributes to the higher minority
5404 percentage in the immediate area of the installation.

5405 Pierce and Thurston counties have poverty levels below 20 percent. Pierce County's poverty level was
5406 estimated at 11.4 percent for the years 2005 through 2007 and Thurston County's poverty level was
5407 estimated at 10.6 percent during the same period. The 2000 Census indicates that there were no "poverty
5408 areas" in Thurston County; however, 21 of 158 Census tracts in Pierce County met the definition of a
5409 "poverty area."

5410 Children are present on JBLM in many settings, including family housing neighborhoods, elementary
5411 schools, day care centers, and recreational areas. During the 2007 through 2008 school year, 2,441
5412 school-aged children were enrolled in the public schools on the former Fort Lewis area of JBLM.

5413 **Yakima Training Center**

5414 Because YTC will not serve as a CAB stationing location and will only be utilized for training, there will
5415 be limited measureable economic effects for the YTC ROI.

5416 **6.11.2. Environmental Consequences**

5417 **Alternative 2 and 3**

5418 As just mentioned, the stationing of the CAB at JBLM will have no measurable economic effects within
5419 the YTC ROI, as YTC is used only for training activities with little opportunity for local economic
5420 stimulus. The major impacts will accrue at JBLM as this is where Soldiers and their Families will live,
5421 shop, and otherwise spend salary and other procurement dollars.

5422 The stationing of a CAB at JBLM is expected to result in short-term and minor long-term economic
5423 benefits in the JBLM region through increased local demand for housing and goods and services.

5424 This analysis is focused on the effects of new salaries that will be introduced to the ROI by the addition of
5425 2,700 Soldiers associated with the proposed CAB units. As a result of the screening criteria used to select

5426 the final potential sites (identifying those installations with existing supporting facilities). Construction
5427 expenditures will add short-term economic growth to the JBLM region.

5428 The results of the EIFS evaluation for location of a CAB at JBLM are shown in Table 17. Detailed results
5429 are included in Appendix C.

5430 **Table 17. Predicted Impacts at JBLM and RTVs**

Variable	Change	RTV
Business Volume	0.30%	5.01%
Income	0.52%	4.96%
Employment	0.76%	2.79%
Population	0.78%	1.97%

5431

5432 As shown, the predicted changes are well within the calculated RTVs (used to ascertain potential
5433 significance). As a result, the effects will be minor in the economic region; but will likely be considered
5434 positive by the community, helping to offset the economic downturns that have occurred in the last few
5435 years.

5436 The impacts of the proposed CAB location fall within the analysis completed in the Fort Lewis *Grow the*
5437 *Army* FEIS (JBLM, 2010a) and will have similar socioeconomic effects.

5438 The stationing of additional Soldiers will increase demand for housing. Despite housing modernization
5439 projects in-progress and planned, there will not be enough on-post housing to accommodate all new
5440 Soldiers and their Families. There is adequate housing off-post to house the additional Soldiers and their
5441 Families with the effect of reducing the vacancy rate of rentals and increasing homes sales.

5442 Increased populations will increase the demand for schools and childcare facilities, public safety, and
5443 other services. Currently 45.5 percent of military personnel live off-post. While JBLM has five
5444 elementary schools and handles most of the educational requirements of its on-post residents, the
5445 implementation of CAB stationing along with other *Grow the Army* stationing actions is projected to add
5446 up to 997 students to Clover Park School District and up to 416 new students in the Steilacoom Historical
5447 School District. Smaller impacts will be felt at other school districts in the area including Yelm, North
5448 Thurston, Puyallup, Bethel, Franklin Pierce, and University Place. These areas all serve JBLM's on- and

5449 off-post populations. The Army recognizes that impacts to schools will represent a significant impact. As
5450 a result of the limited on-post housing, the large majority of Soldiers and their Families will reside off-
5451 post, and their payment of State and local taxes and fees that are used to fund school district operating
5452 budgets will partially mitigate the increased costs. These school districts receive Federal impact aid as an
5453 offset for the costs of providing public education to dependents of military personnel. These potential
5454 impacts are normally mitigated through early Army outreach and coordination with those school districts,
5455 allowing them to plan for additional facilities.

5456 Services will continue to be provided to residents and retirees by the Army Community Support Center,
5457 the Family Connection, Family Readiness Groups, and the Retirement Services Office. Impacts on the
5458 retiree population are unlikely.

5459 The CAB stationing will increase demand for on-post retail, food, and related services such as JBLM's
5460 commissary and retail outlets in the PX. The expanded Lifestyle Center may be sufficient to meet
5461 increased demand for shops and services. Off-post, the services provided through the private sector can be
5462 expected to respond to an increased demand for shops and services by increasing supply. During
5463 construction, safety measures stated in 29 CFR Part 1926, "Safety and Health Regulations for
5464 Construction," and other applicable regulations and guidance will be followed to protect the health and
5465 safety of all personnel and employees at the installation, as well as construction workers.

5466 Demand for recreational facilities will increase with the additional population. The demand for some
5467 facilities, such as gyms and pools, may be moderated by the use of on-post facilities. Increases in demand
5468 for off-post recreational facilities will be met by a combination of private and public sector facilities. The
5469 services provided through the private sector can be expected to respond to the increased demand by
5470 increasing supply.

5471 Increases in populations may cause an increase in the demand for off-post public safety services (fire,
5472 police, emergency response, etc.). Local and State government agencies provide off-post public safety
5473 services; funding for these services is derived from sales and gross receipts taxes, property taxes, and
5474 other taxes and charges levied on goods and services. With additional Soldiers stationed at JBLM, there
5475 will be an increase to the local tax base (e.g., sales tax, property tax) to pay for these services.

5476 Similarly, the location and distribution of new military Soldiers and their Families will have no negative
5477 impacts or risks to children in the ROI.

5478 Less than significant, beneficial, cumulative economic effects will occur under the proposed alternatives
5479 due to the direct and indirect economic impacts of the new Soldiers and their Families. These will be
5480 accompanied by minor or no direct or indirect cumulative impacts on housing, Quality of Life,
5481 environmental justice, or protection of children.

5482 **Environmental Justice**

5483 As noted in Section 4.4.6, increased training at JBLM will result in significant noise effects. The impacts
5484 will be realized by both on-post and off-post populations, including minorities, low-income populations,
5485 and Native Americans who reside in areas adjacent to JBLM or on the Nisqually reservation. These
5486 impacts will be disproportionately realized by residents of the Nisqually reservation (most of whom
5487 identify as American Indian or Native Alaskan) and others who live adjacent to the areas of JBLM used
5488 for training. The disproportionate realization of the impact is due to the physical proximity to areas used
5489 for live-fire training; those who live closest to the training areas will realize greater impacts from
5490 increased noise. This is solely a function of the historical development of ranges on JBLM and the
5491 resulting locations of training ranges relative to the Nisqually Indian Reservation. JBLM staff conducted a
5492 tribal consultation with the Nisqually tribe as part of the JBLM *Grow the Army* FEIS, which included
5493 potential CAB stationing. Noise impacts were discussed as one of the issues associated with that
5494 consultation. Currently, JBLM implements a variety of BMPs to mitigate the effects of the noise from
5495 Army training activities that will be associated with the CAB. These BMPs include implementing the
5496 requirements of Fort Lewis Regulation 360–5, *Noise and Vibration Complaint Procedure*, and following
5497 the “Fly Friendly” program when flying over congested areas. In addition, JBLM proposed, in their *Grow*
5498 *the Army* FEIS, to maintain 2,000 feet AGL when flying over the Nisqually National Wildlife Refuge.
5499 Although the effects of noise will disproportionately affect the Reservation, with these measures, the
5500 overall environmental justice effects at JBLM will be less than significant because the noise impact is not
5501 anticipated to change or otherwise affect any social, economic, physical, or health conditions that will
5502 result in social, cultural, or human health effects to the majority American Indian/Alaska Native
5503 population.

5504 Significant disproportional environmental justice impacts are not anticipated at YTC.

5505 **Alternative 1 and the No-Action Alternative**

5506 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
5507 locations. There will be no change in socioeconomic impacts due to training or construction activities
5508 associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions,
5509 Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start
5510 of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected
5511 under Alternative 1 is other than JBLM.

5512 **6.11.3. Cumulative Effects**

5513 The cumulative impacts of a CAB stationing, along with other past, present, and reasonable foreseeable
5514 future actions that affect economy, employment, demographics, housing, Quality of Life, schools,
5515 community services, or environmental justice on and around JBLM and YTC is expected to be less than
5516 significant.

5517 This increase in both the personnel and residential population on JBLM, as well as increases in nearby
5518 communities will translate into increased Army and individual expenditures for purchases of goods,
5519 contracting of services, utilities, and rent and lease payments and will, therefore, have a net positive
5520 cumulative impact to the local and regional economy. For JBLM, this increase is occurring against a rapid
5521 increase in regional population density. School enrollment in the JBLM area will increase as a result of
5522 the cumulative increase in regional population. Adverse cumulative effects will be partially offset through
5523 the provision of Federal impact aid to offset costs of providing public education to Families of military
5524 personnel.

5525 Additional discussion of direct, indirect, and cumulative socioeconomic impacts can be found in the
5526 JBLM *Grow the Army* EIS (JBLM, 2010a).

5527 **6.12. Transportation and Airspace**

5528 The potential impacts on transportation and airspace are defined in the following section.

5529 **6.12.1. Affected Environment**

5530 **Joint Base Lewis-McChord**

5531 **Traffic and Roadways**

5532 As mentioned in Section 6.2, JBLM is located in western Washington just south of Tacoma, 35 miles (56
5533 km) south of Seattle, and seven miles (11 km) east of Olympia. The main transportation corridor in the
5534 Puget Sound region, I-5, runs through the installation. I-5 supports the U.S. strategic defense policy by
5535 providing access to JBLM and Camp Murray (home of the Washington National Guard, Washington
5536 Military Department, and the Washington State Emergency Management Center). I-5 provides access to
5537 intermodal transportation facilities and accommodates interstate and interregional travel. It is also
5538 classified as a T1 freight route, meaning that it carries more than 10 million tons of freight per year.
5539 Trucks make up 10 to 13 percent of the total daily volume of traffic on I-5 within portion adjacent to
5540 JBLM. The topography of the area, combined with the presence of JBLM and Camp Murray, make local
5541 travel difficult, with I-5 often serving as the only local connection. Increased travel demand through the
5542 section of I-5 along JBLM resulting from significant growth in Thurston and Pierce counties has put
5543 severe strain on I-5 in this corridor. Compounding the already congested corridor is the fact that the
5544 military-related growth exceeded the population projections developed by local jurisdictions Washington
5545 State Department of Transportation (WSDOT, 2010).

5546 Appendix E provides detailed information on traffic and roadway conditions in the JBLM ROI. The
5547 analysis draws from existing traffic and transportation related documents and the transportation impact
5548 analysis in JBLM's *Grow the Army* FEIS (JBLM, 2010a). Impacts from military travel demand are more
5549 noticeable at I-5 interchange ramps located near access gates (Access Control Points). The majority of
5550 personnel accessing JBLM come from the north and south of JBLM (80 percent of the Fort Lewis area
5551 and 75 percent of the McChord AFB area), resulting in the majority of military traffic utilizing the I-5
5552 corridor to access the installations via the gates along I-5. JBLM gates with the highest volume of traffic
5553 are all located in close proximity to the I-5 corridor.

5554 **Nonmotorized Transportation**

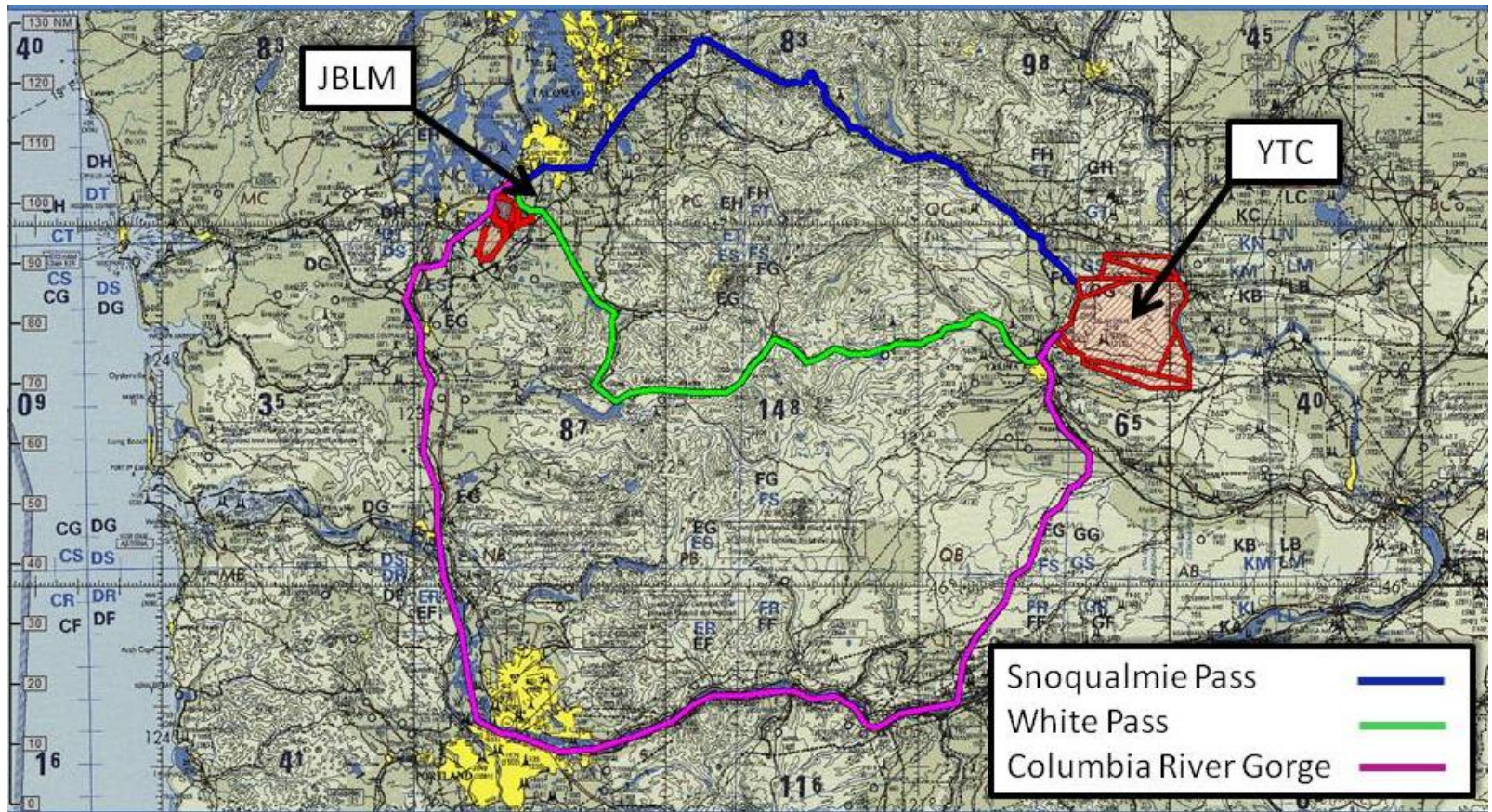
5555 JBLM has several programmed street projects that contain pedestrian and bicycle provisions (e.g.,
5556 Pendleton Avenue and 41st Division Drive), which will serve a growing nonmotorized demand.

5557 **Airspace**

5558 JBLM's former Fort Lewis has more than 55 square miles (142 square km) of FAA-designated SUA up to
5559 an altitude of 14,000 feet (4,267 km). The installation has access to this airspace in area R6703, Sub-
5560 Areas A, B, and D from 0700 to 2300 hours daily, Mondays through Fridays. Sub-Area C is scheduled by
5561 Notice to Airmen (NOTAM) (Fort Lewis, 2005a). FAA has designated portions of the airspace as SUA.
5562 The primary purpose for this restricted airspace is to support live-fire training with artillery, mortars,
5563 small arms, helicopters, USAF aircraft, and demolitions (Fort Lewis, 2005a). Restricted areas within the
5564 SUA may be activated, in which case nonmilitary and unauthorized military aircraft are prohibited from
5565 entering the airspace. Areas of airspace over artillery practice ranges are restricted from general use
5566 (HQDA, 1995).

5567 Aviation units stationed at JBLM will be expected to aerially deploy to YTC to conduct both aviation unit
5568 training and training in support of SBCTs and to conduct helicopter gunnery exercises. Multiple routine
5569 flights are conducted to and from YTC throughout the year; however, flights of larger formations (10 or
5570 more aircraft) are typically conducted approximately only four times per year for helicopter gunnery and
5571 for training in support of air-ground-integration with BCTs or for organic unit field training exercises
5572 (Hummel, 2010). Units conducting aerial deployment from JBLM to YTC will follow FAA regulations
5573 for the airspace in which they are flying and will avoid concentrations of built-up civilian areas (also see
5574 Section 6.6.1). Three alternatives exist for routing rotary-wing flight between JBLM and YTC (Figure
5575 12). Flight altitudes adhere to noise-abatement policies that minimize aircraft noise footprint on and near
5576 the installation and within the local flying area (see Section 6.6.1)

5577



5578

Source: Hummell, 2010

5579 **Figure 12 Rotary-Wing Flight Alternative Routes**

5580 **Yakima Training Center**

5581 **Transportation**

5582 See Section 6.2 and Figure 10 for information on YTC's location and major roads in the area.

5583 **Airspace**

5584 YTC has 451 square miles (1,168 square km) of FAA-designated SUA (with restricted areas) up to
5585 55,000 feet (16,764 m), except for 6741H, which is surface to 5,500 feet (1,676 m) MSL. The installation
5586 has access to this airspace and it is controlled by YTC. This airspace is released to the FAA when not
5587 needed for military use (YTC Staff, 2007, as cited in HQDA, 2007).

5588 There are two types of aircraft stationed at YTC. One is for medical evacuation and the other is seasonal
5589 stationing of aerial firefighting helicopters. YTC has one helicopter and fixed-wing aircraft landing area.

5590 The VAH is located near the lower boundary of the cantonment area and is used solely for helicopters.

5591 The FAA has designated portions of the overlying airspace as SUA, which may be activated during
5592 special activities as restricted from nonmilitary uses. Restricted airspace over YTC includes areas located
5593 from the surface up to, but not including, 55,000 feet (16,764 m) MSL (Fort Lewis Staff, 2007, as cited in
5594 HQDA, 2007).

5595 For the purposes of this analysis, it is assumed that up to 50 percent of the aviation flight hours for the
5596 CAB will be flown at YTC during normal aviation unit training and aviation gunnery exercises. The YTC
5597 also hosts aviation units from foreign countries that train on the facility on a case-by-case basis.

5598 **6.12.2. Environmental Consequences**

5599 **Alternative 2 and 3**

5600 **Transportation**

5601 With the stationing of a CAB at JBLM, CAB Soldiers and Families are projected to generate
5602 approximately 70,750,880 annual vehicle miles traveled on the installation and surrounding area (see
5603 Appendix E). Traffic volume on the installation will increase, and the LOS will decrease at four of eight
5604 key intersections studied (Appendix E). LOS at four of the eight intersections will be at LOS-F. CAB

5605 stationing will result in a deterioration of traffic conditions on I-5 which is already experiencing
5606 significantly degraded service levels. Presuming the additional Soldiers commuting to the GAAF
5607 distribute their trips consistent with existing distribution of gate volume, a large majority of new trips
5608 from CAB Soldiers will use gates along I-5. It can be expected that stationing a CAB will generate
5609 approximately 770 additional inbound and outbound trips through the installation's gates (access control
5610 points). This represents an estimated 12 percent increase over the traffic volume that moves through the
5611 gates if all other stationing actions outlined in the JBLM *Grow the Army* FEIS occurred. Increased traffic
5612 volume from stationing the CAB at JBLM will also contribute to increased traffic congestion on I-5 near
5613 and leading to JBLM. These potential effects on traffic leading to JBLM are significant as they will
5614 contribute to a deterioration in LOS for a transportation network already severely stressed to
5615 accommodate existing traffic.

5616 In responses received following the publication of JBLM's FEIS for *Grow the Army* (JBLM, 2010a),
5617 many commenters noted that traffic congestion had greatly increased on I-5 since all three SBTs began
5618 training at JBLM and none were absent due to deployment. Some suggested that JBLM make greater use
5619 of staggered work hours. JBLM is evaluating this measure.

5620 Army Regulation 385-10, *The Army Safety Program*, contains requirements for traffic safety and loss
5621 prevention to reduce the risk of death or injury to Army personnel and civilians. Through training and
5622 other means, the Army seeks to instill in our Soldiers the importance of vehicle safety, expecting Soldiers
5623 to operate motor vehicles in a safe manner and always to employ risk management principles when using
5624 their privately owned vehicles.

5625 Stationing a CAB at JBLM will not involve permanently stationing Soldiers at YTC. Units from the CAB
5626 will fly their aircraft and drive their wheeled vehicles by convoy to conduct training at YTC. The
5627 stationing of 2,700 Soldiers will have minimal impact on existing traffic congestion of public roads
5628 leading to or near YTC. Convoys will be scheduled in conjunction with WSDOT, and limited in the
5629 number of vehicles per convoy and number of convoys per day. Stationing the CAB at JBLM will not
5630 have significant effects on traffic or transportation at or near YTC.

5631 **Airspace**

5632 The stationing of a CAB at JBLM's GAAF will involve a substantial increase in helicopter maneuver
5633 training on JBLM and YTC. Although the increase in the number of flight hours (approximately 24,800
5634 additional hours), landings, and takeoffs appear substantial when compared to the current conditions, the
5635 direct and indirect effects will be less than significant. Even with the units currently stationed at GAAF,
5636 the SUA is readily available and can easily accommodate the increase in flight training hours, landings,
5637 and takeoffs (Rodriguez, 2009, as cited in JBLM, 2010a). SUA at YTC is also readily available and can
5638 easily accommodate the anticipated increase in flight training hours, landings, and takeoffs. Thus, the
5639 increase in maneuver training associated with the CAB will not create obstructions to air navigation;
5640 affect flight operations at GAAF, VAH or any other airfield; or require the FAA to modify existing SUA
5641 or create new SUA. The existing restricted airspace, MOAs, and SUA will allow flight operations to
5642 occur safely throughout the maneuver training areas without potential interference from nonparticipating
5643 or incompatible aircraft. Units conducting aerial deployment from JBLM to YTC will follow FAA
5644 regulations for the airspace in which they are flying and will avoid developed civilian areas.
5645 Consequently, stationing a CAB at JBLM, with associated training at JBLM and YTC, will result in less
5646 than significant impacts to airspace.

5647 **Alternative 1 and the No-Action Alternative**

5648 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
5649 locations. There will be no change in transportation and airspace impacts due to training or construction
5650 activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed
5651 actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to
5652 the start of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location
5653 selected under Alternative 1 is other than JBLM.

5654 **6.12.3. Cumulative Effects**

5655 **Transportation**

5656 Cumulative impacts of a CAB stationing at JBLM on transportation infrastructure and traffic is expected
5657 to be significant in large part due to the considerable congestion along the I-5 corridor near JBLM.

5658 Multiple long-term capital improvements are being planned in the region that will accommodate the
5659 increase in traffic. Included, for example, are regional freeway improvements on I-5 and the ‘Bypass of
5660 Point Defiance Rail Project’.

5661 Although the YTC region is experiencing population growth, the growth is not significant. CAB Soldiers
5662 will not be stationed at YTC. Units from the CAB will fly their aircraft and drive their wheeled vehicles
5663 by convoy to conduct training at YTC. Convoys will be scheduled in conjunction with WSDOT and
5664 limited in the number of vehicles per convoy and number of convoys per day. Cumulative impacts to
5665 transportation infrastructure and traffic is expected to be less than significant at YTC.

5666 **Airspace**

5667 Cumulative effects to airspace resources will generate less than significant direct or indirect impacts. As
5668 evidenced by McChord Airfield, airspace in the region is also used by the USAF for training operations.
5669 As a result of the Army’s recent Transformation and Growth initiatives, the SBCTs stationed at JBLM are
5670 equipped with UASs. The SBCTs also train and employ UASs at the YTC. These systems fly in and
5671 sometimes compete for the region’s SUAs, to include restricted airspace, and MOAs. There is sufficient
5672 restricted and SUA and MOAs available at both JBLM and YTC to safely accommodate the employment
5673 of Army aviation assets, UASs, and other allowable aviation assets. There are no known reasonably
5674 foreseeable actions that will impact the airspace over either facility.

5675 For additional discussion of transportation and airspace impacts, see the JBLM *Grow the Army* EIS
5676 (JBLM, 2010a).

5677 **6.13. Utilities**

5678 The potential impact on utilities is defined in the following subsections.

5679 **6.13.1. Affected Environment**

5680 **Joint Base Lewis-McChord**

5681 **Potable Water**

5682 JBLM operates four public water systems for the former Fort Lewis that are served entirely by
5683 groundwater sources. The primary water system provides potable water to over 47,000 people in the
5684 former Fort Lewis cantonment area. The three other potable water systems serve areas on the remainder
5685 of the former Fort Lewis. These include the Golf Course, ASP, and Range 17 potable water systems.

5686 This system consists of one drinking water source, Sequalitchew Spring, and eight drinking water source
5687 wells at various locations around the installation. It has a supply capacity of approximately 19 mgd (72
5688 million L/day) and a storage capacity of approximately 6.9 mgd (26 million L/day) (Chavez, 2009, as
5689 referenced in JBLM, 2010a). There is also an emergency tie-in with the city of DuPont to allow either
5690 party to provide water to the other during critical periods.

5691 There are 12 water storage reservoirs that serve the system and have a total storage capacity of 6.9 mgd
5692 (29 million L/day), at 4,792 gpm (18,139 liters per minute [L/min]). The Army plans to privatize the
5693 potable water distribution system at JBLM (HQDA, 2007)

5694 **Wastewater**

5695 The wastewater treatment system on JBLM collects industrial and domestic wastewater from the former
5696 Fort Lewis Main Post, former Fort Lewis North Fort, former McChord AFB, Veterans Administration
5697 Medical Center, and Camp Murray. All wastewater collection lines on the installation are separate from
5698 the stormwater runoff and drainage system. JBLM has been replacing some of the older sewer trunk lines,
5699 with further improvements still in process. The installation's wastewater treatment system has a permitted
5700 capacity of 7.6 mgd (28.8 million L/day), at 5,278 gpm (19,979 L/min), and design capacity of 15 mgd
5701 (56.8 million L/day) at 10,417 gpm (39,432 L/min).

5702 The Army discharges treated wastewater from the Solo Point WWTP to Puget Sound under its EPA
5703 NPDES permit. Over the 2004-to-2009 period of the previous permit, the Army exceeded the permit
5704 treatment requirements six times (EPA, 2009). The Solo Point treatment plant has sufficient hydraulic

5705 design capacity to handle demand. Given the past performance of the facility, however, it is expected that
5706 discharges will violate permit treatment requirements more frequently in the future as demand increases.
5707 Increased demand combined with more stringent requirements that EPA has identified for discharges
5708 under future NPDES permits will render the Solo Point WWTP insufficiently protective of Puget Sound
5709 water quality.

5710 **Stormwater**

5711 JBLM is located adjacent to Puget Sound, with all stormwater from the former Fort Lewis draining
5712 toward Puget Sound via American Lake or Sequelitchew Lake. Several existing pipes and culverts
5713 currently appear to be undersized (JGA and AMEC 2007).

5714 **Solid Waste**

5715 JBLM's solid waste management program includes separate operations for collection and disposal of
5716 municipal solid waste, construction and demolition waste, and regulated medical waste. Nonhazardous
5717 solid waste is land-filled off-post only or recycled. Waste varies from common household to commercial
5718 and industrial sources. Approximately 12,864 tons (11,670 metric tons) of solid waste were generated at
5719 the former Fort Lewis in 2007, more than one-third of which (4,511 tons [4,090 metric tons]) was
5720 recycled (Fort Lewis, 2008). Nonhazardous solid waste is land-filled, either on- or off-post, or recycled.
5721 Waste generated on the former Fort Lewis is collected by a private contract provider, and taken to the
5722 304th Landfill in Graham, WA, for disposal.

5723 **Energy, Heating, and Cooling**

5724 The electrical distribution system at the former Fort Lewis is supplied by Tacoma Power and consists of
5725 four substations located around the installation, each of which is fed from a 115-kV pole line and
5726 collectively contain five 20-mVA transformers (JGA and AMEC, 2007). Each transformer is connected to
5727 a secondary switchgear owned by JBLM, which provides electrical service to the installation via 13.8kV
5728 overhead and underground distribution circuits. Based on utility billing information, peak demand for the
5729 installation was in January 2007 and was 39.4 MW or 41.1 mVA (JGA and AMEC, 2007). For FY 2008,
5730 818,549 million British thermal units (MBTUs) of electricity were required at Fort Lewis (Waehling,
5731 2009, as referenced in JBLM, 2010a).

5732 JBLM uses natural gas as its primary heat source. Natural gas is provided by PSE. PSE currently owns
5733 the major gas pipelines on the installation. Fuel oil is used as a backup when gas supplies are turned off
5734 and is purchased by contract (Fort Lewis, 2008). The total quantity of natural gas consumed on Fort
5735 Lewis in 2008 was 1,145,684 MBTUs (Waehling, 2009, as referenced in JBLM, 2010a). No existing gas
5736 piping deficiencies have been identified (JGA and AMEC, 2007). The existing main gas supply is
5737 sufficient to accommodate the gas requirements for all currently planned projects. Any major expansion
5738 of the gas pipe system will require the involvement and design work of PSE. The cost of this additional
5739 work will need to be determined and be a part of a new gas supply contract.

5740 **Communications**

5741 The telephone system at the former Fort Lewis is government owned and is maintained by the 106th
5742 Signal Battalion of the 7th Signal Command. QWEST provides outside telephone service to the JBLM
5743 system for the former Fort Lewis area. Communications facilities are divided into four major areas on that
5744 part of the installation constituting the former Fort Lewis: the Main Post, North Fort, the Training Areas,
5745 and the Madigan Army Medical Center. There are approximately 160 miles (260 km) of aerial cable and
5746 34 miles (55 km) of underground cable in the four areas. System improvements in the North Fort
5747 subsystem are planned in conjunction with programmed construction in that area.

5748 **Yakima Training Center**

5749 **Potable Water**

5750 The drinking water supply for YTC is provided entirely from groundwater sources. Six wells provide
5751 water for three permitted drinking water distribution systems located in the cantonment area and at
5752 Yakima Research Station and the MPRC. Prior to distribution and use, this water is treated as needed at
5753 the wellhead by chlorination. The remaining wells are located throughout the training area (Bartz, 2009,
5754 as referenced in JBLM, 2010a).

5755 Water for the permitted drinking water distribution system in the cantonment area is supplied by three
5756 wells and stored in two tanks with a combined storage capacity of 1,130,000 gallons (4.28 million L). At
5757 Yakima Research Station, there are two wells with a combined storage capacity of 375,000 gallons (1.42
5758 million L). The MPRC has one well with a storage capacity of 1,200 gallons (4,542 L). The remaining

5759 eight wells located within the range area complex have a combined storage capacity of 415,300 gallons
5760 (1.57 million L) (Bartz, 2009, as referenced in JBLM, 2010a).

5761 Water used during training exercises may be drawn from the cantonment area system and hauled to the
5762 field or drawn directly from one of the training area wells. Summer demand for water at YTC averages
5763 approximately 200,000 gpd (757,082 L/day). Approximately three quarters of this water comes from the
5764 cantonment area system.

5765 **Wastewater**

5766 YTC has a permitted WWTP, the Solo Point WWTP, which is located outside the installation boundary
5767 between the cantonment area and the Yakima River. The plant provides primary and secondary treatment
5768 of primarily domestic wastewater before discharge of effluent into the Yakima River. Only a portion of
5769 the permitted treatment capacity of 720,000 gpd (2.7 million L/day) is currently utilized. Peak daily flow
5770 is estimated at approximately 150,000 gpd (570,000 L/day) (Bartz, 2009, as referenced in JBLM, 2010a).

5771 Several of the smaller, remote structures within the cantonment area are self-contained, with individual
5772 septic tanks and drain fields. All wastewater outside the cantonment area is treated with the use of septic
5773 tanks and drain fields or lagoons. Self-contained field latrines are used to support training activities.

5774 **Stormwater**

5775 Stormwater drainage at YTC is generally through natural settings, such as interim creeks and valleys.
5776 However, in the cantonment area and other developed areas of the installation, drainage is engineered
5777 through structures such as ditches, oil-water separators, and culverts. A portion of the cantonment area
5778 drainage discharges into an intermittent stream that then enters the Yakima River downstream of Selah
5779 Creek. Because of the low hydraulic gradient of vegetated channels of the drainage systems and long
5780 distances to receiving waters, storm drainage has not historically resulted in adverse effects on the
5781 Yakima River.

5782 **Solid Waste**

5783 Refuse generated in Yakima County is hauled by Yakima Waste Systems and disposed at the Yakima
5784 County Terrace Heights Landfill. Refuse generated in Kittitas County is hauled by Waste Management of

5785 Ellensburg and disposed at Wenatchee Regional Landfill. Commingled recycle is also collected by
5786 Yakima Waste Systems.

5787 **Energy, Heating, and Cooling**

5788 PacifiCorp is the primary supplier of electric power to YTC. The Kittitas Public Utility District provides
5789 electric power for the MPRC and the Doris training site. The total annual electricity consumption for
5790 YTC in FY 2008 was 12,351,023 kilowatt hours (McDonald, 2009f, as referenced in JBLM, 2010a).

5791 Cascade Natural Gas Corporation supplies natural gas to YTC. Natural gas is the primary source of
5792 heating energy. Diesel and propane are also used for heating. During FY 2008, natural gas consumption at
5793 YTC totaled 421,155 MBTUs (McDonald, 2009f, as referenced in JBLM, 2010a). In addition, 11,300
5794 gallons (42,800 L) of propane were used as backup sources of fuel (McDonald, 2009f, as referenced in
5795 JBLM, 2010a)

5796 Heat energy was updated in the cantonment area at YTC in 2009. The conversions consist of individual
5797 natural gas forced air systems that replace steam heat service from boiler plant sources. The programmed
5798 new facilities will replace deteriorating facilities, resulting in anticipated energy savings.

5799 **Communications**

5800 The YTC telephone system is operated and maintained by the Network Enterprise Center, located at
5801 JBLM. QWEST provides outside telephone service to the YTC switch. Communications facilities at YTC
5802 are also divided into two major areas: the cantonment area, with 4 miles (6 km) of aerial cable and 12
5803 miles (19 km) of underground cable, and the training areas, with approximately 63,360 feet (19 km) of
5804 aerial cable and more than 480 miles (772 km) of underground cable (Cumpston, 2009, as referenced in
5805 JBLM, 2010a).

5806 **6.13.2. Environmental Consequences**

5807 **Alternative 2 and 3**

5808 Implementation of this stationing decision will not cause significant impacts to the infrastructure at JBLM
5809 for wastewater capacity, energy sources, communications, and solid waste management (see Section 6.8.2

5810 and 6.9.2 for wastewater effluent issues). Construction of new CAB facilities at JBLM could result in
5811 stormwater runoff from land disturbance sites and increased sedimentation in waterways beyond the
5812 project site boundary in and around the GAAF and East Division ADP areas. Because there will be no
5813 major addition of impervious surfaces for new construction, the JBLM stormwater conveyance system
5814 will handle the loadings under existing conditions. Utility demand will increase in the short term during
5815 construction of new CAB facilities and in the long term to support CAB Soldiers and their Families.
5816 Since the CAB Soldiers and Families will result in a population increase of less than one percent, this
5817 impact will be minimal. Extensions of power, water, and sewer lines are under construction, therefore
5818 only minor, if any, extensions will be required to provide newly constructed CAB facilities with these
5819 utility services.

5820 None of the CAB units will be stationed at YTC; however, CAB units will be expected to conduct
5821 training at YTC. Impacts to utility infrastructure at YTC will be minimal.

5822 **Alternative 1 and the No-Action Alternative**

5823 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
5824 locations. There will be no change in utility impacts due to training or construction activities associated
5825 with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the
5826 Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY
5827 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected under
5828 Alternative 1 is other than JBLM.

5829 **6.13.3. Cumulative Effects**

5830 As a result of the Army's recent Transformation and Growth initiatives, additional units have been
5831 stationed at JBLM and three SBCTs have been stationed on the facility. These increases in units,
5832 personnel and family members have increased the demand for utilities on the installation. There is,
5833 however, sufficient capability to accommodate the aforementioned increases and the addition of a CAB.
5834 The utilities at YTC are sufficient to accommodate the additional training load that the aforementioned
5835 force structure changes and the addition of a CAB will conduct on the facility. There are no known
5836 reasonably foreseeable actions that will impact additionally on the utilities of either facility. A fuller

5837 discussion of cumulative impacts at JBLM and YTC can be found in JBLM's *Grow the Army* FEIS
5838 (JBLM, 2010a).

5839 **6.14. Hazardous and Toxic Substances**

5840 The presence or potential for generating hazardous and toxic substances is defined in the following
5841 section.

5842 **6.14.1. Affected Environment**

5843 **Joint Base Lewis-McChord**

5844 Units and activities at JBLM typically use hazardous materials such as fuels, paints, solvents, lubricants,
5845 coolants, sealers, adhesives, refrigerants, compressed gases, batteries, cleaners, and sanitation chemicals.
5846 Hazardous materials also include munitions; pesticides and herbicides; petroleum, oils, and lubricants
5847 (POL); and petroleum storage tanks. Hazardous waste is generated because of facility and equipment
5848 maintenance, medical care activities, Soldier training, and motor pool and aviation maintenance
5849 operations. Hazardous wastes generated at JBLM include medical and biohazardous waste, asbestos,
5850 LBP, and PCBs. Expended ammunition, although inert as an explosive, may constitute a hazardous
5851 material, such as lead contamination. Soils with lead contamination may be found at small arms and
5852 artillery practice ranges where lead munitions are used. Lead was also a constituent of paints before 1978,
5853 therefore buildings constructed before 1978 are assumed to contain LBPs unless lead testing has proven
5854 otherwise. Older buildings are also assumed to contain asbestos until proven otherwise, and most of the
5855 buildings on the installation suspected to be contaminated with asbestos containing material (ACM) have
5856 been tested. There are no Federally regulated PCBs at Fort Lewis (Smith, 2009, as referenced in JBLM,
5857 2010a).

5858 In 1996, Fort Lewis (now JBLM) conducted an RCRA Facility Assessment that identified 81 sites
5859 representing potential environmental hazards, most of which were located in the cantonment area (Fort
5860 Lewis, 2008). In 1989, the Logistics Center at Fort Lewis (now JBLM) was designated as a NPL site
5861 based on soil and groundwater contamination. Off-post, the American Lake Gardens, located west of the
5862 McChord AFB area and north of the Fort Lewis area, was placed on the NPL in 1984. The groundwater at
5863 this site contained VOCs, which were believed to have come from former landfills at McChord AFB, and

5864 a groundwater treatment plant that has been in operation since 1993. Additionally, the former Fort Lewis
5865 area of JBLM has 51 Defense Site Environmental Restoration Tracking System sites (Fort Lewis, 2005a).

5866 The former Fort Lewis operates as a State and Federally permitted large quantity hazardous waste
5867 generator (RCRA ID# WA92 14053465). The former Fort Lewis area of JBLM currently operates 418
5868 individual hazardous waste accumulation points located throughout the installation. Hazardous wastes are
5869 directed to the installation's storage facility. Contract services are used to collect, recycle, and/or dispose
5870 of hazardous wastes off site. During FY 2007, a total of 415,300 pounds (188,400 kg) of hazardous waste
5871 were generated on the former Fort Lewis (Smith, 2009, as referenced in JBLM, 2010a).

5872 Management of hazardous materials and wastes at JBLM continues to follow Army, Federal, and State
5873 regulations in order to minimize potential impacts to human health or the environment. Programs used to
5874 manage hazardous materials and wastes at JBLM include IRP, MMRP, and CC. JBLM has several plans
5875 for the former Fort Lewis in place to help manage hazardous materials and waste including a *P2 Plan*;
5876 *IPMP*; *Hazardous Material Management Plan*; and *Ozone Depleting Chemical Management Plan*.
5877 Ordnance impact areas and buffer zones are off limits to unauthorized personnel. In addition, impact areas
5878 are posted with warning signs indicating the potential risks of UXO in the impact area.

5879 **Yakima Training Center**

5880 The operations at YTC use hazardous materials and generate hazardous wastes that are similar to those
5881 used and generated by JBLM (see above), but in much smaller quantities. During FY 2008, 8,151 pounds
5882 (3,697 kg) of reportable hazardous waste was generated at YTC (Bartz, 2009, as referenced in JBLM,
5883 2010a). YTC no longer has useable USTs. All previous USTs have been removed, grouted, or filled with
5884 gravel. As with JBLM, problems associated with contaminants such as asbestos, LBPs and PCBs will be
5885 remediated as they are identified and funding is available.

5886 In 1995, an RCRA Facility Assessment was performed to identify areas of prior contamination at YTC
5887 (Bartz, 2009, as referenced in JBLM, 2010a). Currently eight sites in the cantonment area remain under a
5888 Land Use Control Plan. Groundwater contamination has not been found in YTC or local residential
5889 drinking water (Bartz, 2009, as referenced in JBLM, 2010a).

5890 As with JBLM, management of hazardous materials and wastes at YTC continues to follow Army,
5891 Federal, and State regulations in order to minimize potential impacts to human health or the environment
5892 with various programs and plans in place to minimize inventory of hazardous materials, hazardous waste
5893 generated, and potential for releases of hazardous materials or toxic substances.

5894 **6.14.2. Environmental Consequences**

5895 **Alternative 2 and 3**

5896 Effects of a CAB stationing regarding hazardous material, hazardous waste, and toxic substances are
5897 expected to be less than significant. Provision of CAB facilities in the GAAF and East Division ADP
5898 areas are expected to result in renovation and demolition of some buildings constructed before 1978,
5899 which are assumed to contain LBPs and asbestos until proven otherwise. With continued implementation
5900 of regulatory and administrative mitigation measures, impacts from construction of CAB facilities at
5901 JBLM, to include renovation and demolition activities, will be less than significant because there will be
5902 minimal risk of human or environmental exposure to hazardous materials used or hazardous wastes
5903 generated during construction. The CAB will conduct aerial gunnery training that will increase live-fire
5904 training, therefore increasing the quantities of UXO and lead generated within the live-fire impact zones
5905 at JBLM and YTC. Impacts will be less than significant because the impact zones will be temporarily
5906 closed and remediated as needed and the current Army protocols for the protection of Army personnel
5907 and the public will minimize the risk of human or environmental exposure to UXO or lead. Ammunition
5908 handling and storage methods, disposal protocols, and safety procedures will continue to be conducted
5909 IAW existing regulations. CAB activities will increase quantities of POLs transported, stored, and used at
5910 JBLM and YTC; and a subsequent slightly increased risk of inadvertent spills or releases of fuels or
5911 hazardous materials. With continued implementation of standard Army regulatory and administrative
5912 requirements, impacts will be less than significant because the likelihood of spills will be minimized and
5913 inadvertent spills will be quickly identified and remediated to avoid exposure of military personnel or the
5914 public and to prevent endangerment of the public or environment.

5915 **Alternative 1 and the No-Action Alternative**

5916 The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and
5917 locations. There will be no change in hazardous and toxic substance impacts due to training or

5918 construction activities associated with the No-Action Alternative. The No-Action Alternative includes
5919 BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that
5920 will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the
5921 stationing location selected under Alternative 1 is other than JBLM.

5922 **6.14.3. Cumulative Effects**

5923 The CAB stationing and associated training activities, in combination with continued increases in
5924 anticipated regional population, development, and industry (to include reasonably foreseeable increases
5925 from JBLM), will continue to add to the generation of solid and hazardous materials and wastes. Regional
5926 anticipated population growth around YTC will continue to contribute cumulatively to that region's
5927 generation of hazardous and solid wastes. Increased training resulting from a CAB stationing will add
5928 slightly to the quantity of potential hazardous waste that will need to be managed at JBLM and YTC.
5929 Each increase in training at JBLM and YTC increases the risk of release of hazardous substances. On
5930 JBLM and YTC, efforts to achieve zero net waste will help minimize the Army's contribution to each
5931 area's regional increases. Regional efforts to use recyclable materials and recycle waste materials will
5932 also help offset the general regional increase. With continued implementation of regulatory and
5933 administrative measures, including the Army's protocols and SOPs for transport, storage, handling, and
5934 disposal of hazardous materials and wastes, cumulative impacts associated with hazardous materials and
5935 wastes and toxic substances will be less than significant. A fuller discussion of cumulative impacts at
5936 JBLM and YTC can be found in JBLM's *Grow the Army* FEIS (JBLM, 2010a).

5937

5938 **7. ACRONYM LIST**

5939 **A**

5940 AAP – Army Alternate Procedure

5941 AC – Active Components

5942 ACHP – Advisory Council on Historic Preservation

5943 ACM – asbestos containing materials

5944 ACP– Army Campaign Plan

5945 ACUB – Army Compatible Use Buffer

5946 ADNL – A-weighted day-night sound level

5947 ADP – Area Development Plan

5948 AEC – U.S. Army Environmental Command

5949 AFB – Air Force Base

5950 AGL – above ground level

5951 AIE – Automated Installation Entry

5952 AIRFA – American Indian Religious Freedom Act

5953 AMC – Air Mobility Command

5954 AOA – Aircraft Operations Area

5955 AQCC – Air Quality Control Commission

5956 AQCR – Air Quality Control Region

-
- 5957 AR – Army Regulation
- 5958 ARFORGEN – Army Force Generation
- 5959 ARAR - applicable or relevant and appropriate requirements
- 5960 ASP – Ammunition Supply Point
- 5961 AST – aboveground storage tanks

5962 **B**

- 5963 BAAF – Butts Army Airfield
- 5964 BAER – Burned Area Emergency Response/Rehabilitation
- 5965 BASH – Bird Air Strike Hazards
- 5966 BCT– Brigade Combat Team
- 5967 BEA - Bureau of Economic Analysis
- 5968 BLM – Bureau of Land Management
- 5969 BMP – best management practice
- 5970 BOD – Biological Oxygen Demand
- 5971 BRAC– Base Realignment and Closure

5972 **C**

- 5973 CAA – Clean Air Act
- 5974 CAB – Combat Aviation Brigade
- 5975 CC - Compliance-Related Cleanup

-
- 5976 CCR – Code of Colorado Regulations
- 5977 CDNL – C-weighted day/night sound level
- 5978 CDOT – Colorado Department of Transportation
- 5979 CDOW – Colorado Division of Wildlife
- 5980 CDPHE – Colorado Department of Public Health and Environment
- 5981 CEQ – Council on Environmental Quality
- 5982 CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
- 5983 CFR – Code of Federal Regulations
- 5984 cfs – cubic feet per second
- 5985 CGS – Colorado Geology Survey
- 5986 CH₄ - Methane
- 5987 CHPPM – U.S. Army Center for Health Promotion and Preventative Medicine (now the U.S. Army
5988 Public Health Command (Provisional))
- 5989 cm – centimeters
- 5990 cms – cubic meters per second
- 5991 CO – carbon monoxide
- 5992 CO₂^e – carbon dioxide equivalents
- 5993 COD – Chemical Oxygen Demand
- 5994 CONUS – Continental United States
- 5995 COSHPO – Colorado State Historic Preservation Office

5996 CWA – Clean Water Act

5997 CWD – Chronic Wasting disease

5998 CZMA - Coastal Zone Management Act

5999 **D**

6000 DA – Department of the Army

6001 DAHP – Department of Archaeology and Historic Preservation

6002 dB – decibel

6003 DNL – day-night sound level

6004 DoD – Department of Defense

6005 DoDI – Department of Defense Instruction

6006 **E**

6007 EA – Environmental Assessment

6008 EIFS -

6009 EIS – Environmental Impact Statement

6010 EMS – Environmental Management System

6011 ENMP – Environmental Noise Management Program

6012 EO – Executive Order

6013 EPA – U.S. Environmental Protection Agency

6014 EPCRA - Emergency Planning and Community Right-to-Know Act

-
- 6015 EPP – Environmental Protection Plan
- 6016 ESA – Endangered Species Act
- 6017 **F**
-
- 6018 F – Fahrenheit
- 6019 F³ - cubic feet
- 6020 FAA – Federal Aviation Administration
- 6021 FEIS – Final Environmental Impact Statement
- 6022 FEMA – Federal Emergency Management Agency
- 6023 FFA – Federal Facility Agreements
- 6024 FFCA – Federal Facility Compliance Act
- 6025 FIRM – Flood Insurance Rate Map
- 6026 FM – Field Manual
- 6027 FR – Federal Register
- 6028 FWS – U.S. Fish and Wildlife Service
- 6029 FY – Fiscal Year
- 6030 **G**
-
- 6031 GAAF – Gray Army Airfield
- 6032 GDPR – Global Defense Posture Review
- 6033 GHG – Greenhouse Gas

6034 gpm – gallons per minute

6035 GSF – gross square feet

6036 **H**

6037 ha – hectares

6038 HAAF – Hunter Army Airfield

6039 HAP – hazardous air pollutants

6040 Heavy CAB – Heavy Combat Aviation Brigade

6041 Hg – mercury

6042 HIMARS – High Mobility Artillery Rocket System

6043 HMCC – Hazardous Materials Control Center

6044 HMT - Federal Hazardous Materials Transportation Law

6045 HQ – Headquarters

6046 HQDA – Headquarters Department of the Army

6047 HVAC – heating, ventilating, and air conditioning

6048 HWMP – Hazardous Waste Management Plan

6049 Hz - Hertz

6050 **I**

6051 I- – Interstate Highway

6052 IAW – in accordance with

-
- 6053 IBCT – Infantry Brigade Combat Team
- 6054 ICRMP – Integrated Cultural Resources Management Plan
- 6055 INRMP – Integrated Natural Resources Management Plan
- 6056 IPCC - Intergovernmental Panel on Climate Change
- 6057 IPMP – Integrated Pest Management Plan
- 6058 IRP – Installation Restoration Program
- 6059 ISO 14001 – International Organization for Standardization, Environmental Management Standard 14001
- 6060 ISWMP – Integrated solid waste management team
- 6061 ITAM – Integrated Training Area Management
- 6062 ITE – Institute of Transportation Engineers
- 6063 IWTP – industrial wastewater treatment plant
- 6064 **J**
-
- 6065 JBLM – Joint Base Lewis-McChord
- 6066 **K**
-
- 6067 km – kilometers
- 6068 kV – kilovolt
- 6069 kVA – kilovolt ampere
- 6070 **L**
-
- 6071 L – liters

-
- 6072 L/day – liters per day
- 6073 L/min – liters per minute
- 6074 LATN – Low Altitude Tactical Navigation
- 6075 LBP – lead-based paint
- 6076 LEED® – Leadership in Energy and Environmental Design
- 6077 LOS – level of service
- 6078 LUPZ – Land Use Planning Zone
- 6079 **M**
-
- 6080 m – meters
- 6081 m³ – cubic meters
- 6082 MBTA - Migratory Bird Treaty Act
- 6083 MBTU – million British thermal units
- 6084 mcf – million cubic feet
- 6085 Medium CAB– Medium Combat Aviation Brigade
- 6086 METL – Mission-Essential Task List
- 6087 mgd – million gallons per day
- 6088 mg/L – milligrams per liter
- 6089 mm – millimeter
- 6090 MMPA - Marine Mammal Protection Act

-
- 6091 MMR – Military Munitions Rule
- 6092 MMRP – Military Munitions Response Program
- 6093 MOA – military operations area
- 6094 MRA – military readiness activities
- 6095 MS4 – Municipal Separate Storm Sewer System
- 6096 MSDS – Material Safety Data Sheet
- 6097 MSFCMA - Magnuson-Stevens Fishery Conservation and Management Act
- 6098 MSL – mean sea level
- 6099 MVA – megavolt amperes
- 6100 MW – megawatts
- 6101 **N**
-
- 6102 NAAQS – National Ambient Air Quality Standard
- 6103 NAGPRA – Native American Graves Protection and Repatriation Act
- 6104 NDAA - National Defense Authorization Act
- 6105 NEPA – National Environmental Policy Act
- 6106 NESHAP – national emissions standards for hazardous air pollutant
- 6107 NFA – No Further Action
- 6108 NHPA – National Historic Preservation Act
- 6109 NMFS – National Marine Fisheries Service

-
- 6110 NNSR – Nonattainment New Source Review
- 6111 NO_x – nitrogen oxide
- 6112 NOAA - National Oceanic & Atmospheric Administration
- 6113 NOAA Fisheries - National Oceanic & Atmospheric Administration Fisheries
- 6114 NOE – Nap-of-the-Earth
- 6115 NOI – Notice of Intent
- 6116 NPDES – National Pollutant Discharge Elimination System
- 6117 NRCS – Natural Resources Conservation Service
- 6118 NRHP – National Register of Historic Places
- 6119 NSR – New Source Review
- 6120 NWCG - National Wildfire Coordinating Group
- 6121 NZ – Noise Zone

6122 **O**

- 6123 O₃ – ozone
- 6124 OCRM - Office of Ocean and Coastal Resource Management
- 6125 ORTC – Operational Readiness Training Center
- 6126 OWS – oil-water separator system

6127

6128 **P**

-
- 6129 P2 – pollution prevention
- 6130 PA – Programmatic Agreement
- 6131 PCB – Polychlorinated Biphenyls
- 6132 PCMS – Piñon Canyon Maneuver Site
- 6133 PEIS – Programmatic Environmental Impact Statement
- 6134 PM – particulate matter
- 6135 PM_{2.5} – particulate matter whose diameter is less than or equal to 2.5 µm
- 6136 PM₁₀ – particulate matter whose diameter is less than or equal to 10 µm
- 6137 POL – petroleum, oils, and lubricants
- 6138 PPA – Pollution Prevention Act
- 6139 PPACG – Pikes Peak Area Council of Governments
- 6140 PSCAA – Puget Sound Clean Air Agency
- 6141 PSD – Prevention of Significant Deterioration
- 6142 PSE – Puget Sound Energy
- 6143 **Q**
-
- 6144 QDR- Quadrennial Defense Review
- 6145 **R**
-
- 6146 RCRA – Resource Conservation and Recovery Act
- 6147 ROD – Record of Decision

-
- 6148 ROI – region of influence
- 6149 ROZ - Restricted Operating Zone
- 6150 RRFA - reasonably foreseeable future actions
- 6151 RTV - Rational Threshold Values
- 6152 **S**
-
- 6153 SAR - Second Assessment Report
- 6154 SBCT – Stryker Brigade Combat Team
- 6155 SCWSSC – South Central Washington Shrub-Steppe Collaborative
- 6156 SDWA – Safe Drinking Water Act
- 6157 Se – selenium
- 6158 SEMS – Sustainability and Environmental Management System
- 6159 SF – square feet
- 6160 SH – State Highway
- 6161 SHPO – State Historic Preservation Office
- 6162 SIP – State Implementation Plan
- 6163 SO₂ – sulfur dioxide
- 6164 SOP – standard operating procedure
- 6165 SPCC – Spill Prevention Control plan
- 6166 SPCCP – Spill Prevention Control and Countermeasures Plan

6167 SUA – special use airspace

6168 SWPPP – stormwater pollutant prevention plan

6169 SY – square yards

6170 **T**

6171 TC – Army Training Circular

6172 TCP – traditional cultural properties

6173 TNC – The Nature Conservancy

6174 tpy – tons per year

6175 TRI – Toxic Release Inventory

6176 TSCA – Toxic Substance Control Act

6177 TSS – Total Suspended Solids

6178 **U**

6179 UAS – Unmanned Aerial System

6180 μm – micrometers

6181 U.S. – United States

6182 USACE – U.S. Army Corps of Engineers

6183 USACERL - U.S. Army Construction Engineering Research Lab

6184 USAF – U.S. Air Force

6185 USAG – U.S. Army Garrison

-
- 6186 U.S.C. – United States Code
- 6187 USDA – U.S. Department of Agriculture
- 6188 USFS – U.S. Forest Service
- 6189 USGS – U.S. Geological Survey
- 6190 UST – underground storage tank
- 6191 UXO – unexploded ordnance US – United States Highway

6192 **V**

- 6193 VAH – Vagabond Army Heliport
- 6194 V/C – volume/capacity
- 6195 VEC – Valued Environmental Component
- 6196 VOC – volatile organic compound

6197 **W**

- 6198 WARSSS – Watershed Assessment of River Stability and Sediment Supply
- 6199 WAU – Watershed Administrative Unit
- 6200 WDFW – Washington Department of Fish and Wildlife
- 6201 WDNR – Washington Department of Natural Resources
- 6202 WRIA – Water Resource Inventory Area
- 6203 WS DOE – Washington State Department of Ecology
- 6204 WSDOT – Washington State Department of Transportation

6205 WWTP – wastewater treatment plant

6206 **Y**

6207 YRCAA – Yakima Regional Clean Air Agency

6208 YTC – Yakima Training Center

6209

6210

6211
6212

(This page was intentionally left blank.)

6213 **8. LIST OF CONTRIBUTORS AND PREPARERS**

6214 As this PEIS leveraged the analyses completed by Fort Carson and JBLM, credit is extended to the
 6215 contributors and preparers of the following two documents:

- 6216 • *Final Environmental Impact Statement for Implementation of Fort Carson Grow the Army*
 6217 *Stationing Decisions*, February 2009 (Fort Carson, 2009)
- 6218 • *Final Environmental Impact Statement for the Fort Lewis Army Growth and Force Structure*
 6219 *Realignment*, July 2010 (JBLM, 2010a).

6220 In addition, the contributors and preparers of this PEIS are:

Name	Installation, Affiliation or Organization	Role
Mike Ackerman	U.S. Army Environmental Command	Environmental Planning – Project Manager
Armor Brown	HQDA, G-3/5/7	Force Management Reviewer
Tom Bucci	U.S. Army Environmental Command	Legal Reviewer
Joe Daigneau	ASIS/SENCON	GIS maps
MAJ Gerald J. Hall	HQDA, G-3/5/7	Force Management Reviewer
Russ Hamilton	Fort Carson	Legal Reviewer
Stephen Hart	JBLM	Legal Reviewer
Janet Smith	JBLM	Legal Reviewer
Edward Hill	U.S. Army Forces Command	Forces Command Reviewer
David Howlett	U.S. Army Legal Services Agency, Environmental Law Division	Legal Reviewer
LTC Eric Folkestad	HQDA, G-3/5/7	Force Management Aviation Integrator Reviewer
Pamela M. Klinger	U.S. Army Environmental Command	Lead Project Manager; Sections Author

Name	Installation, Affiliation or Organization	Role
COL Richard Koucheravy	HQDA, G-3/5/7	Aviation Reviewer
Cathy Kropp	U.S. Army Environmental Command	Public Affairs Specialist
Aneil Kumar	ASIS/SENCON	Formatting and Production Team
Debra Owings	Fort Carson	Fort Carson NEPA Program Manager; Reviewer
Jennifer Salerno	Booz Allen Hamilton	Formatting and Production Team
Catherine Stewart	U.S. Army Public Health Command (Provisional)	Operational Noise Program Manager
Theodore W. Reid	U.S. Army Environmental Command	Sections Author (Airspace; Utilities)
Yvonne Tyler	Installation Management Command, West Region	West Region Reviewer
Bill Van Hoesen	Joint Base Lewis-McChord	JBLM NEPA Program Manager; Reviewer
Ronald Webster	U.S. Army Environmental Command	Section Author (Socioeconomics)
Scott Clark	Fort Carson	Energy/Noise
Harold Noonan	Fort Carson	Wastewater Reviewer
Roger Peyton	Fort Carson	Wildlife Reviewer
Joan Bartz	Joint Base Lewis-McChord	YTC Environmental Compliance Reviewer
Jeffrey R. Foster	Joint Base Lewis-McChord	JBLM Entomology Reviewer
Randy Korgel	Joint Base Lewis-McChord	YTC Cultural Resources Reviewer
Jon W. Kurtz	Joint Base Lewis-McChord	YTC Environmental Compliance Reviewer
Colin Leingang	Joint Base Lewis-McChord	YTC Wildlife Biology Reviewer
J.C. Mathews	Joint Base Lewis-McChord	Public Affairs Reviewer

Name	Installation, Affiliation or Organization	Role
Carol McAdams	Joint Base Lewis-McChord	NEPA Reviewer
Kevin Meehan	U.S. Army Forces Command at Joint Base Lewis-McChord	Forces Command Reviewer
Jared Murrey	Joint Base Lewis-McChord	YTC Environmental Compliance Reviewer
Pete Nissen	Joint Base Lewis-McChord	YTC Natural Resources Reviewer
Tom Olsen	Joint Base Lewis-McChord	JBLM Air Quality Reviewer
Margaret Pounds	Joint Base Lewis-McChord	YTC Environmental Reviewer
Andrea Trickey	Joint Base Lewis-McChord	YTC NEPA Reviewer

6221

6222

6224 **9. BIBLIOGRAPHY**

- 6225 AEC, 2006. *Installation Environmental Noise Management Plan, Fort Carson*, January 2006. AEC,
6226 Aberdeen Proving Ground, MD.
- 6227 Andersen, D. E., Rongstad, O. J., and W. R. Mytton. 1989. Response of nesting red-tailed hawks to
6228 helicopter overflights. *The Condor* 91:296-299
- 6229 Andersen, D.E., and B.R. Rosenlund. 1991. *Fish and wildlife management recommendations: Piñon*
6230 *Canyon Mmaneuver Site, Las Animas County, Colorado*. .S. Fish and Wildlife Service, Colorado Fish
6231 and Wildlife Assistance office, Golden, Colorado.
- 6232 Bunn, R. L., Wildlife Biologist/Manager, Wildlife Section, Natural Resources Branch, DPW, Fort Carson
- 6233 Bunn, R. L., W. R. Maynard, and S. Craig. 1996. *Evaluation of the Short-term Effects of jet Aircraft on*
6234 *Mountain Plovers Nesting Adjacent to the Airburst Range, Fort Carson, Colorado*. Fort Carson
6235 unpublished report.
- 6236 Bureau of Labor Statistics. 2008. *Local Area Unemployment Statistics (unemployment rates in 2000 and*
6237 *2008)* [Web page]. Available from <<http://data.bls.gov/PDQ/outside.jsp?survey=la>>.
- 6238 CDPHE, 2006. Construction Permit No. 04LA0772, Final Approval, Modification 1, Issued to Army,
6239 U.S. - PCMS, December 12, 2006.
- 6240 CDPHE, 2007a. *Department of Public Health and Environment, Colorado Air Quality Control*
6241 *Commission, Regulation No. 1, Emission Control for Particulate Matter, Smoke, Carbon Monoxide, and*
6242 *Sulfur Oxides*, 5 Code of Colorado Regulations (CCR) 1001-3, adopted June 21, 2007. CDPHE, AQCC,
6243 Denver, CO. Available from <<http://www.cdphe.state.co.us/regulations/airregs/5CCR1001-3.pdf>>.
- 6244 CDPHE, 2007b. *Construction Permit No. 96LA1082, Final Approval, Modification 1, Issued to Army,*
6245 *U.S. - Piñon Canyon Maneuver Site*, October 4, 2007.
- 6246 CDPHE, 2008a. *Department of Public Health and Environment, Colorado Air Quality Control*
6247 *Commission, Regulation No. 3, Stationary Source Permitting and Air Pollutant Emission Notice*
6248 *Requirements*, 5 CCR 1001-5, adopted December 19, 2008. CDPHE, Air Quality Control Commission

6249 (AQCC), Denver, CO. Available from <[http://www.cdphe.state.co.us/regulations/airregs/5CCR1001-](http://www.cdphe.state.co.us/regulations/airregs/5CCR1001-5.pdf)
6250 [5.pdf](http://www.cdphe.state.co.us/regulations/airregs/5CCR1001-5.pdf)>

6251 CDPHE, 2008b. *Department of Public Health and Environment, Colorado Air Quality Control*
6252 *Commission, Regulation No. 9, Open Burning, Prescribed Fire, and Permitting*, 5 CCR 1001-11, adopted
6253 December 19, 2008. CDPHE, AQCC, Denver, CO. Available from
6254 <<http://www.cdphe.state.co.us/regulations/airregs/5CCR1001-11.pdf>>.

6255 CDPHE, 2009. *Revised Carbon Monoxide Attainment/Maintenance Plan, Colorado Springs*
6256 *Attainment/Maintenance Area*, December 17, 2009. CDPHE, The Air Pollution Control Division, Denver,
6257 CO. Available from <<http://www.cdphe.state.co.us/ap/down/SIPColoSpgsCO-09.pdf>>.

6258 Central Shortgrass Prairie Ecoregional Planning Team, 1998. *Ecoregion-Based Conservation in the*
6259 *Central Shortgrass Prairie*, 1998. Central Shortgrass Prairie Ecoregional Planning Team. TNC, Boulder,
6260 CO.

6261 CGS, 1999. *Colorado Earthquake Information*, November 15, 1999. Earthquake Subcommittee, Colorado
6262 Natural Hazards Mitigation Council, CGS, Denver, CO. Available from
6263 <<http://geosurvey.state.co.us/Default.aspx?tabid=303>>.

6264 CHPPM, 2008a. *Addendum to Operational Noise Consultation 52-ON-046N-06, Operational Noise*
6265 *Contours for Fort Carson, CO, April 2006*, MCHB-TS-EON memorandum dated October 16, 2008.
6266 CHPPM, Aberdeen Proving Ground, MD.

6267 CHPPM, 2009. *Operational Noise Consultation, No. 52-ON-0BE1-09, Grow the Army Operational*
6268 *Noise Contours for Fort Lewis, Washington*. CHPPM, Aberdeen Proving Ground, MD. 17 pages +
6269 appendices.

6270 Crawford and Hall, 1997. *Changes in the South Puget Prairie Landscape*. Rex C. Crawford (Natural
6271 Heritage Program WDNR, Olympia, WA) and Heidi Hall (TNC, Seattle, WA). Pages 11–15 in P. Dunn
6272 and K. Ewing, editors. *Ecology and Conservation of the South Puget Sound Prairie Landscape*. TNC,
6273 Seattle, WA. Available from
6274 <<http://www.southsoundprairies.org/tech/Changes%20in%20SPuget%20Sound%20Landscape.pdf>>.

-
- 6275 Delaney, D.K., Grubb, T.G., Beier, P., Pater, L.L. and M. Hildegard Reiser. 1999. Effects of helicopter
6276 noise on Mexican spotted Owls. *Journal of Wildlife Management* 61: 60-76.
- 6277 DHHS, 2003. *ToxFAQs™ for Selenium (CAS # 7782-49-2)*, September 2003. Department of Health and
6278 Human Services (DHHS), Agency for Toxic Substances and Disease Registry (ATSDR). Available from
6279 <<http://www.atsdr.cdc.gov/tfacts92.html#bookmark06>>.
- 6280 DoD, 2010. DoD *Quadrennial Defense Review Report*, February 2010. Available from
6281 <http://www.defense.gov/qdr/images/QDR_as_of_12Feb10_1000.pdf>.
- 6282 Dooling, R. J. and A. N. Popper. 2007. The effects of highway noise on birds. Jones and Stokes
6283 Associates, Sacramento, CA
- 6284 El Paso County, 2004. *El Paso County Major Transportation Corridors Plan*, September 21, 2004.
6285 Prepared by LSA Associates, et.al. Prepared for Department of Transportation, El Paso County
6286 government, Colorado Springs, CO.
- 6287 ENSR, 1992. *Yakima Training Center — Wetland and Riparian Areas Assessment*, 1992. ENSR,
6288 Redmond, WA.
- 6289 EPA, 2000. *Selenium Compounds, Hazards Summary*, January 2000. EPA, Washington, D.C. Available
6290 from <<http://www.epa.gov/ttn/atw/hlthef/selenium.html>>.
- 6291 EPA, 2008. “EPA Designates Seven New Fine Particle Pollution “Nonattainment” areas in Pacific
6292 Northwest and Alaska”, EPA news release, December 23, 2008. Available from
6293 <<http://yosemite.epa.gov/opa/advpress.nsf/0/FB5A50C48F7BC56285257528006DE105>>
- 6294 EPA 2009. *State and County Emission Summaries*, 2009. U.S. EPA, Washington, D.C. Available at
6295 <<http://www.epa.gov/air/emissions/where.htm>>.
- 6296 EPA, 2010a. *Air Emission Sources*. EPA, Washington, D.C. Available from
6297 <<http://www.epa.gov/air/emissions/index.htm>>.
- 6298 EPA, 2010b. *The Green Book Nonattainment Areas for Criteria Pollutants*. EPA. Available from
6299 <<http://www.epa.gov/air/oaqps/greenbk/>>.

6300 Fort Carson, 1980. *Memorandum of Agreement Regarding Fort Carson Military Reservation among Fort*
6301 *Carson, the SHPO, and the Advisory Council on Historic Preservation*, 1980.

6302 Fort Carson, 1998. *Environmental Assessment (Programmatic) for the Erosion and Sediment Control*
6303 *Program at Fort Carson, Colorado*, October 1998 Draft. Prepared by Directorate of Environmental
6304 Compliance and Management (DECAM), Fort Carson, CO. Prepared for HQDA.

6305 Fort Carson, 2002. *The Integrated Cultural Resources Management Plan, 2002-2006*, 2002. Prepared by
6306 Gene Stout and Associates, Loveland, CO. Prepared for and approved by Fort Carson, CO.

6307 Fort Carson, 2004a. *Fort Carson Fugitive Dust Control Plan*, June 21, 2004 (Approved by CDPHE,
6308 August 2, 2005). Directorate of Environmental Compliance and Management (DECAM), Fort Carson,
6309 CO.

6310 Fort Carson, 2004b. *Integrated Solid Waste Management Plan*, November 2004, Fort Carson, CO.

6311 Fort Carson, 2004c. *Lead Management Plan*, November 2004. Fort Carson, CO.

6312 Fort Carson, 2006. *Additional Family Housing Units Environmental Assessment, Fort Carson, CO*,
6313 March 2006. Prepared by Gene Stout and Associates, Loveland, CO. Prepared for and approved by Fort
6314 Carson, CO.

6315 Fort Carson, 2007a. *Fort Carson and Piñon Canyon Maneuver Site Integrated Natural Resources*
6316 *Management Plan, 2007-2011*, July 18, 2007. Prepared by Gene Stout and Associates, Loveland, CO.
6317 Prepared for and approved by Fort Carson.

6318 Fort Carson, 2007b. *Environmental Assessment – Use of National Forest System Lands for*
6319 *Mountain/High Altitude Military Helicopter Training*, October 2007. Prepared by Gene Stout and
6320 Associates, Loveland, CO. Prepared for and approved by Fort Carson, CO.

6321 Fort Carson, 2009. *Final Environmental Impact Statement for Implementation of Fort Carson Grow the*
6322 *Army Stationing Decisions*, February 2009. Fort Carson, CO; et.al. Available from
6323 <http://aec.army.mil/usaec/nepa/carson-feis_feb09.pdf>.

-
- 6324 Fort Carson, 2010a. *Piñon Canyon Maneuver Site Overview* [Web page]. Fort Carson, CO. Available
6325 from <<http://www.carson.army.mil/pcms/overview.html>>.
- 6326 Fort Carson, 2010b. *Integrated Wildland Fire Management Plan, Fort Carson And Piñon Canyon*
6327 *Maneuver Site, Department of the Army, 2010 DRAFT*. Fort Carson, CO.
- 6328 Fort Carson, 2010c. *Fort Carson Regulation 95-1, Aviation: Local Flying Rules and Procedures, 2010*.
6329 Fort Carson, CO.
- 6330 Fort Lewis, 1994. *Final Environmental Impact Statement for the Stationing of Mechanized or Armored*
6331 *Combat Forces at Fort Lewis, Washington, 1994*. Prepared for and signed by Fort Lewis, WA. Prepared
6332 by USACE, Mobile, Alabama. 359 pages + addendum and appendices.
- 6333 Fort Lewis, 2005a. *Final Environmental Assessment: Stationing Regimental Aviation Assets at Fort Lewis*
6334 *and Yakima Training Center, Washington, January 2005*. Prepared for and approved by Fort Lewis, WA.
6335 Prepared by ENSR International, Redmond, WA.
- 6336 Fort Lewis, 2005b, *Integrated Cultural Resources Management Plan*, February 2005. HQ, USAG – Fort
6337 Lewis (Fort Lewis), Fort Lewis, WA.
- 6338 Fort Lewis, 2007. *Final Integrated Natural Resources Management Plan 2007 to 2011 for Fort Lewis,*
6339 *Washington*. ENSR, Redmond, WA. 108 pages + appendices.
- 6340 Fort Lewis, 2008. *Sustainable Fort Lewis. 2007 Annual Progress Report, 2008*. Fort Lewis Installation
6341 Sustainability Team, Fort Lewis, WA. 19 pages.
- 6342 Foster, 2010. Personal communications, October 2010, with Jeffrey R. Foster, Installation Ecologist,
6343 JBLM, WA.
- 6344 Francis, C. D., C. P. Ortega, and A. Cruz. 2009. Noise pollution changes avian communities and species
6345 interactions. *Current Biology* 19:1415-1419
- 6346 FWS, 2008. *Birds of Conservation Concern 2008*. U.S. Department of Interior, Fish and Wildlife
6347 Service, Division of Migratory Bird Management, Arlington, Virginia

-
- 6348 FWS, 2010. *Environmental Conservation Online System Species Reports* [Web page]. Endangered
6349 Species Program, U.S. Fish and Wildlife Services (FWS), Arlington, VA. Available from
6350 <<http://www.fws.gov/endangered/>>.
- 6351 GBA Forestry, Inc., 2002. *A Management Strategy for Oak Woodlands of Fort Lewis, Washington*, 2002.
6352 Report Prepared for Fort Lewis and TNC. 47 pages.
- 6353 Gentry, 2006. *Soil Survey of Yakima Training Center, Parts of Kittitas and Yakima Counties, Washington*,
6354 2006. Herman R.Gentry, USDA, NRCS in cooperation with U.S. DA, TYC, USACE, and Washington
6355 State University Agricultural Research Center, Washington, D.C. 863 pages. Available from
6356 <http://soildatamart.nrcs.usda.gov/Manuscripts/WA681/0/WA681_text.pdf>.
- 6357 Gerlach, T.P., and M.R. Vaughn. 1990. *Guidelines for the management of pronghorn on the Piñon*
6358 *Canyon maneuver Site, Colorado*. Unpublished report.
- 6359 Golder Associates, 2003. *Final Nisqually Watershed Management Plan*, October 31, 2003. Prepared for
6360 Nisqually Indian Tribe and Nisqually Watershed Planning Unit. Prepared by Golder Associates Inc.,
6361 Redmond, WA. Available from <<http://www.ecy.wa.gov/biblio/0306030.html>>.
- 6362 Gray & Osborne, 1991. *Water System Update, Group A Community Water System, Fort Lewis*,
6363 *Washington*, 1991. Gray & Osborne, Inc., Washington.
- 6364 Grubb, T. G., D. A. Delaney, W. W. Bowerman and M. R. Wierda. 2010. Golden eagle indifference to
6365 heli-skiing and military helicopters in northern Utah. *Journal of Wildlife Management* 74:1275-1285
- 6366 HQ AMC, 2007. *Environmental Assessment of Installation Development at McChord Air Force Base*,
6367 *Washington*, November 2007. HQ AMC (HQ AMC), McChord AFB, WA.
- 6368 HQDA, 1995. *Programmatic Environmental Assessment for Army Force Structure Realignment*, March
6369 1995. Prepared for and approved by HQDA, Washington, D.C. Prepared by U.S. USACE, Mobile
6370 District.

-
- 6371 HQDA, 2002. *Final Programmatic Environmental Impact Statement for Army Transformation*, February
6372 2002. Prepared for and approved by HQDA, Washington, D.C. Prepared by USACE, Mobile District,
6373 with technical assistance from Tetra Tech, Inc.
- 6374 HQDA, 2007. *HQDA Final Environmental Impact Analysis for Army Growth and Force Structure*
6375 *Realignment*, October 2007. Prepared for and signed by HQDA. Prepared by AEC, Aberdeen Proving
6376 Ground, MD. Available from <<http://aec.army.mil/usaec/newsroom/news/arforgenfinal.pdf>>.
- 6377 HQDA, 2010b. House Appropriations Committee – Defense Subcommittee; Hearing Date: 23 March
6378 2010; Subject of Hearing: FY11 U.S. Army Posture; Question #8 – Two New CABs, with answer.
- 6379 Hummel, 2010. Email communications on Air Operations between potential CAB stationing sites and
6380 Maneuver Areas, September 30, 2010. LTC A. Dwayne Hummel, Director, I Corps G3 Aviation, JBLM,
6381 WA.
- 6382 JBLM, 2010a. *Final Environmental Impact Statement for the Fort Lewis Army Growth and Force*
6383 *Structure Realignment*, July 2010. JBLM, WA. Available from
6384 <http://www.lewis.army.mil/publicworks/sites/envir/eia_gta_final.htm>.
- 6385 JBLM, 2010b. *Wildland Fire Management Plan*, June 25, 2010. Prepared by Dan Leeper, JBLM
6386 Wildland Fire Program Manager. JBLM, WA.
- 6387 JGA and AMEC, 2007. *Infrastructure Systems Analysis, Fort Lewis, Washington, 2007*. Prepared by John
6388 Gallup and Associates (JGA) and AMEC Earth and Environmental Incorporated (AMEC). Prepared for
6389 the USACE, Engineering Support Center, Huntsville, AL.
- 6390 Leonard, 1984. *Assessment of Water Resources at Fort Carson Military Reservation near Colorado*
6391 *Springs, Colorado*, 1984. Guy J. Leonard. Water Resources Investigations 83-4270. USGS, Lakewood,
6392 CO.
- 6393 Meister, 2010. Personal communication, October 2010, with Chad Meister, Air Program Manager, Fort
6394 Carson, CO.

-
- 6395 Mullins, 2010. Email communications regarding Carson Air Operations policy and Noise analysis,
6396 September 30, 2010. Terry D. Mullins, MSE G3 Air, Fort Carson, CO.
- 6397 NRCS, 2010. *Web Soil Survey (WSS)*. USDA NRCS, Washington, D.C. Available from
6398 <<http://websoilsurvey.nrcs.usda.gov/app/>>.
- 6399 Pierce County, 2002. *Hazard Identification and Vulnerability Analysis*, September 2002. Pierce County
6400 Department of Emergency Management, Tacoma, WA. Available from
6401 <<http://www.co.pierce.wa.us/xml/abtus/ourorg/dem/HIVAWEB.pdf>>.
- 6402 PPACG, 2008a. *Air Quality in the Pikes Peak Region: Monitoring and Trends Report*, July 2008.
6403 PPACG, Colorado Springs, CO Available from <[http://www.ppacg.org/downloads/Environment/Air-
6404 Quality/Air-Quality-in-the-Pikes-Peak-Region-Monitoring-and-Trends-Report-2008/](http://www.ppacg.org/downloads/Environment/Air-Quality/Air-Quality-in-the-Pikes-Peak-Region-Monitoring-and-Trends-Report-2008/)>.
- 6405 PPACG, 2010a. *Pikes Peak Area Council of Governments 2010 – 2017 Transportation Improvement Plan
6406 DRAFT*, June 17, 2010. PPACG, Colorado Springs, CO. Available from
6407 <<http://ppacg.org/downloads/Transportation/Transportation-Improvement-Program/>>.
- 6408 Pringle, 1990. *Soil Survey of Thurston County, Washington*, June 1990. Russell F. Pringle, USDA, Soil
6409 Conservation Service in cooperation with Washington State Department of Natural Resources and
6410 Washington State University Agricultural Research Center, Seattle, WA. 179 pages.
- 6411 PSWQA and WS DNR, 1992. *The 1992 Puget Sound environmental atlas update*, May 1992. Puget Sound
6412 Water Quality Authority (PSWQA) and Washington State Department of Natural Resources (WS DNR),
6413 Olympia, WA.
- 6414 Stevens, et.al., 2008. *U.S. Geological Survey Scientific Investigations Report 2008-5111, Temporal and
6415 Spatial Variations in Precipitation, Streamflow, Suspended-Sediment Loads and Yields, and Land-
6416 Condition Trend Analysis at the U.S. Army Piñon Canyon Maneuver Site, Las Animas County, Colorado,
6417 1983 through 2007*, posted July 2008. Stevens, M.R.; Dupree, J.A.; and Kuzmiak, J.M. USGS, Reston,
6418 VA. Available from <<http://pubs.usgs.gov/sir/2008/5111/>>.
- 6419 Stephenson, T. R. and M. R. Vaughn. 1989. *Final management recommendations for mule deer on the
6420 Piñon Canyon Maneuver Site*. Unpublished report

-
- 6421 The Urban Collaborative, 2009. *Fort Lewis Master Plan Digest*, 2009. The Urban Collaborative.
- 6422 USACE, 2006. *Final Environmental Assessment: Construction of FY06 Facilities at Fort Carson,*
6423 *Colorado*, February, 2006. Prepared by CH2M HILL, Atlanta, Georgia. Prepared for USACE, Mobile
6424 District, Mobile, AL.
- 6425 USACE, 2008. *Notice of Regional General Permit Issuance under Section 404 of the Clean Water Act*
6426 *(33 USC 1344) for Fort Carson and Piñon Canyon Maneuver Site Erosion Control*, Permit Action No.
6427 SPA-2008-00058-SCO, May 7, 2008. USACE, Albuquerque District, Pueblo, CO. Available from
6428 <<http://www.spa.usace.army.mil/reg/Regional%20Permits/SPA-2008-00058-final.pdf>>.
- 6429 USGS, 1993. *Assessment of Effects of Military Maneuvers on the Stream Flow, Water Quality, and*
6430 *Sediment Yields at PCMS, Las Animas County, Colorado*. USGS.
- 6431 USGS, 2010. *USGS Surface-Water Annual Statistics for Washington*, [Web page]. USGS, Reston,
6432 Virginia. Available from <http://waterdata.usgs.gov/wa/nwis/annual/?referred_module=sw>.
- 6433 USACE COS, 2010. [Web page]. USACE Center of Standardization. Available from
6434 <<https://eportal.usace.army.mil/sites/COS/Pages/Default.aspx>>.
- 6435 Von Guerard, et.al., 1987. *Hydrology of the U.S. Army Piñon Canyon Maneuver Site, Las Animas,*
6436 *County, Colorado*, 1987. P. Von Guerard, P.O. Abbott, and R.C. Nickless. Water-Resources
6437 Investigations Report 87-4227, prepared in cooperation with U.S. DA, Fort Carson Military Reservation,
6438 CO.USGS, Pueblo, CO. 117 pp.
- 6439 Wallace, 1961. *State of Washington Water Supply Bulletin No. 10, Geology and Ground-Water Resources*
6440 *of Thurston County, Washington, Volume 1*, 1961. Wallace, Eugene F. and Molenaar, Dee. Division of
6441 Water Resources, Department of Conservation, State of Washington, Olympia, WA. Available from
6442 <http://www.ecy.wa.gov/programs/eap/wsb/pdfs/WSB_10a_Book.pdf>.
- 6443 Wigmosta, et.al., 2007. *Development of an Adaptive Framework for Management of Military Operations*
6444 *in Arid/Semi-Arid Regions to Minimize Watershed and Instream Impacts from Non-Point Pollution, Final*
6445 *Report*, December, 2007. Mark Wigmosta, Leonard Lane, Andre Coleman, Jerry Tagestad, and Damon
6446 Roberts. DoD Strategic Environmental Research and Development Program Project SI-1340. Pacific

-
- 6447 Northwest National Laboratory, Richland, WA, in cooperation with L.J. Lane Consulting, Inc. and
6448 TYC, WA. 99 pages + appendix. Available from
6449 <<http://www.estcp.org/viewfile.cfm?Doc=SI%2D1340%2DFR%2Epdf>>.
- 6450 WS DOE, 2008. *2008 Water Quality Assessment 303(d) list* [Web page]. WS DOE, Olympia, WA.
6451 Available from <<http://www.ecy.wa.gov/programs/wq/303d/2008/index.html>>. Accessed September 21,
6452 2010.
- 6453 WS DOE, 2010. *FEMA Q3 Flood Maps by Water Resource Inventory Areas (WRIA)*, May 4, 2010.
6454 WS DOE, Olympia, WA. Available from
6455 <<http://www.ecy.wa.gov/services/gis/maps/wria/flood/flood.htm>>.
- 6456 WSDOT, 2010. *I-5 Transportation Alternative Analysis and Traffic Operational Model – From Mounts*
6457 *Road to SR 512*, 2010. WSDOT, Olympia, WA.
- 6458 YTC, 2002. *Yakima Training Center Final Cultural and Natural Resource Management Plan, 2002–*
6459 *2006*, January 2002. YTC, Directorate of Public Works, Environment and Natural Resource Division,
6460 Yakima, WA. 156 pages + appendices.
- 6461 YTC, 2004. *Yakima Training Center Integrated Wildland Fire Management Plan, 2004*. Prepared by P.E.
6462 Nissen and R. Melcher, U.S. Army, Directorate of Public Works, TYC, WA.
- 6463 YTC, 2009. *Integrated Cultural Resources Management Plan 2008-2012, Yakima Training Center,*
6464 *Yakima and Kittitas Counties, Washington*, 2009. Prepared by ICI, LLC, Dumfries, Virginia; Gene Stout
6465 & Associates, Loveland, CO; and Blythe and Trousil, Inc., Cheyenne, Wyoming. Prepared for and
6466 approved by TYC, WA.
- 6467

6468 **Appendix A. Valued Environmental Component General Descriptions**

6469 **Table of Contents** Page #

6470 A.1. Land Use A-2

6471 A.2. Air Quality A-3

6472 A.3. Noise A-7

6473 A.4. Geology and Soils A-14

6474 A.5. Water Resources A-16

6475 A.6. Biological Resources..... A-20

6476 A.7. Cultural Resources A-27

6477 A.8. Socioeconomics A-28

6478 A.9. Transportation and Airspace A-29

6479 A.10. Utilities..... A-33

6480 A.11. Hazardous and Toxic Substances..... A-37

6481 A.12. Bibliography..... A-39

6482

6483 **A.1. Land Use**

6484 Land use refers to the use of land and water for agricultural, industrial, residential, recreational, or other
6485 land assets. In the Army, land use planning is the execution of programs to improve, utilize, and maintain
6486 all land and water areas for the greatest long-term net public benefit, while supporting optimal sustained
6487 use of military lands for the execution of realistic training and testing by integrating mission requirements
6488 with sound natural resources management based on established land use categories and criteria.

6489 The land use planning process is a continual, collaborative, and integrated process, because it needs
6490 feedback and ideas from garrison directorates, installation units, and tenant organizations. Land use
6491 planning is used on a continuing basis as a component of real property master planning.

6492 USAG commanders are the mayors of small cities. Garrison commanders must develop business practices
6493 to build enduring, sustainable, and continually improving quality communities and training lands that
6494 support mission readiness. They must establish their installations as valued neighbors and trusted partners
6495 with surrounding communities (HQDA, 2005).

6496 The garrison commander's instrument for unifying planning, and programming for installation real
6497 property management, development and associated services is the master planning process. This process
6498 is recorded in an installation's real property master plan (RPMP)., An RPMP typically covers a 20-year
6499 planning horizon and is revised and updated as installation changes dictate, but not less than every five
6500 years.

6501 Army real property assets include lands, facilities, and infrastructure. This includes interests in land,
6502 leaseholds, standing timber, buildings, improvements (e.g., electric and water hook-ups), and
6503 appurtenances (i.e., equipment, such as tools and instruments). Though Army Regulation 210-20,
6504 *Installations: Real Property Master Planning for Army Installations* (HQDA, 2005) provides Army
6505 master planners an in-depth definition of a facility, in essence, facilities are the buildings, structures, and
6506 other improvements that support the Army's mission, and include, for example, Army ranges.
6507 Infrastructure, discussed further under the Utilities section, is the combination of supporting systems that
6508 enable the use of this land and resident facilities.

6509

6510 **A.2. Air Quality**

6511 Congress intends the CAA to provide Americans healthful air. New or expanding sources of air emissions
6512 cannot interfere with the intentions of this act, and in areas where air pollutant concentrations exceed
6513 healthful levels, proponents of new or expanding sources should show that these sources will not interfere
6514 with the eventual achievement of healthful levels. Projects to build new or projects to expand existing air
6515 emissions sources in areas where local air meets healthful levels may only increase local pollutant
6516 concentrations by insignificant amounts.

6517 Air resources are affected by pollutants and are influenced by meteorological conditions such as
6518 prevailing wind, sunlight, and temperature inversions. The CAA of 1970, 42 United States Code (U.S.C.)
6519 7401 *et seq.*, amended in 1977 and 1990, is the primary Federal statute governing air pollution. The CAA
6520 applies fully to the Army and all its activities. Pollutants affecting air quality in any region can be
6521 characterized as being emitted from either stationary sources (e.g., fuel burning equipment and chemical
6522 processing operations), mobile sources (e.g., cars), or are fugitive (i.e., emissions that could not
6523 reasonably pass through a stack or tailpipe). The CAA established the NAAQS (40 CFR Part 50) to
6524 protect human health and welfare, allowing for an adequate margin of safety (Table 18). Primary and
6525 secondary NAAQS have been established for six air pollutants, known as criteria pollutants: O₃, CO,
6526 nitrogen dioxide (NO₂), SO₂, lead (Pb), and two types of PM (PM₁₀ is coarse PM [10 μm or less in
6527 diameter] and PM_{2.5} is fine PM [2.5 μm or less in diameter]). The U.S. EPA classifies the air quality in an
6528 AQCR, or in sub-areas of an AQCR, according to whether the concentrations of criteria pollutants in
6529 ambient air exceed the primary or secondary NAAQS. Federal regulations designate AQCRs that cannot
6530 attain compliance with the NAAQS as nonattainment areas. Areas meeting NAAQS are designated as
6531 attainment areas. Areas that have improved air quality from former nonattainment status to attainment are
6532 designated maintenance areas for a certain time period. Areas that lack monitoring data to demonstrate
6533 attainment or nonattainment status are designated as unclassified, although they are treated as attainment
6534 areas for regulatory purposes. EPA generally classifies attainment, nonattainment, or maintenance by
6535 county. In some cases, it makes these classifications by county portion.

6536

6537 **Table 18. Federal National Ambient Air Quality Standards**

Pollutant	Averaging Time	NAAQS	NAAQS Violation Determination [PPACG 2008(a)] ^{note 2}
O ₃	8-hour	0.075 ppm ^(note 1)	3-year average of the annual 4 th highest daily maximum 8-hour average concentration
CO	8-hour	9.0 ppm	Not to be exceeded more than once per calendar year
	1-hour	35.0 ppm	Not to be exceeded more than once per calendar year
NO ₂	Annual arithmetic mean	0.053 ppm	Annual average
SO ₂	Annual arithmetic mean	0.03 ppm	Not to be exceeded more than once per calendar year
	24 hour	0.14 ppm	Not to be exceeded more than once per calendar year
	3 hour	0.5 ppm	Not to be exceeded more than once per calendar year
PM ₁₀	Annual arithmetic mean	Revoked ^{note 3}	Expected number of days per calendar year with a 24-hour average concentration above 150 µg/m ³ cannot be exceeded more than once per year on average over a three year period
	24-hour	150 µg/m ³	
PM _{2.5}	Annual arithmetic mean	15 µg/m ³	Three year average of annual arithmetic mean
	24-hour	65 µg/m ³	Three year average of 98 th percentile of the 24-hour values determined for each year
Pb	Rolling 3-month average	0.15 µg/m ³ ^(note 4)	Quarterly arithmetic mean

¹8-hour standard effective May 30, 2008. EPA reviewing standard; review results due July 31, 2011.

²A NAAQS violation results in the re-designation of an area; however, an exceedance of the NAAQS does not always mean a violation has occurred.

³Revoked annual PM₁₀ standard December 2006

⁴EPA reduced standard from 1.5 ug/m³ to 0.15 ug/m³ on October 15, 2008. EPA expects to establish non-attainment areas for this new standard between 2012 and 2016.

µg/m³ = micrograms per cubic meter

CO = carbon monoxide

NA = not applicable

NAAQS = National Ambient Air Quality Standards

NO₂ = nitrogen dioxide

O₃ = ozone

Pb = lead

PM_{2.5} = particulate matter (≤ 2.5 µm)

PM₁₀ = particulate matter (≤ 10 µm)

ppm = parts per million

SO₂ = sulfur dioxide

6538

6539 If an installation is a “Major Source” as defined by the CAA, or will be a new or expanding source of of
6540 air pollutant emissions that meet the Act’s definition of “Major New Source”, the CAA may require
6541 permitting before construction commences. This “New Source Review” (NSR) program is referred to as
6542 construction permitting or actually “preconstruction” permitting. The specific requirements will depend
6543 on whether the installation is located in a “nonattainment” or “maintenance” area (where the permitting
6544 process is referred to as General Conformity or simply “Conformity”). If the installation is located in an
6545 “attainment” or “unclassifiable” area, it may have to assess the project’s contribution to the local air shed
6546 to ensure PSD. In addition to assessing contributions to the local air shed, the PSD regulations provide
6547 special protection from air quality impacts for certain areas, primarily National Parks and Wilderness
6548 Areas that have been designated as “Class I” areas. These are areas where air quality has been determined
6549 to be an important issue, especially visibility and acid deposition.

6550 **Conformity**

6551 The CAA, specifically section 176(c), prohibits Federal activities from taking various actions in
6552 nonattainment or maintenance areas unless they first demonstrate conformance with the respective SIP¹.
6553 Regardless of compliance with other environmental regulations, failure to satisfy the requirements of the
6554 conformity rule can, by itself, prohibit an installation from moving forward with the project. A conformity
6555 review is a multi-step process used to determine and document whether a proposed action meets the
6556 conformity rule. The conformity review will require the installation to:

- 6557 • Determine if air emissions increase is large enough to require Conformity;
- 6558 • Evaluate the nature of the proposed action and associated air pollutant emissions;
- 6559 • Determine whether the action is exempted by the rule;
- 6560 • Calculate air pollutant emissions and impacts associated with the proposed action;

¹ SIP – The plan submitted by each State and approved by the U.S. EPA for implementing, maintaining, and enforcing the National Ambient Air Quality Standards within the State.

-
- 6561 • Calculate emissions from stationary sources, mobile sources, and affected fugitive sources;
 - 6562 • Mitigate emissions if regulatory thresholds are exceeded;
 - 6563 • Prepare formal documentation of the findings; and,
 - 6564 • Publish findings to the public and regulatory community.

6565 Many Army conformity reviews will find that conformity is satisfied because the action is exempt, clearly
6566 presumed to conform, or the projected emissions from the project are below conformity applicability
6567 threshold values.

6568 **Prevention of Significant Deterioration**

6569 Installations that are classified as “major sources,” located in areas classified as “attainment” and
6570 “unclassifiable” must obtain approval to construct a new emissions source or to modify existing
6571 emissions sources if the modification project will result in a significant emission increase. It should be
6572 noted that "project" includes operational changes that affect emissions, not only equipment construction
6573 or modification. The purpose of the PSD program is to prevent areas that meet the CAA standards from
6574 becoming nonattainment areas. A PSD Permit must be obtained in order to:

- 6575 • Construct a new major stationary source of criteria pollutants, or
- 6576 • Modify an existing major stationary source such that emissions from the source will increase
6577 significantly. (The significance thresholds vary from 0.0004 to 100 tpy depending on the pollutant).

6578 **New Source Review**

6579 The NNSR Permit Program (also known as Nonattainment Area New Source Review or Major New
6580 Source Review) applies in nonattainment areas only. Its purpose is to ensure that emissions in these areas
6581 are not increased and preferably decreased as a result of new construction or modification projects. This
6582 program applies to operational changes as well as equipment changes. It is important to emphasize that
6583 NNSR only applies to the pollutants for which the area is in nonattainment. A NNSR Permit must be
6584 obtained in order to:

-
- 6585 • Construct a new major stationary source of criteria pollutants, or
 - 6586 • Modify an existing major source such that emissions from the source will increase significantly.

6587 **Minor Source Preconstruction Permitting**

6588 Minor NSR is actually a confusing title for the “catch-all” preconstruction permit program. To ensure all
6589 emission sources are reviewed with respect to CAA regulations and to prevent sources’ owners from
6590 deliberately incrementing their emission increases to avoid PSD/NNSR, the EPA and the states developed
6591 Minor NSR. This program has many different names - Notice of Construction, Approval to Operate,
6592 Permit to Operate, etc. Each regulatory agency develops regulations for a preconstruction permit program.
6593 Typically the regulations will include a list of exempt sources such as temporary sources to be on-site less
6594 than 90 days (this takes care of a lot of construction equipment), small boilers or furnaces (residential
6595 size), and ventilation systems. This list may have 100 exempt source types. Most regulators also exempt
6596 sources which have a potential to emit below a specific threshold. These thresholds should not be
6597 confused with any of the other thresholds previously discussed. For example, some States exempt
6598 emissions of any pollutant less than one ton/year from a single emission source from minor NSR
6599 permitting - if no other regulations apply.

6600 **A.3. Noise**

6601 Noise is generally defined as unwanted sound. It may be sound that interferes with normal human
6602 activities and may disturb wildlife populations or disrupt breeding cycles. Impulse noise levels from high-
6603 intensity military activities may cause buildings and objects nearby the source to vibrate, resulting in
6604 potential structural damage.

6605 The physical characteristics of sound include intensity, frequency, and duration. Sound is transmitted by
6606 mechanical vibrations through different mediums, like air. When sound energy increases, the noise is
6607 perceived louder. Sound levels are typically measured using a logarithmic dB scale.

6608 Measurements and descriptions of sounds are usually based on various combinations of the following
6609 factors:

-
- 6610 • Vibration frequency characteristics of the sound, measured as sound wave cycles per second (Hertz
6611 [Hz]) which determines the “pitch” of a sound;
 - 6612 • Total sound energy being radiated by a source, usually reported as a “sound power level;”
 - 6613 • Actual air pressure changes experienced at a particular location, usually measured as a “sound
6614 pressure level” (the frequency characteristics and sound pressure level combine to determine the
6615 “loudness” of a sound at a particular location);
 - 6616 • Duration of a sound; and
 - 6617 • Changes in frequency characteristics or pressure levels through time.

6618 Human hearing varies in sensitivity for different sound frequencies. Human hearing is limited to
6619 frequencies between about 20 and 20,000 Hz, with the upper limit generally decreasing with age.

6620 Correction factors for adjusting actual sound pressure levels to correspond with human hearing have been
6621 determined experimentally. A-weighted correction factors are employed for measuring noise in ordinary
6622 environments and de-emphasize the very low and very high frequencies of sound in a manner similar to
6623 the response of the human ear. Therefore, the A-weighted dB is a good correlation to a human’s
6624 subjective reaction to noise. To the average human ear, the apparent increase in “loudness” doubles for
6625 every 10-dBA increase in noise (Bell, 1982).

6626 The following discussion provides a basis of familiarity with known and common noise levels. A quiet
6627 whisper at 5 feet is 20 dBA; a residential area at night is 40 dBA; a residential area during the day is 50
6628 dBA; a large and busy department store is 60 dBA; rush hour traffic at 100 feet from the road is 60 to 65
6629 dBA; interstate traffic at 200 feet is 65 dBA; a heavy truck at 50 feet is 75 dBA; and a typical
6630 construction site is 80 dBA. At the upper end of the noise spectrum, a jet takeoff at 200 feet is 120 dBA.
6631 Although sound at 140 dBA causes damage and actual pain in humans, the effects of this noise level on
6632 wildlife is unknown.

6633 Although the A-weighting scale is the most widely used dB weighting procedure, other weighting scales
6634 are also used. The C-weighted scale and unweighted dB values are commonly used for blast noise, sonic
6635 booms, or other low-frequency sounds capable of inducing vibrations in buildings or other structures. The

6636 C-weighted sound level is a measure read from a standard sound level meter that de-emphasizes the low
6637 and high frequencies. Additionally, evaluations of blast noise or sonic booms sometimes use a peak
6638 overpressure measurement.

6639 Equivalent noise levels (L_{eq}) are used to develop single-value descriptions of average noise exposure over
6640 various periods. Such average noise exposure ratings often include additional weighting factors for
6641 potential annoyance due to time of day or other considerations. The L_{eq} data used for these average noise
6642 exposure descriptors generally are based on A-weighted sound level measurements. L_{eq} are not an
6643 averaging of dB values, but are based on the cumulative acoustical energy associated with the component
6644 dB values. High dB events contribute more to the L_{eq} value than low dB events.

6645 Peak noise levels are described as L_{max} . It is the highest sound level measured over an entire noise event.
6646 Discrete noise events sometimes are characterized using the sound exposure level (SEL). The SEL
6647 measure represents the cumulative sound exposure, intensity, and duration, over an entire noise event,
6648 integrated with respect to a one-second time frame. SEL measurements are equivalent to the L_{eq} value of a
6649 one-second noise event producing the same cumulative acoustic energy as the actual noise event being
6650 analyzed. In effect, an SEL measure distributes or compresses the noise event to fit a fixed one-second
6651 time interval. SEL values can be computed using any dB-weighting scheme.

6652 Average noise exposure over a 24-hour period is often presented as a day-night average sound level (L_{dn}).
6653 L_{dn} values are calculated from hourly L_{eq} values, with the L_{eq} values for the nighttime period (10 p.m. to 7
6654 a.m.) increased by 10 dB to reflect the greater disturbance potential from nighttime noises. The CDNL is
6655 used to describe the cumulative or total noise exposure during the prescribed time. The CDNL has been
6656 found to be a good measure of annoyance noise in a community.

6657 Ambient background noise is not evaluated in environmental noise calculations because background noise
6658 varies by location, with wilderness areas being as low as 10 dBA, and because when calculating noise
6659 levels, louder sounds dominate the equation. Therefore, it is reasonable to assume that evaluation of
6660 background in calculations will have little impact on CDNL.

6661 **Army's Environmental Noise Management**

6662 The Army seeks to minimize the impact or annoyance of unwanted noise produced by military operations
6663 on communities surrounding its installations. Under its ENMP, the Army evaluates the impact of noise
6664 that may be produced by ongoing and proposed Army actions and activities. The ENMP is implemented
6665 Army-wide to protect the installation mission and to protect the health and welfare of military personnel,
6666 their families, and civilian employees on the installation, while also providing noise abatement and
6667 mitigation measures that protects the public by reducing environmental noise from training, where
6668 feasible. Army installations develop noise management plans to identify recommended land uses based on
6669 noise exposure, and to provide a noise management strategy that supports the installation's mission. To
6670 evaluate the potential effects of noise associated with military operations, the Army conducts noise
6671 studies and generates noise contours.

6672 Criteria for evaluation of noise levels have been expanded beyond the normal A-weighted L_{dn} descriptor
6673 to include the use of C-weighted L_{dn} values to characterize major blast noise sources and the use of peak
6674 unweighted dB values to characterize small arms firing and large weapons training.

6675 The Installation Environmental Noise Management Plan includes education, complaint management,
6676 noise and vibration mitigation, noise abatement procedures, and the ENMP. The ENMP provides a
6677 methodology for analyzing exposure to noise and safety hazards associated with military operations. It
6678 also provides land use guidelines for achieving compatibility between the Army and surrounding
6679 communities.

6680 **Noise Zones and Noise Impacts to the Community**

6681 The Army has defined four NZ (Table 19) to be considered in land use planning (AR 200-1). These noise
6682 levels apply to humans only and do not apply to animals or wildlife, therefore are used in evaluating noise
6683 impacts to communities. The LUPZ day-night sound level (DNL) noise contours (60 dB A-weighted day-
6684 night sound level [ADNL] for aviation activity or 57 dB CDNL) represent an annual average that
6685 separates NZ II from NZ I. Installations use the LUPZ to provide the means to predict possible
6686 complaints, and meet the public demand for a better description of what will exist during a period of
6687 increased operations. The contours are generated by taking all operations that occur over the year and
6688 dividing by the number of training days. The noise environment varies daily and seasonally because

6689 operations are not consistent through all 365 days of the year. For residential land uses, depending on
 6690 altitudes and other factors, a 60 dB ADNL or a 57 dB CDNL may be considered by the public as an
 6691 impact on the community environment. In general, within Zone I, where very few people will be bothered
 6692 by noise levels, land use is unrestricted and thus deemed compatible with most noise-sensitive land uses.
 6693 In Zone II, as outdoor noise levels increase and more people become annoyed by the noise, restrictions or
 6694 qualifications are placed on certain land uses, specifically, residential development. Zone II is normally
 6695 incompatible with noise-sensitive land uses. In Zone III, as noise levels escalate, fewer and fewer
 6696 compatible land uses are indicated. Zone III is incompatible with noise-sensitive land uses. Table 19
 6697 provides the associated noise levels for each zone (HQDA, 2007). Table 20 identifies the risk of noise
 6698 complaints by level of noise (HQDA, 2007).

6699 **Table 19. Noise Limits for Noise Zones**

Noise Zone	Noise Limits (dB)		
	Aviation ADNL	Impulsive CDNL	Small Arms – PK 15(met)
LUPZ	60 – 65	57 – 62	n/a
Zone I	< 65	< 62	< 87
Zone II	65 – 75	62 – 70	87 – 104
Zone III	> 75	> 70	> 104

dB = decibel
 LUPZ = land use planning zone
 ADNL = A-weighted day-night levels
 CDNL = C-weighted day-night levels
 PK 15(met) = Single event peak level
 exceeded by 15 percent of events

< = less than
 > = greater than
 n/a = not applicable

Source: AR 200-1, Table 14-1

6700

6701

6702 **Table 20. Risk of Noise Complaints by Level of Noise**

Risk of Noise Complaints	Large-caliber weapons noise limits (dB) PK 15 (met)
Low	< 115
Medium	115 – 130
High	130 – 140
Risk of physiological damage to unprotected human ears and structural damage claims	> 140

dB=decibel

PK 15(met) = Single event peak level exceeded by 15 percent of events

NOTES:

1. Although local conditions regarding the need for housing may require noise-sensitive land uses in NZ II, on- or off-post, this type of land use is strongly discouraged. The absence of viable alternative development options should be determined and an evaluation should be conducted locally prior to local approvals indicating that a demonstrated community need for the noise-sensitive land use will not be met if development were prohibited in NZ II.

2. Where the community determines that these uses must be allowed, measures to achieve an outdoor to indoor noise level reduction (NLR) of at least 25 dB to 30 dB in NZ II, from small arms and aviation noise, should be incorporated into building codes and be in individual approvals. The NLR for communities subject to large-caliber weapons and weapons system noise is lacking scientific studies to accomplish the recommended NLR. For this reason it is strongly discouraged that noise-sensitive land uses be allowed in NZ II from large-caliber weapons.

3. Normal permanent construction can be expected to provide a NLR of 20 dB, for aircraft and small arms, thus the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation, upgraded Sound Transmission Class (STC) ratings in windows and doors and closed windows year round. Additional consideration should be given to modifying NLR levels based on peak noise levels or vibrations.

4. NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, and design and use of berms and barriers, can help mitigate outdoor noise exposure NLR particularly from ground level aircraft sources. Barriers are generally not effective in noise reduction for large arms such as artillery and armor, large explosions, or from high-level aircraft sources.

Source: AR 200-1, Table 14-2

6703

6704 **Noise Impacts to Wildlife**

6705 At ranges where training occurs, noise is generated from fixed-wing and rotary-winged aircraft

6706 overflights, large- and small-caliber weapon fire, and vehicle maneuver throughout the range. Several

6707 reference materials exist that summarize the impact of human activities (including military training) to
6708 wildlife. Two examples include the EA for the Aerial Gunnery Range at TYC, WA; and, “Effects of
6709 Military Noise on Wildlife.” The following trends in animal behavior are common to wildlife exposed to
6710 training noise.

6711 • Quality of habitat selection tends to outweigh quality of noise. Animals flock to Army installations
6712 because they contain large tracts of undeveloped land, providing ample suitable habitat. Also, due to
6713 stringent regulatory policies, the land and wildlife is often managed much more responsibly than on
6714 the surrounding lands.

6715 • Ample quality land equates to an abundance of food and vegetative cover. Food supply is a limiting
6716 factor for survival. If the food supply is sufficient, the habitat will remain preferable to the animal
6717 species regardless of noise disturbance, especially if the noise is predictable. Since Soldiers train
6718 according to a prescribed schedule, the noise generated by training reduces the occurrence of
6719 responses to unexpected training activities.

6720 • Predator species will often move toward the sound of gunfire, demonstrated in terrestrial and avian
6721 raptor species alike, largely due to the disturbance of prey from their shelter. This ultimately provides
6722 opportunities for predator species to successfully capture food.

6723 • Studies conducted on military noise impacts to wildlife have determined that mammals will move
6724 away from loud noises, but, with few exceptions, will return to their home range.

6725 **Noise Modeling**

6726 The Army has developed computer models that assess peak noise levels associated with random blast
6727 noise events, while also factoring in the statistical variations caused by weather. The noise contour plotted
6728 is PK15 (met) (unweighted peak, 15 percent metric). PK15 (met) is the peak sound level that is likely to
6729 be exceeded 15 percent of the time. Because weather conditions can cause noise levels to vary
6730 significantly, even from hour to hour, the programs calculate a range of peak levels. By plotting the PK15
6731 (met) contour, events are expected to fall within the contours 85 percent of the time. This gives
6732 installations a way to consider the areas affected by training noise, but without placing stipulations on
6733 land that may receive high sound levels under infrequent weather conditions that favor the propagation of

6734 sound. PK15 (met) does not consider the duration or number of events, so the size of the contours will
6735 remain the same regardless of the number of events.

6736 **A.4. Geology and Soils**

6737 **Geology**

6738 The field of geology encompasses the study of the composition, structure, properties, and history of the
6739 planet's physical material; the processes by which it is formed, moved, and changed; the history of life on
6740 Earth; and human interactions with the earth. As geological resources consist of the earth's surface and
6741 subsurface materials, these resources are typically described, within a given physiographic province, in
6742 terms of topography; soils; geology; minerals; and, where applicable, paleontology. The geology of an
6743 area significantly influences soil types, may directly influence local climate (e.g., mountainous region)
6744 and economy (e.g., mining), influences the hydrology of the area, and indicates risks to structures and
6745 human activities. Geologist and geophysicists study natural hazards in order to enact safe building codes
6746 and warning systems that are used to prevent loss of property and life. Natural hazards significantly
6747 affected by geology include avalanches, earthquakes, floods, landslides and debris flows, river channel
6748 migration and avulsion, liquefaction, sinkholes, subsidence, and volcanoes.

6749 The USGS is the lead Federal agency charged to address major societal issues that involve geologic
6750 hazards and disasters, climate variability and change, energy and mineral resources, ecosystem and
6751 human health, and ground-water availability.

6752 The geology of an area also influences the presence or absence of economically desired minerals. In a
6753 limited number of cases, the presence, distribution, quantity, and quality of mineral resources might affect
6754 or be affected by a proposed action. Understanding of the proposed action and minerals is useful in
6755 keeping decision makers fully informed of potential socioeconomic and natural resources consequences.

6756 The presence of fossils and human artifacts presents an opportunity for scientists to gain a better
6757 understanding of history. In a very limited number of cases, a proposed action might have the potential to
6758 damage or destroy paleontological resources. Such resources should be located, quantified, and assessed
6759 for their value (including their possible value as cultural resources) before implementation of the
6760 proposed action.

6761 **Soils**

6762 Soils are the unconsolidated materials overlying bedrock or other parent material. They are typically
6763 described in terms of their complex type, slope, and physical characteristics. Differences among soil types
6764 in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential affect their
6765 abilities to support certain applications or uses.

6766 Soil properties effect biological resources (e.g., vegetation) and human land use. Because of the
6767 importance of soil properties to farming and development, the USDA NRCS has classified and described
6768 soils throughout the U.S. and elsewhere. The NRSC's "Official Soil Series Descriptions" serve as a
6769 national standard.

6770 The soil series is the lowest category of the national soil classification system. The name of a soil series is
6771 the common reference term, used to name soil map units. Soil series are the most homogenous classes in
6772 the system of taxonomy. "Official Soil Series Descriptions" define specific soil series in the U.S.,
6773 territories, commonwealths, and island nations served by NRCS. They are descriptions of the taxa in the
6774 series category of the national system of soil classification. They serve mainly as specification for
6775 identifying and classifying soils. The descriptions contain soil properties that define the soil series,
6776 distinguish it from other soil series, serve as the basis for the placement of that soil series in the soil
6777 family, and provide a record of soil properties needed to prepare soil interpretations. NRCS soil data
6778 includes taxonomic classification, detailed soil profile description, location of the typical soil profile,
6779 range in characteristics, competing series, geographic setting, geographically associated soils, drainage
6780 and permeability, use and vegetation, distribution and extent (NRCS, 2010).

6781 The prediction of soil impacts requires the consideration of several variables. These variables include soil
6782 texture (fine- vs. coarse-grained material) important to wind and water erosion potential, soil strength,
6783 slipperiness in connection with surface shear, stickiness, stone content, aggregation, and slope. For
6784 example, factors influencing surface water absorption capability include soil surface texture (high clay
6785 means less absorption), depth to bedrock, percent organic matter, and slope.

6786 One of the many soil characteristics concern to the Army is erosion potential. Erosion is the gradual
6787 wearing away of land by water, wind, and other general weather conditions, and can be influenced by
6788 many military and human activities within a given landscape. Erosion impacts can be influenced by the

6789 types of soils, vegetative cover, topography, weather and climate, and may be amplified by the frequency
6790 and types of training. The rate of natural soil erosion caused by water depends primarily on the slope of
6791 the area in question, properties of the soil, climate/precipitation patterns, and vegetative cover (NRCS,
6792 2001a). Factors influencing wind erosion of soils include natural properties of the soil (stickiness,
6793 aggregate content, and organic matter content), climate of an area, and amount of surface disturbance
6794 (NRCS, 2001b). Soil erosion caused by wind can occur only when wind speed at the soil surface is
6795 sufficient to lift and transport soil particles. In dry environments, there tends to be less organic matter in
6796 the soils and less soils aggregation to prevent loss of soil. Finer soil particles, particularly silt, which lacks
6797 cohesion of clays, are prone to wind erosion. Wind erosion contributes to the amount of PM in the air (see
6798 Air Quality section). Soil erosion can be a significant concern on military lands where maneuver training
6799 involving large vehicles (tracked and wheeled), and large and small arms fire occur. It can undermine the
6800 ability of the natural environment to support the Army mission, and once the erosion process has started,
6801 the direct effects can usually not be reversed.

6802 The Army has numerous programs and management initiatives to minimize environmental damage,
6803 including soil erosion, to training lands. The principal mechanism for this management is the ITAM
6804 program. The ITAM program provides the Army with the capabilities to manage and maintain training
6805 and testing lands by integrating mission requirements with environmental and land management practices
6806 (HQDA, 2010).

6807 **A.5. Water Resources**

6808 Water resources include surface water, groundwater, and floodplains, as well as other conservable
6809 resources such as estuaries and watersheds. The USGS collects data across the U.S. and territories on
6810 surface water (water flow and levels in streams, lakes, and springs), ground water (water levels in wells),
6811 and water quality (chemical and physical data for streams, lakes, springs, and wells), making it available
6812 to the public on their USGS Water Data for the Nation web page (USGS, 2010b).

6813 **Surface water**

6814 Surface water, which includes lakes, rivers and streams, is important for its contributions to the economic,
6815 ecological, recreational, and human health of a community or locale. In some communities, it is the
6816 primary source of potable water. Managing storm water (further discussed under the section on utilities) is

6817 important to the management of surface water, in part because of its potential to introduce sediments and
6818 other contaminants into lakes, rivers, and streams. Surface waters are grouped by watersheds, with a
6819 watershed being defined as the total land area from which water drains into a single stream, lake, or ocean
6820 (FWS, 2010a).

6821 The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the U.S.
6822 and regulating quality standards for surface waters. Under the CWA, EPA has set water quality standards
6823 for all contaminants in surface waters and has implemented pollution control programs. Surface waters
6824 that are waters of the U.S. are regulated under the CWA. “Waters of the United States” are defined under
6825 40 CFR 230.3(s) as:

- 6826 1. All waters which are currently used, or were used in the past, or may be susceptible to use in
6827 interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- 6828 2. All interstate waters including interstate wetlands;
- 6829 3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats,
6830 sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use,
6831 degradation or destruction of which could affect interstate or foreign commerce including any such
6832 waters:
 - 6833 (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
 - 6834 (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - 6835 (iii) Which are used or could be used for industrial purposes by industries in interstate commerce;
- 6836 4. All impoundments of waters otherwise defined as waters of the U.S. under this definition;
- 6837 5. Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;
- 6838 6. The territorial sea;
- 6839 7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs
6840 (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons

6841 designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR
6842 423.11(m) which also meet the criteria of this definition) are not waters of the U.S.

6843 40 CFR 230.3(s) also states: “Waters of the United States do not include prior converted cropland.
6844 Notwithstanding the determination of an area’s status as prior converted cropland by any other Federal
6845 agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with EPA.”

6846 Further information on CWA regulations is found below.

6847 **Groundwater**

6848 Groundwater consists of the subsurface hydrologic resources. It is an essential resource often used for
6849 potable water consumption, agricultural irrigation, and industrial applications. Groundwater typically may
6850 be described in terms of its depth from the surface, aquifer or well capacity, water quality, surrounding
6851 geologic composition, and recharge rate. An aquifer is the name given to underground soil or rock
6852 through which groundwater can easily move and typically consist of gravel, sand, sandstone, or fractured
6853 rock such as limestone (USGS, 1993). The amount of ground water that can flow through soil or rock
6854 depends on the size of the spaces in the soil or rock (porosity) and how well the spaces are connected
6855 (permeability). Weather conditions influence groundwater availability (e.g., during periods of dry
6856 weather, recharge to the aquifers decrease). Contamination of groundwater can occur if pollutants seep
6857 into ground water; but, susceptibility to contamination is heavily influenced by geological conditions of
6858 the area. Groundwater availability and contamination is also influenced by the amount of water being
6859 discharged (e.g., pulled from wells). If the rate of discharge is greater than the rate of recharge, the water
6860 level in the aquifer may drop or dry up, or other constituents previously held back by the flow of
6861 freshwater may intrude and cause contamination. One type of contamination, saltwater intrusion, can
6862 occur, for example, from lateral encroachment from coastal waters and vertical upcoming near
6863 discharging wells (USGS, 2008).

6864 **Floodplains**

6865 Floodplains are areas of low-level ground present along a river or stream channel, usually dry but subject
6866 to flooding. Floodplain soils actually are former flood deposits, providing a natural process that has
6867 created valuable farmlands in many river valleys over thousands of years. Such lands may be subject to

6868 periodic or infrequent inundation due to rain or melting snow. Risk of flooding depends on topography,
6869 the frequency of precipitation events, soil type, and the size (areal extent) of the watershed above the
6870 floodplain. These features also affect whether flooding may develop slowly, sometimes over a period of
6871 days, or occur as flash floods, developing quickly, sometimes in just a few minutes and without any
6872 visible signs of rain. Federal, State, and local regulations generally limit development in floodplains to
6873 passive uses, such as recreational and preservation activities, in order to reduce the risks to human health
6874 and safety. Since floods may potentially be classified as natural disasters, causing loss of life and
6875 property, the FEMA includes floods in its mission of helping communities nationwide prepare for,
6876 respond to and recover from natural and manmade disasters (FEMA, 2010). Flood maps showing 100-
6877 year and 500-year flood areas are available from FEMA. A hydrologist will describe a “100-year flood”
6878 as a flood having a 100-year recurrence interval which, in short, is that, according to historical data about
6879 rainfall and stream state, the probability of an area having a “flood” water depth (depth varies from place
6880 to place) is once in 100 years. In other words, a flood of that magnitude has a one percent chance of
6881 happening in any year (USGS, 2010a).

6882 **CWA Regulations – Section 404 Permits**

6883 Section 404 of the CWA established a program to regulate the discharge of dredged or fill material into
6884 waters of the U.S., including wetlands. Activities in waters of the U.S. regulated under this program
6885 include fill for development, water resource projects (such as dams and levees), infrastructure
6886 development (such as highways and airports) and mining projects (EPA, 2010a). Section 404 permits are
6887 administered by the USACE. There are *individual* and *general* Section 404 permits (EPA, 2010a). An
6888 individual permit is required for potentially significant impacts. However, for most discharges that will
6889 have only minimal adverse effects, a general permit may be suitable. General permits are issued on a
6890 nationwide, regional, or state basis for particular categories of activities. The general permit process
6891 eliminates individual review and allows certain activities to proceed with little or no delay, provided that
6892 the general or specific conditions for the general permit are met. For example, minor road activities,
6893 utility line backfill, and bedding are activities that can be considered for a general permit. States also have
6894 a role in Section 404 decisions, through State program general permits, water quality certification, or
6895 program assumption.

6896 **A.6. Biological Resources**

6897 **Vegetation and Wildlife, including Threatened and Endangered Species**

6898 Biological resources include wildlife and vegetation and are an integral component of ecosystems. An
6899 ecosystem is a geographic area including all the living organisms (people, plants, animals, and
6900 microorganisms), their physical surroundings (such as soil, water, and air), and the natural cycles that
6901 sustain them. All of these elements are interconnected. Managing any one resource affects the others in
6902 that ecosystem. Ecosystems can be small (a single stand of aspen) or large (an entire watershed including
6903 hundreds of forest stands across many different ownerships). The FWS has identified and defined
6904 boundaries for 53 ecosystem units by grounding USGS defined watersheds in the Continental U.S.
6905 (CONUS), Alaska, Hawaii, Puerto Rico and the Virgin Islands (FWS, 2010a).

6906 Some species, landscapes and seascapes are afforded special protection. These include, marine mammals,
6907 migratory birds, fisheries, coastal zones, threatened and endangered species of any kind, and the
6908 designated critical habitat of any protected species. In addition, there are specific requirements for the
6909 minimization of invasive species. Their protection is provided under a variety of treaties, laws and
6910 associated regulations. Federally listed threatened and endangered plant and animal species are protected
6911 under the ESA. The Migratory Bird Treaty Act implements U.S. commitments to international
6912 conventions for the protection of migratory birds. Bald and Golden Eagles are protected by the Bald and
6913 Golden Eagle Protection Act. Essential fish habitat identification and conservation is mandated under the
6914 Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) of 1976. Various programs
6915 and initiatives, some of which identify other sensitive wildlife, further biological resources conservation,
6916 management and compliance. These include, for example, State natural heritage programs, FWS Birds of
6917 Conservation Concern, Partners in Flight, and ecoregional programs and partnerships.

6918 **Endangered Species Act**

6919 The ESA mandates protection and conservation of threatened and endangered species and their
6920 ecosystems. An *endangered* species is in danger of extinction, either entirely or in a significant portion
6921 of its range; a *threatened* species is considered likely to become endangered within the foreseeable future;
6922 and, a *candidate* species is a petitioned species that is actively being considered for listing as endangered
6923 or threatened. For the purposes of the ESA, Congress defined species to include subspecies, varieties, and,

6924 for vertebrates, distinct population segments. The law’s ultimate goal is to “recover” species so they no
6925 longer need protection under the ESA. It is administered jointly by the FWS and the Commerce
6926 Department’s National Marine Fisheries Service (NMFS). The agencies are also responsible for the listing
6927 of species as endangered or threatened and for the designation of habitat critical to the preservation and
6928 recovery of listed species. The FWS has primary responsibility for terrestrial and freshwater organisms,
6929 while the responsibilities of NMFS are mainly marine wildlife such as whales and anadromous fish like
6930 salmon.

6931 The ESA makes it unlawful for a person to take a listed animal without a permit. Under Section 9 of the
6932 ESA, *take* is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or
6933 attempt to engage in any such conduct.” *Harass* as defined by FWS regulation (50 CFR 17.3) is “an
6934 intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to
6935 such an extent as to significantly disrupt normal behavioral patterns, which include, but are not limited to,
6936 breeding, feeding, or sheltering.” *Harm* as defined by FWS regulation (50 CFR 17.3) is “an act which
6937 actually kills or injures wildlife. Such an act may include significant habitat modification or degradation
6938 where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including
6939 breeding, feeding, or sheltering.” *Harm* as defined by NMFS regulation (50 CFR 222.102) is “an act
6940 which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or
6941 degradation where it actually kills or injures fish or wildlife by significantly impairing essential
6942 behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering.” Listed
6943 plants are not protected from take, although it is illegal to collect or maliciously harm them on Federal
6944 land (FWS, 2009a). Protection from commercial trade and the effects of Federal actions do apply for
6945 plants (FWS, 2009a). In addition, States may have their own laws restricting activity involving listed
6946 species.

6947 Section 7 of the ESA requires Federal agencies to conserve listed species and critical habitat and to
6948 consult with the FWS and NMFS, as appropriate, to ensure that effects of actions they authorize, fund, or
6949 carry out will not jeopardize the continued existence of endangered or threatened species, or destroy or
6950 adversely modify habitat critical to any endangered or threatened species. *Jeopardize the continued*
6951 *existence of*, as defined by joint FWS and NMFS regulation (50 CFR 402.02), means “to engage in an
6952 action that reasonably will be expected, directly or indirectly, to reduce appreciably the likelihood of both
6953 the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or

6954 distribution of that species.” Critical habitat includes geographic areas that contain the physical or
6955 biological features that are essential to the conservation of the species and may need special management
6956 or protection. Critical habitat designations affect only Federal agency actions or Federally funded or
6957 permitted activities. In carrying out their Section 7 responsibilities, Federal agencies may prepare
6958 Biological Assessments as part of consultations with the FWS and/or NMFS. The oversight agency(ies)
6959 will then produce Biological Opinions to ensure that proposed actions that may affect listed species or
6960 critical habitat are consistent with the requirements of the ESA. Occasionally the oversight agency
6961 renders a jeopardy determination instead.

6962 **Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act**

6963 The Migratory Bird Treaty Act (MBTA) made it illegal for people to "take" migratory birds, their eggs,
6964 feathers, or nests. Migratory birds are any species or family of birds that cross international borders at
6965 some point during their life cycle. The Bald and Golden Eagle Protection Act affords additional
6966 protection to all bald and golden eagles. *Take*, as applicable to both Acts and defined by FWS regulation
6967 (50 CFR 10.12), is “to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue,
6968 hunt, shoot, wound, kill, trap, capture, or collect.” In total, 836 bird species are protected by the MBTA,
6969 58 of which are currently legally hunted as game birds (FWS, 2010B). These two laws and associated
6970 “take” permits are administered by the FWS.

6971 The NDAA of 2003 authorized the Secretary of the Interior to prescribe regulations under the MBTA
6972 exempting U.S. Armed Forces from the normal prohibitions on the incidental taking of migratory birds,
6973 but only during military readiness activities (MRA) authorized by the Secretary of Defense (50 CFR
6974 21.15). The MBTA was amended in 2007 accordingly, defining MRA as including “all training and
6975 operations of the Armed Forces that relate to combat, and the adequate and realistic testing of military
6976 equipment, vehicles, weapons and sensors” (FR vol.72, no.39, p.8949; Pub.L.107-314). If the Army
6977 determines its MRA may have a significant adverse effect on a population of migratory birds, the MBTA,
6978 as amended, obligates the Army to confer and cooperate with the FWS on the development and
6979 implementation of conservation measures to minimize or mitigate those effects. Wherever the Army
6980 determines there is no need for additional consultation with FWS, by definition the impact under NEPA
6981 will be judged insignificant.

6982 **Marine Mammal Protection Act**

6983 The Marine Mammal Protection Act (MMPA) of 1972 (16 USC 1362) established, with limited
6984 exceptions, a moratorium on the taking of marine mammals in waters or on lands under U.S. jurisdiction.
6985 **Taking** is defined in Section 3 of the Act as “to harass, hunt, capture, or kill, or attempt to harass, hunt,
6986 capture, or kill any marine mammal.” The 1994 amendments to MMPA defined two levels of
6987 **harassment**: Level A involves potential injury and Level B addresses potential disturbance [Section
6988 104(c)(3), 16 USC 1374 (c)(3)]. Besides regulating all individuals and activities within U.S. waters, the
6989 act also regulates takes in the open sea by vessels or persons under U.S. jurisdiction (only).

6990 Section 101(a)(5) of the MMPA directs the Secretary of the Department of Commerce to allow, upon
6991 request, the incidental (but not intentional) taking of marine mammals by U.S. citizens who engage in a
6992 specified activity (exclusive of commercial fishing), if certain findings are made and regulations are
6993 issued. Authorization will be granted by the Secretary for the incidental take of marine mammals if the
6994 taking will have a negligible impact on the species or stock and will not have an unmitigable adverse
6995 impact on the availability of such species or stock for taking for subsistence uses.

6996 The NDAA(2004, Pub.L.108-136) amended the definition of **harassment**, as the term applied to MRA
6997 conducted by or on behalf of the Federal government. NDAA 2004 adopted the definition of “military
6998 readiness activity” in the NDAA (2003, Pub.L.107-314). **MRA** comprise “training and operations of the
6999 Armed Forces that relate to combat” and constitute “adequate and realistic testing of military equipment,
7000 vehicles, weapons, and sensors for proper operation and suitability for combat use”. For MRA, the Level
7001 A definition of harassment then became any act that injures or has significant potential to injure a marine
7002 mammal in the wild. The Level B definition became any act that disturbs or is likely to disturb a marine
7003 mammal in the wild by causing disruption of natural behavioral patterns, including but not limited to
7004 migration, surfacing, nursing, breeding, feeding, or sheltering to a point where such behavioral patterns
7005 are abandoned or significantly altered [16 USC 1362 (18)(B)(i)(ii)].

7006 **Magnuson-Stevens Fishery Conservation and Management Act**

7007 The MSFCMA Act of 1976 (MSFCMA, 16 USC §1801, et seq.), mandates identification and
7008 conservation of essential fish habitat (50 CFR 648). The MSFCMA defines **fish habitat** as those waters
7009 and substrates necessary for spawning, breeding, feeding, or growth to maturity, and therefore critical to

7010 sustainable fisheries and the managed species. **Waters** are broadly defined to include associated essential
7011 physical, chemical, and biological properties, as well as historic ranges. **Substrates** include sediment, hard
7012 bottom, underlying geomorphology and associated biological communities.

7013 NMFS and the Fishery Management Council have developed Fishery Management Plans to address fish
7014 habitat issues. A key objective is no net loss of productive capacity in habitats that sustain commercial,
7015 recreational, and native fisheries. Prior to taking actions that may have adverse impacts to essential fish
7016 habitat, Federal agencies are required to consult with NMFS, also known as National Oceanic &
7017 Atmospheric Administration Fisheries (NOAA Fisheries), to prepare an Essential Fish Habitat
7018 Assessment.

7019 Habitat Areas of Particular Concern are discrete subsets of essential fish habitats. Such a designation by
7020 regional Fishery Management Councils does not confer additional protection or restrictions upon an area,
7021 but may prioritize conservation efforts. Designation usually stems from one or more of the following
7022 conditions: 1) importance of the ecological function served by the habitat; 2) vulnerability of the habitat
7023 to degradation; 3) extent to which development activities may stress the habitat; and/or 4) rarity of the
7024 habitat type.

7025 **Coastal Zone Management Act**

7026 The Coastal Zone Management Act (CZMA) of 1972 (CZMA, 16 USC 1451, et seq.) encourages
7027 voluntary Federal-State partnerships to protect and restore coastal zone resources. These include
7028 wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs, as well as the fish and
7029 wildlife using those habitat. A special goal is the protection of coastal waters from nonpoint source
7030 pollution (16 USC 1455[b]).

7031 CZMA programs are administered by NOAA's Office of Ocean and Coastal Resource Management
7032 (OCRM). Federal approval of a State coastal zone management program qualifies the State for Federal
7033 grants. Qualified State programs may also be delegated review authority for certain Federal activities in
7034 the coastal zone to ensure consistency of those activities with the State plan.

7035 Regardless of the status of State programs under Federal law, coastal states have without exception
7036 instituted their own regulations; these are normally considered to be applicable or relevant and
7037 appropriate requirements (ARAR) for Federal projects.

7038 **Invasive Species**

7039 Invasive species are organisms that are introduced into a non-native ecosystem and which cause, or are
7040 likely to cause, harm to the economy, environment or human health. Invasive plants and animals have
7041 many impacts on fish and wildlife resources. Invasive species degrade, change or displace native habitats
7042 and compete with native wildlife and are thus harmful to fish, wildlife and plant resources (FWS, 2009b).
7043 Invasive species were addressed in EO 13112 of 1999. Invasive species – whether insect, plant or animal
7044 – often outcompete native species and upset ecological balance.

7045 **Wetlands**

7046 Wetlands are the link between the land and the water. They are transition zones where the flow of water,
7047 the cycling of nutrients, and the energy of the sun meet to produce a unique ecosystem characterized by
7048 hydrology, soils, and vegetation—making these areas very important features of a watershed (EPA,
7049 2004).

7050 For regulatory purposes under the CWA, the term wetlands means "those areas that are inundated or
7051 saturated by surface or ground water at a frequency and duration sufficient to support, and that under
7052 normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil
7053 conditions" (40 CFR 232.2(r)). Wetlands generally include swamps, marshes, bogs, and similar areas. In
7054 more common language, wetlands are areas where the frequent and prolonged presence of water at or
7055 near the soil surface drives the natural system meaning the kind of soils that form, the plants that grow,
7056 and the fish and/or wildlife communities that use the habitat. Swamps, marshes, and bogs are well-
7057 recognized types of wetlands. However, many important specific wetland types have drier or more
7058 variable water systems than those familiar to the general public. Some examples of these are vernal pools
7059 (pools that form in the spring rains but are dry at other times of the year), playas (areas at the bottom of
7060 undrained desert basins that are sometimes covered with water), and prairie potholes (EPA, 2009).

7061 The EPA and the USACE use the 1987 Corps of Engineers Wetlands Delineation Manual to define
7062 wetlands for the CWA Section 404 permit program. Section 404 requires a permit from the USACE or
7063 authorized State for the discharge of dredged or fill material into the waters of the U.S., including
7064 wetlands (see Water Resources section above for further information on Section 404 and Section 404
7065 permits). The 1987 manual organizes environmental characteristics of a potential wetland into three
7066 categories: soils, vegetation, and hydrology. The manual contains criteria for each category. With this
7067 approach, an area that meets all three criteria is considered a wetland (EPA, 2009).

7068 The FWS has developed a series of topical maps to show wetlands and deepwater habitats (FWS, 2010c).
7069 Through this National Wetlands Inventory (NWI), the FWS has identified and mapped most of the known
7070 wetlands in the conterminous U.S., including those on military installations
7071 (<http://www.fws.gov/wetlands/>).

7072 Wetland functions are of value to the sustainable management of military lands because of the services
7073 they provide in addition to training realism. Three services applicable to sustainable management are
7074 flood attenuation, groundwater recharge, and improvement of water quality by filtering sediment,
7075 nutrients and toxics. Additionally, Department of Defense Instruction (DODI) 4715.3 states that
7076 installations will manage for “no net loss” of wetlands. In order to properly manage wetlands,
7077 installations have used the NWI and have conducted planning level surveys to determine the extent and
7078 location of wetlands across their installation. By identifying wetlands early in the NEPA process, and
7079 utilizing a “Go-No Go” approach where avoidance is preferred to direct or indirect impacts, installations
7080 have the ability to avoid costly mitigation and potential delays in implementation of the proposed action.

7081 **Wildland Fires**

7082 Managing wildland fires, which are any nonstructure fires that occur in the wildland (National Wildfire
7083 Coordinating Group [NWCG] 2008), is one of many tools used by the DA to manage habitat and reduce
7084 the risk of fires causing damage to life and property. The specific tool includes the prescribed fire, which
7085 is any fire ignited by management actions to meet specific objects and for which a written, approved
7086 prescribed fire plan exists, and NEPA requirements (where applicable) have been met, prior to ignition
7087 (NWCG, 2008). All permit requirements must also be met prior to conducting any prescribed fire.
7088 Prescribed fires, combined with other management techniques, such as thinning trees, help reduce the risk
7089 of wildfires. A wildfire is an unplanned, unwanted wildland fire including unauthorized human-caused

7090 fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where
7091 the objective is to put the fire out (NWCG, 2008). Prescribed fires can reduce fuel loading in wildlands;
7092 control noxious weeds; enhance or create habitat for wildlife, including some species protected under the
7093 ESA; and enhance or create habitat for vegetation that is dependent on periodic fire, including some
7094 species protected under the ESA. Specific management techniques will vary dependent on location due to
7095 numerous factors including proximity of buildings and urban environments, population density, weather
7096 conditions, topography, cultural sites (e.g., archaeology), vegetation, wildlife (e.g., seasonal use), and
7097 military training objectives.

7098 **A.7. Cultural Resources**

7099 The Army is steward to many historic buildings, historic and prehistoric archeological sites, and Native
7100 American traditional cultural properties and sacred sites. Management of these resources and compliance
7101 with appropriate legal requirements begins with the identification of cultural resources.

7102 The foundation of broad legislation for preservation of cultural resources is the NHPA of 1966 (36 CFR
7103 Part 800). The NHPA requires Federal agencies to take into account the effects of their undertakings that
7104 may adversely affect significant cultural resources, referred to as historic properties. The NHPA
7105 establishes the roles of the NRHP, the State Historic Preservation Office (SHPO), and the ACHP. Of
7106 particular importance to military installations are Sections 106 and 110 of the NHPA. Section 106
7107 requires Federal agencies to consider effects of undertakings on resources listed in, or eligible for
7108 inclusion in, the National Register through a process of consultation. Section 110 of the NHPA requires
7109 Federal agencies to institute programs to identify and evaluate cultural resources to determine their
7110 eligibility for inclusion in the National Register under their care. Identification efforts typically involve
7111 literature reviews, archival research, oral histories, excavations and physical/pedestrian survey. Two other
7112 significant legislations that regulate cultural resources management in the Army include the
7113 Archaeological Resources Protection Act (ARPA) of 1979 and the NAGPRA of 1990.

7114 Cultural resources include historic properties as defined by the NHPA, cultural items as defined by
7115 NAGPRA, archeological resources as defined by ARPA, sacred sites as defined in EO 13007, and
7116 collections as defined in 36 CFR 79. The regulations implementing the NHPA (36 CFR 800.16(l)(1))
7117 define historic properties as “any prehistoric or historic district, site, building, structure, or object included

7118 in, or eligible for inclusion on the National Register, including artifacts, records and material remains
7119 related to such property or resource.”

7120 The breadth of cultural resources management for the Army is enormous. The Army now has over 66,000
7121 buildings and structures that are 50 years old or older, and therefore subject to the requirements of the
7122 NHPA. This includes nearly 12,000 buildings that are officially designated as historic properties and 21
7123 National Historic Landmarks. Army lands contain some 90,000 archeological sites. These sites range
7124 from those representing the rich and varied Native American past to early pioneer settlements to more
7125 contemporary sites related to the history of the Army itself.

7126 To improve management of cultural resources on Army installations, the Army has established the AAPs,
7127 a streamlined procedure Army installations can elect to follow to satisfy the requirements of NHPA
7128 Section 106. The AAP approaches the installation's management of historic properties programmatically,
7129 instead of on a project-by-project review as prescribed by the regulations of the ACHP. The AAP allows
7130 installations to implement SOPs for historic properties in the historic properties component of their
7131 Integrated Cultural Resource Management Plans (ICRMPs) and to implement actions for five years
7132 without formal project-by-project review.

7133 **A.8. Socioeconomics**

7134 Socioeconomics are defined as the basic attributes and resources associated with the human environment,
7135 particularly population and economic activity. Population levels are affected by regional birth and death
7136 rates and immigration and emigration. Economic activity typically encompasses employment, personal
7137 income, and industrial or commercial growth. Changes in these two fundamental socioeconomic
7138 indicators may be accompanied by changes in other components, such as housing availability and the
7139 provision of public services. Socioeconomic data at county, State, and national levels permits
7140 characterization of baseline conditions in the context of regional, State, and national trends.

7141 Socioeconomic analysis addresses such issues as

- 7142 • Demographics,
- 7143 • Housing,

-
- 7144 • Economic development,
 - 7145 • Public finance,
 - 7146 • Quality of Life,
 - 7147 • Environmental justice in minority and low-income populations, and
 - 7148 • Protection of children from environmental health risks and safety risks.

7149 A proposed action could have impacts that are concentrated in a specific geographical ROI, defined by
7150 the local residential, shopping, and commuting patterns. In short, the ROI defines the limits and
7151 distribution of most spending in the affected community encompassing the strongest linkages between
7152 local individuals, businesses, and governments.

7153 The principle mechanisms for Army socioeconomic impacts are Army expenditures and employment (and
7154 subsequent population) changes. As the Army increases (or decreases) either expenditures or strength
7155 (military or civilian) at an Army installation, these are felt within three basic components of the local
7156 economic region (or community): local businesses, local individuals, and local governments. The EIFS
7157 model addresses business (or sales) volume, personal income, employment, and population. In addition,
7158 the system evaluates local yearly changes in three variables, and develops RTVs to evaluate the potential
7159 significance of predicted changes.

7160 **A.9. Transportation and Airspace**

7161 Transportation is the movement of people and goods from one location to another. It is accomplished by a
7162 variety of modes, such as road, rail, air, water, and in some cases pipeline and there are different systems
7163 within those modes. Examples of principal transportation systems include commercial air carriers,
7164 waterway and maritime shipping, railroads, and trucking.

7165 **Traffic and Roadways**

7166 Changes on Army installations, to include such things as population, mission, unit re-stationing, and
7167 construction activities, among others, can impact one, or several, of an installation's modes. The smooth
7168 flow of traffic and the adequacy of both the on-post and off-post road networks contribute to the quality

7169 of the human environment both on and near the installation. The primary mode of transportation on Army
7170 installations is privately-owned-vehicles (POV). Many actions on the installation, construction activities
7171 in particular, frequently impact traffic and transportation on post, as well as in the adjoining communities.

7172 Traffic count and roadway LOS baseline and projected data are used to help determine the impacts of a
7173 proposed action to traffic and roadways. The volume-capacity ratio (v/c ratio) of the roadway(s) leading
7174 to, or near, the site of the proposed action is a means of identifying direct effects of the proposed action to
7175 traffic and roadways, along with peak-hour traffic volume.

7176 Traffic volume effects congestion. The levels of congestion are defined below.

7177 • *Uncongested.* Corridors that generally operate in free-flow conditions, where the driver tends to be
7178 able to travel without undue delay except for typical traffic control operations, such as stop signs or
7179 traffic signals. During the peak-hour, there might be some delay at a controlled intersection, but
7180 generally the driver can get through the intersection within one cycle of the traffic signal (El Paso
7181 County, 2004, p. 24).

7182 • *Congesting.* These corridors are roadways where the driver can generally travel in free-flow
7183 conditions during the off-peak-hours, but might experience having to wait more than one cycle at a
7184 signalized intersection during the peak-hours. Because these corridors have existing traffic volumes
7185 approaching capacity, there can be significant variations in congestion from day to day, fluctuating
7186 between acceptable to congested (El Paso County, 2004, p. 24).

7187 • *Congested.* The congested corridors within El Paso County are those roadways where traffic volumes
7188 have either reached or exceeded the facility's capacity to accommodate these volumes. These
7189 facilities experience daily congestion delays where it is not uncommon that a driver might have to
7190 wait two or more signal cycles to get through the intersection (El Paso County, 2004, p. 24).

7191 Roads are also rated on their LOS. LOS is a qualitative measure describing operational conditions within
7192 a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic
7193 interruptions comfort and convenience. LOS is graded on a letter scale from A to F, A being the highest
7194 LOS and F being the lowest. At LOS A, traffic flows freely, selecting desired travel speeds with ample
7195 passing opportunities. At LOS F, traffic flow is forced, the traffic volume has exceeded the capacity of the

7196 roadway to handle it and there are no passing opportunities. LOS D is generally considered to be the
7197 lowest tolerable LOS for roadways. The LOS on an urban street is based on average through-vehicle
7198 travel speed for the segment, section, or entire urban street under consideration, and are graded on a scale
7199 from A to F

7200 Increased levels of traffic may have direct effects on several environmental media areas, such as traffic
7201 congestion, air quality, noise, and environmental justice. Unless mitigation measures are implemented,
7202 increased volume can also pose an additional risk to the safety of pedestrians and bicyclists.

7203 **Airspace**

7204 The FAA manages all airspace within the U.S. and its territories. The FAA recognizes the military's need
7205 to conduct certain flight operations and training within airspace that is separated from that used by
7206 commercial and general aviation.

7207 *Airspace* is defined in vertical and horizontal dimensions and by time. Airspace is a finite resource that
7208 must be managed to achieve equitable allocation among commercial, general aviation, and military needs.
7209 The FAA has established various airspace designations to protect aircraft while operating near and
7210 between airports and while operating in airspace identified for defense-related purposes. Flight rules and
7211 air traffic control procedures govern safe operations in each type of designated airspace. Most military
7212 operations are conducted within designated airspace and follow specific procedures to maximize flight
7213 safety for both military and civil aircraft.

7214 *Controlled airspace* is a generic term for the different types of airspace (Classes A, B, C, D, E, and G
7215 airspace) and defined dimensions within which air traffic control service is provided to instrument-flight-
7216 rules (IFR) flights and visual-flight-rules (VFR) flights IAW the airspace classification. The
7217 classifications of airspace are as follows:

- 7218 • *Class A Airspace*. This airspace occurs from 18,000 feet (5,486 m) above MSL to 60,000 feet
7219 (18,288 m) above MSL. All operations within this airspace are IAW regulations pertaining to IFR
7220 flights. This airspace is dominated by commercial aircraft using jet routes between 18,000 and
7221 45,000 feet (5,486 and 13,716 m) above MSL.

-
- 7222 • *Class B Airspace.* This airspace occurs from the surface to 14,500 feet (4,420 m) above MSL
7223 around the nation’s busiest airports. Before operating in Class B airspace, pilots must contact
7224 controlling authorities and receive clearance to enter the airspace. Aircraft operating within Class
7225 B airspace must be equipped with specialized electronics that allow air traffic controllers to
7226 accurately track aircraft speed, altitude, and position.
- 7227 • *Class C Airspace.* This airspace occurs from the surface to 4,000 feet (1,219 m) above the airport
7228 elevation (charted in MSL) surrounding those airports that have an operational control tower, are
7229 serviced by a radar approach control, and meet specified levels of IFR operations or passenger
7230 enplanements. Aircraft operating within Class C airspace must be equipped with a two-way radio
7231 and an operable radar beacon transponder with automatic altitude reporting equipment. Aircraft
7232 may not operate below 2,500 feet (762 m) above the surface within 4 nautical miles (7.4 km) of
7233 the primary airport of a Class C airspace area at an indicated airspeed of more than 200 knots
7234 (230 miles per hour [370 km per hour]).
- 7235 • *Class D Airspace.* This airspace occurs from the surface to 2,500 feet (762 m) above the airport
7236 elevation (charted in MSL) surrounding those airports that have a control tower. Class D airspace
7237 encompasses a 5-statute-mile radius from the airport. Unless authorized otherwise by air traffic
7238 control (ATC), aircraft must be equipped with a two-way radio. Aircraft may not operate below
7239 2,500 feet (762 m) above the surface within 4 nautical miles (7.4 km) of the primary airport of a
7240 Class D airspace area at an indicated airspeed of more than 200 knots (230 miles per hour [370
7241 km per hour]).
- 7242 • *Class E Airspace.* This airspace is any controlled airspace not designated as Class A, B, C, or D
7243 airspace. It includes designated Federal airways, portions of the jet route system, and area low
7244 routes. Federal airways have a width of 4 statute miles (6.4 km) on either side of the airway
7245 centerline and occur between the altitudes of 700 feet AGL (213 m AGL) and 18,000 feet (5,486
7246 m) above MSL, but they may have a floor located at ground level at nontowered airfields. No
7247 specific equipment is required to operate within Class E airspace.

7248 • *Class G Airspace.* Class G airspace (uncontrolled) is that portion of the airspace that has not been
7249 designated as Class A, B, C, D, or E airspace. ATC does not have authority over operations
7250 within uncontrolled airspace. Primary users of Class G airspace are VFR general aviation aircraft.

7251 • *Special use airspace* permits activities that either must be confined because of their nature or
7252 require limitations on aircraft that are not a part of those activities. Prohibited Areas and
7253 Restricted Areas are regulatory SUA. They are established in Federal Aviation Regulation (FAR)
7254 Part 73 through the rule-making process of the Administrative Procedures Act (5 USC 551-702).

7255 • *Warning Areas, Military Operations Areas, Alert Areas, and Controlled Firing Areas* are
7256 nonregulatory SUA. The FAA may designate these types of SUA without resort to the procedures
7257 demanded of the Administrative Procedures Act.

7258 Due to the unique nature and frequency of military operations, the airspace over Army installations is
7259 generally a form of restricted use or SUA. SUAs are established when necessary to confine or segregate
7260 activities incompatible with (or hazardous to) nonparticipating (civilian) aircraft. These activities include,
7261 but are not limited to: firing of field artillery, air defense artillery, mortars or small similar weapons;
7262 drone or UAS operations; certain types of aircraft ordnance delivery and test flights; some types of laser
7263 activity; electronic, chemical, and nuclear warfare measures; and various types of research and
7264 development efforts. In order for military aircraft (helicopters and fixed wing aircraft) to operate safely in
7265 conjunction with UASs, flight operations are deconflicted by the range operations staff on the installation.
7266 In addition, aviation units and units employing UASs develop SOPs to ensure the safety of aviation assets
7267 and UASs operating concurrently over the military installation.

7268 **A.10. Utilities**

7269 **Potable Water**

7270 Water for potable use is required on military installations for individual use, industrial type applications to
7271 including fire suppression and vegetation watering and/or irrigation. Concerns related to water systems
7272 typically pertain to availability and quality of water supplies, treatment processes, distribution, and
7273 consumption rates. Concerns over potable water include the condition and availability of infrastructure to
7274 provide potable water to the end users. The construction on new facilities on an installation will require

7275 the extension of existing water infrastructure to support the users of the new facilities. An increased
7276 training load on the installation will require that adequate potable water can be supplied daily to meet the
7277 needs of the additional Soldiers training in the field and on military live fire ranges. The SDWA regulates
7278 water quality standards for potable water used for human consumption.

7279 **Wastewater**

7280 Wastewater treatment systems may treat sanitary sewer, industrial, or both kinds of wastes. Most systems
7281 are publicly owned treatment works (POTW). For regulatory purposes, there is a subcategory of Federally
7282 owned treatment works (FOTW). Wastewater treatment systems consist of a collection system from waste
7283 sources that conveys wastes to a central treatment site. As a very general rule, treatment works are
7284 identified as primary (mechanical treatment only), secondary (mechanical and biological treatment), or
7285 tertiary (mechanical and biological or chemical treatment). WWTPs operate under National Pollutant
7286 Discharge Elimination System (NPDES) permits issued by the EPA or the states pursuant to the CWA
7287 (further details contained below in Stormwater section). Concerns regarding wastewater systems typically
7288 pertain to the age of the system (either its collection system and infiltration/inflow problems or the
7289 treatment plant itself), the capacity of a treatment plant (usually expressed in millions of gallons per day)
7290 and a treatment plant's record of violations or NPDES permit effluent exceedances.

7291 **Stormwater**

7292 Stormwater systems convey precipitation away from developed sites to appropriate receiving surface
7293 waters. For a variety of reasons, storm water systems may employ a variety of devices to slow the
7294 movement of water. For instance, a large, sudden flow could scour a streambed and harm biological
7295 resources in that habitat. Storm water systems provide the benefit of reducing amounts of sediments and
7296 other contaminants that will otherwise flow directly into surface waters. Failure to appropriately size
7297 storm water systems to hold or delay conveyance of the largest predicted precipitation event often leads to
7298 downstream flooding and the environmental and economic damages associated with flooding. As a
7299 general rule, a higher density of development, such as that found in the cantonment areas of Army
7300 installations, requires a greater degree of storm water management because of the higher proportion of
7301 impervious surfaces that occurs in such developed areas.

7302 The CWA's NPDES Stormwater Program is a comprehensive two-phased national program for
7303 addressing the nonagricultural sources of stormwater discharges which adversely affect the quality of our
7304 nation's waters. Polluted stormwater runoff is a leading cause of impairment to the nearly 40 percent of
7305 surveyed U.S. water bodies which do not meet water quality standards (EPA, 2010b). Over land or via
7306 storm sewer systems, polluted runoff is discharged, often untreated, directly into local water bodies.
7307 When left uncontrolled, this water pollution can result in the destruction of fish, wildlife, and aquatic life
7308 habitats; a loss in aesthetic value; and threats to public health due to contaminated food, drinking water
7309 supplies, and recreational waterways. The NPDES Stormwater Program uses the NPDES permitting
7310 mechanism to require the implementation of controls designed to prevent harmful pollutants from being
7311 washed by stormwater runoff into local water bodies. The NPDES stormwater permit regulations cover
7312 the following classes of stormwater discharges on a nationwide basis:

- 7313 • Operators of MS4s located in "urbanized areas" as delineated by the Bureau of the Census,
- 7314 • Industrial facilities in any of the 11 categories that discharge to an MS4 or to waters of the U.S.;
- 7315 all categories of industrial activity (except construction) may certify to a condition of "no
- 7316 exposure" if their industrial materials and operations are not exposed to stormwater, thus
- 7317 eliminating the need to obtain stormwater permit coverage,
- 7318 • Operators of construction activity that disturbs 1 or more acres of land; construction sites less
- 7319 than 1 acre (.40 ha) are covered if part of a larger plan of development (EPA, 2010b).

7320 Army activities subject to CWA regulation include activities involving the collection and discharge of
7321 effluents (e.g., discharging pollutants from a point source into waters of the U.S.) or construction
7322 activities near waterways or wetlands. Several compliance responsibilities under the CWA result from the
7323 types of facilities used by and the range of activities at Army installations.

7324 **Solid Waste.**

7325 Solid waste management is primarily concerned with the availability of landfills to support a population's
7326 residential, commercial, and industrial needs. Alternative means of waste disposal may involve waste-to-
7327 energy programs or incineration. In some localities, landfills are designed specifically for and limited to

7328 disposal of construction and demolition debris. Recycling programs for various waste categories (e.g.,
7329 glass, metal, and paper) reduce reliance on landfills for disposal.

7330 **Energy, Heating, and Cooling**

7331 The prevalent sources of energy on Army installations are electricity, natural gas, fuel oil, propane, and to
7332 a much lesser extent, solid fuels such as coal and wood. Army installations use all of these forms of
7333 energy. Concerns regarding energy can extend to selection of type, conservation measures, availability,
7334 costs or consumption rates. Energy consumption is perhaps the major infrastructure and budgetary
7335 challenge to Army leadership, encompassing both domestic (stateside) challenges and garrison and
7336 tactical challenges abroad. The power generation, transmission and use have significant economic,
7337 environmental, and mission implications. Concerns regarding energy can extend to selection of type,
7338 conservation measures, availability, costs, or consumption rates. The Army has been very successful in
7339 the last decade of privatizing its energy supplies.

7340 **Communications**

7341 Communications is primarily concerned with the telecommunications required on military installations to
7342 support the day-to-day activities of units, the military and civilian workforce, and the Family members
7343 that reside on the installation. Telecommunications includes both land line supported telephones as well
7344 as cell phone use. Concerns over telecommunications center around the availability and quality of the
7345 infrastructure to support the overall telecommunications requirement on the facility. The construction on
7346 new facilities on an installation will require the extension of existing telecommunications infrastructure to
7347 support the users of the new facilities.

7348 **A.11. Hazardous and Toxic Substances**

7349 Hazardous material can be defined as any material that, because of its quantity, concentration, or physical
7350 or chemical characteristics, may pose a real hazard to human health or the environment. Hazardous
7351 materials include the following categories:

- 7352 • Flammable and Combustible Material
- 7353 • Toxic Material

7354 • Corrosive Material

7355 • Oxidizers

7356 • Aerosols

7357 • Compressed Gases

7358 Separate directives cover some materials considered hazardous. They include Hg, asbestos, propellants,
7359 bulk fuels, ammunition, medical waste, and chemical, biological, and radiological materials. Other
7360 examples of hazardous materials are fuels, paints, solvents, lubricants, coolants, sealers, adhesives,
7361 refrigerants, batteries, cleaners, sanitation chemicals, pesticides and herbicides and POLs.

7362 Hazardous waste is any solid, liquid, or gaseous by-product of industrial processes that possess at least
7363 one of these four characteristics: [1] corrosivity ($2 \leq \text{pH} \leq 12$), [2] ignitability (flash point $< 140^{\circ} \text{F}$), [3]
7364 reactivity (as defined in 40 CFR 261.23), and [4] toxicity (as defined in 40 CFR 261.24); and which may
7365 have to be handled stored, transported, and disposed of in a controlled manner.

7366 Special hazards are those substances that might pose a risk to human health but are not regulated as
7367 contaminants under the hazardous waste statutes. Included in this category are asbestos, radon, LBP,
7368 PCBs, and UXO. The presence of special hazards or controls over them may affect or be affected by
7369 implementation of a proposed action. Information on special hazards describing their locations, quantities,
7370 and condition assists in determining the significance of the effects of the proposed action.

7371 Evaluation of environmental risks from hazardous materials and wastes focuses on USTs and
7372 aboveground storage tanks (ASTs) and the storage, transport, use, and leaks/spills of pesticides and
7373 herbicides, fuels, POLs, and a variety of toxic chemicals. Risks also extend to generation, storage,
7374 transportation, and disposal of hazardous wastes when such activities occur(ed) at or near the project site
7375 of a proposed action. In addition to being a threat to humans, the improper release of hazardous materials
7376 and wastes threatens the health and well-being of wildlife species, botanical habitats, soil systems, and/or
7377 water resources. In the event of hazardous materials or wastes being released to the environment, the
7378 extent of contamination and associated risks varies based on type of soil, geography, topography, and
7379 water resources/hydrologic condition present.

7380 In general, hazardous material and hazardous waste issues are supported by such statutes as the RCRA,
7381 TSCA, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the CAA,
7382 the CWA, SDWA, Federal Facilities Compliance Act (FFCA), Military Munitions Rule (MMR), and
7383 Federal Hazardous Materials Transportation Law (HMT). ARs and EOs have also been established
7384 pursuant to these and subsequent Federal and State regulations.

7385 IAW the Pollution Prevention Act (PPA) and Emergency Planning and Community Right-to-Know Act
7386 (EPCRA), source reduction, recycling, and treatment activities involving EPCRA Section 313 chemicals
7387 must be reported on Toxic Release Inventory (TRI) Form R. EPCRA Section 311 requires that facilities
7388 with chemicals stored above certain quantities must submit either copies of their MSDSs or a list of
7389 MSDS chemicals. EPCRA Section 312 requires submission of an annual inventory report (Tier II report)
7390 for the same chemicals to the State Emergency Response Commission, Local Emergency Planning
7391 Committee, and local fire department.

7392 **A.12. Bibliography**

7393 Bell, 1982. *Industrial Noise Control; Fundamentals and Applications*. Author: Lewis H. Bell. Publisher:
7394 Marcel Dekker, New York, NY. 572 pages.

7395 El Paso County, 2004. *El Paso County Major Transportation Corridors Plan*, September 21, 2004.
7396 Prepared by LSA Associates, et.al. Prepared for Department of Transportation, El Paso County
7397 government, Colorado Springs, CO.

7398 EPA, 2004. *Wetlands Overview*, EPA 843-F-04-011a, December 2004. U.S. EPA, Office of Water,
7399 Washington, D.C. Available from <http://www.epa.gov/owow/wetlands/pdf/overview_pr.pdf>.

7400 EPA, 2009. *Section 404 of the Clean Water Act: How Wetlands are Defined and Identified* [Web page],
7401 January 12, 2009. U.S. EPA, Washington, D.C. Available from
7402 <<http://www.epa.gov/owow/wetlands/facts/fact11.html>>.

7403 EPA, 2010a. *Wetland Regulatory Authority* (Wetland Fact Sheet EPA843-F-04-001). U.S. EPA, Office of
7404 Water, Washington, D.C. Available from
7405 <http://www.epa.gov/owow/wetlands/pdf/reg_authority_pr.pdf>.

7406 EPA, 2010b. *Stormwater Frequently Asked Questions*. EPA, Washington, D.C. Available from
7407 <http://cfpub.epa.gov/npdes/faqs.cfm?program_id=6 -
7408 [1](http://cfpub.epa.gov/npdes/faqs.cfm?program_id=6)>.

7409 FEMA, 2010. *About FEMA*, August 11, 2010. Available from <<http://www.fema.gov/about/index.shtm>>.

7410 FWS, 2009a. *ESA Basics: More Than 30 Years of Conserving Endangered Species*, February 2009. FWS,
7411 Arlington, VA. Available from <http://www.fws.gov/endangered/esa-library/pdf/ESA_basics.pdf>.

7412 FWS, 2009b. *What are Invasive Species?* [Web page], August 14, 2009. FWS, Arlington, VA. Available
7413 from <<http://www.fws.gov/invasives/>>.

7414 FWS, 2010a. *Ecosystem Conservation* [Web page]. FWS, Arlington, VA. Available from
7415 <<http://www.fws.gov/ecosystems/>>.

-
- 7416 FWS, 2010b. *Migratory Birds & Habitat Programs – Migratory Bird Treaty Act* [Web page]. FWS,
7417 Arlington, VA. Available from <<http://www.fws.gov/pacific/migratorybirds/mbta.htm>>.
- 7418 FWS, 2010c. *National Wetlands Inventory* [Web page]. FWS, Arlington, VA. Available from
7419 <<http://www.fws.gov/wetlands/>>.
- 7420 HQDA, 2005. *Army Regulation 210-20, Installations, Real Property Master Planning for Army*
7421 *Installations*, May 16, 2005. HQDA, Washington, D.C. Available from
7422 <http://www.army.mil/usapa/epubs/pdf/r210_20.pdf>
- 7423 HQDA, 2007. *Army Regulation 200-1, Environmental Quality, Environmental Protection and*
7424 *Enhancement*, December 13, 2007. HQDA, Washington, D.C. Available from
7425 <http://www.army.mil/usapa/epubs/pdf/r200_1.pdf>.
- 7426 HQDA, 2010. *U.S. Army Sustainability – Integrated Training Area Management (ITAM)*. HQDA,
7427 Washington, D.C. Available from <http://www.sustainability.army.mil/function/training_itam.cfm>.
- 7428 NRCS, 2001a. *Soil Quality Information Sheet: Rangeland Soil Quality – Wind Erosion*, May 2001.
7429 USDA, NRCS, Washington, D.C. Available from
7430 <<http://soils.usda.gov/sqi/management/files/RSQIS10.pdf>>.
- 7431 NRCS, 2001b. *Soil Quality Information Sheet: Rangeland Soil Quality – Water Erosion*, May 2001.
7432 USDA NRCS, Washington, D.C. Available from
7433 <<http://soils.usda.gov/sqi/management/files/RSQIS9.pdf>>.
- 7434 NRCS, 2010. *Official Soil Series Descriptions (OSD) Fact Sheet*. USDA, NRCS, Washington, D.C.
7435 Available from <http://soils.usda.gov/technical/classification/osd/fact_sheet.html>.
- 7436 NWCG, 2008. *Glossary of Wildland Fire Terminology*, publication PMS 205, November 2008. Incident
7437 Operations Standards Working Team, NWCG, Boise, ID. Available from
7438 <<http://www.nwcg.gov/pms/pubs/glossary/>>.
- 7439 USGS, 1993. *What is Ground Water?* (Open-File Report 93-643), 1993, re-printed April 2001. USGS,
7440 Reston, VA. Available from <<http://pubs.usgs.gov/of/1993/ofr93-643/pdf/ofr93-643.pdf>>.

-
- 7441 USGS, 2008. *Freshwater-Saltwater Interactions along the Atlantic Coast: Saltwater Intrusion*, October
7442 15, 2008. USGS, Reston, VA. Available from <<http://water.usgs.gov/ogw/gwrp/saltwater/salt.html>>.
- 7443 USGS, 2010a. *Floods: Recurrence intervals and 100-year floods*, August 30, 2010. USGS, Reston, VA.
7444 Available from <<http://ga.water.usgs.gov/edu/100yearflood.html>>.
- 7445 USGS, 2010b. *USGS Water Data for the Nation* [Web page]. Available from
7446 <<http://waterdata.usgs.gov/nwis>>.
- 7447

7448

(This page was intentionally left blank)

7449

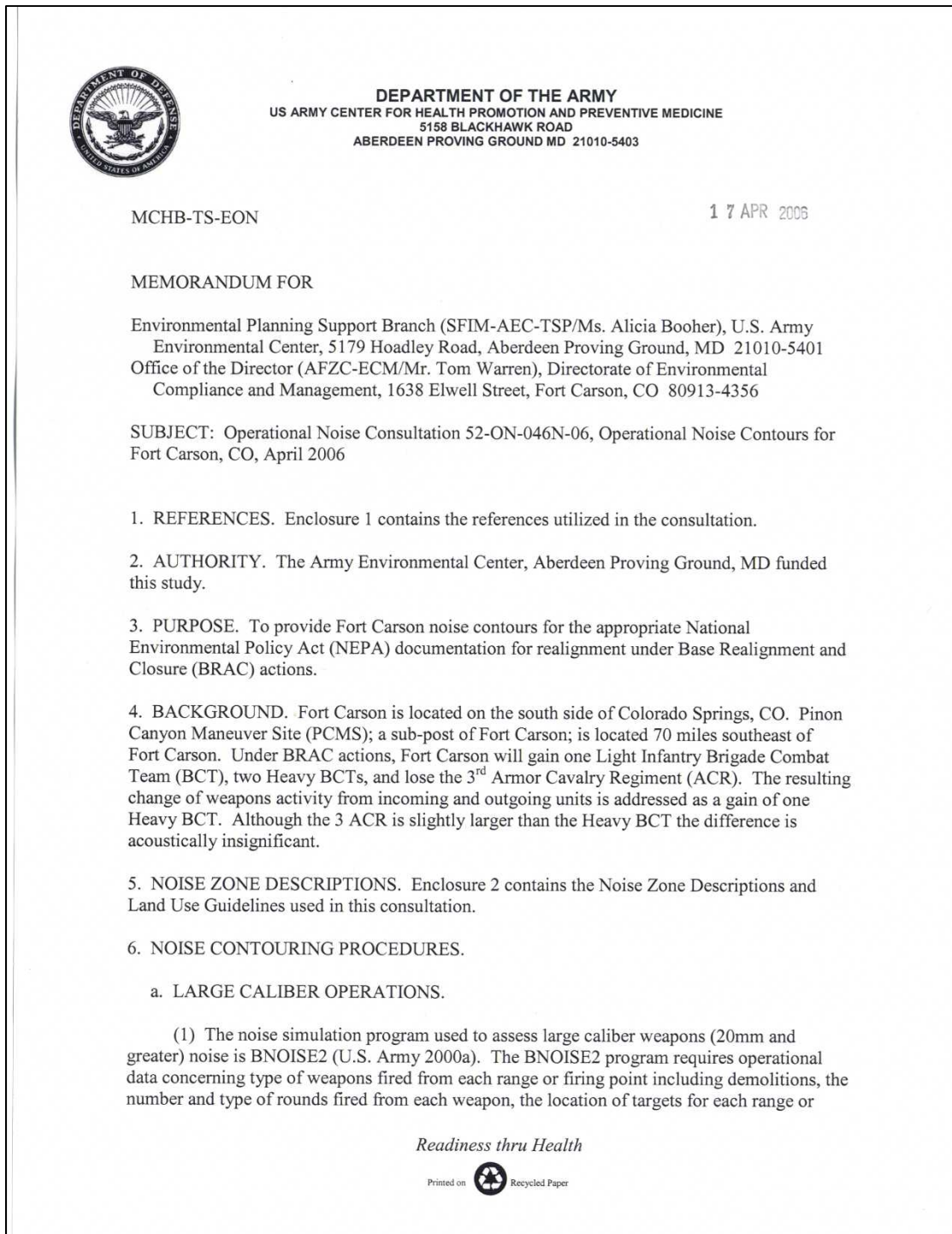
7450

Appendix B. Noise Analyses

7451 The following images display the memorandums for Operational Noise Consultation conducted in 2006
7452 and 2008 for Fort Carson and in 2009 for JBLM.

7453

7454



Operational Noise Consultation, No. 52-ON-046N-06, Apr 06

firing point, and the amount of propellant used to reach the target. Existing records on range utilization along with reasonable assumptions are used as BNOISE2 inputs. The assessment period used to create the Fort Carson C-weighted Day-Night Level (CDNL) contours is 250 days. The BNOISE2 program accounted for the terrain at Fort Carson when creating the noise contours.

(2) The inputs used to generate the large caliber noise contours for this report were created using the data summarized in Enclosure 3.

b. SMALL CALIBER OPERATIONS.

(1) The noise simulation program used to assess small caliber weapons (50 caliber and below) noise is SARNAM (U.S. Army 2000b). The SARNAM program requires operational data concerning type of weapons fired from each range, firing points, distance to targets, berms, and safety baffles.

(2) The inputs used to generate the small caliber noise contours for this report were created using the data summarized in Enclosure 4.

c. AIRCRAFT OPERATIONS.

(1) The noise simulation program used to assess aircraft noise is NoiseMap/Baseops (U.S. Air Force 2005a). The NoiseMap/Baseops program requires operational data concerning type of aircraft, altitude, flight tracks, and number of operations.

(2) The inputs used to generate the aircraft activity noise contours for this report were created using the data summarized in Enclosure 5.

d. FLIGHT CORRIDORS.

(1) The low number of aircraft operations utilizing the flight corridors/routes will not generate A-weighted day-night average level (ADNL) noise contours of 65 dBA or greater. Yet, there is the potential for aircraft to cause annoyance leading to noise complaint while entering/exiting the airspace.

(2) Scandinavian Studies (Rylander 1974 and Rylander 1988) have found that a good predictor of annoyance at airfields with 50 to 200 operations per day is the maximum level of the three noisiest events. The maximum noise levels for the aircraft utilized in the Fort Carson and PCMS flight corridors are listed in Table 1. These maximum levels are compared with the levels listed in Table 2 to determine the percent of the population that would consider itself highly annoyed. While levels may be lower in the flight corridors with fewer than 50 operations per day, it is a tool in providing some indication of the percent of people who might be annoyed.

Operational Noise Consultation, No. 52-ON-046N-06, Apr 06

TABLE 1. MAXIMUM NOISE LEVELS OF AIRCRAFT OPERATING IN THE FORT CARSON AND PCMS FLIGHT CORRIDORS.

Slant Distance (Feet)	Maximum Level, dBA		
	AH-64	CH-47D	UH-60
100	98	98	94
200	92	92	88
500	83	84	80
1,000	77	77	73
1,500	73	74	69
2,000	70	71	66

TABLE 2. PERCENTAGE OF POPULATION HIGHLY ANNOYED FROM AIRCRAFT NOISE.

Maximum, dBA	Percentage Highly Annoyed
70	5
75	13
80	20
85	28
90	35

(3) Flight corridors vary in width depending upon the type of aircraft and type of activity. Generally the aircraft fly the center line of the flight corridor but can vary anywhere within the corridor. Thus, to account for possible annoyance, the area of possible noise impact must be expanded based on the actual aircraft location within the corridor. For example, if a flight corridor is one mile in width for an AH-64 at 500' above ground level (AGL), to account for variation in aircraft location, the overall area of noise impact would be an additional one-third mile on each side of the corridor. This gives an adequate buffer to reduce possible annoyance. The buffer dimensions were determined based on results from the SelCalc Program (U.S. Air Force 2005b) and areas within the buffer may receive a max level dBA above 70, based on the altitude and slant distance of the aircraft. Enclosure 6 contains a graphic description of AGL, ground track, and slant distance.

7. NOISE CONTOUR MODELING RESULTS.

a. LARGE CALIBER WEAPONS NOISE CONTOURS.

(1) Fort Carson.

(a) The existing large caliber weapons noise contours for Fort Carson are shown in enclosure 7. The Land Use Planning Zone (LUPZ) (57 CDNL) extends beyond the eastern

Operational Noise Consultation, No. 52-ON-046N-06, Apr 06

boundary encompassing El Rancho, Midway Ranches; and crossing Interstate 25 into the city of Fountain. The LUPZ extends less than 1,200 meters beyond the southern boundary; and beyond the western boundary encompassing Turkey Canyon Ranch. The Noise Zone II (62 CDNL) extends beyond the installation boundary eastern boundary less than 2,000 meters, into El Rancho and Midway Ranches; and beyond the western boundary less than 750 meters, into Turkey Canyon Ranch. The Noise Zone II (70 CDNL) extends beyond the eastern boundary less than 1,000 meters between the City of Fountain and El Rancho; less than 200 meters, into the western area of El Rancho; and less than 300 meters into Turkey Canyon Creek. These contours show the updated existing operations and the new range layouts due to the upgrade of Ranges 111 and 143. Replace the existing CDNL contours (Figure 4-2) in the Fort Carson Installation Environmental Noise Management Plan, January 2006.

(b) The future large caliber weapons noise contours for Fort Carson are shown in enclosure 8. The Land Use Planning Zone (LUPZ) (57 CDNL) extends beyond the eastern boundary beyond Interstate 25, encompassing El Rancho, Midway Ranches, and the best part of the city of Fountain. The LUPZ extends less than 2,600 meters beyond the southern boundary; and beyond the western boundary encompassing Turkey Canyon Ranch. The Noise Zone II (62 CDNL) extends beyond the installation boundary eastern boundary less than 1,300 meters into the city of Fountain; less than 4,000 meters, into El Rancho and Midway Ranches; and beyond the western boundary less than 700 meters, into Turkey Canyon Ranch. The Noise Zone II (70 CDNL) extends beyond the eastern boundary less than 500 meters into the city of Fountain; less than 1,000 meters between the City of Fountain and El Rancho; less than 400 meters, into the western area of El Rancho; and less than 400 meters into Turkey Canyon Creek.

(c) To predict the risk of complaints for large caliber weapon operation PK15(met) contours were developed. The Fort Carson existing large caliber weapons PK15(met) noise contours are shown in enclosure 9 and the future large caliber weapons PK15(met) noise contours are shown in enclosure 10. The only difference between the two is due to the hand grenade range located in the northeastern area of Fort Carson, near Interstate 25 and the city of Fountain. The PK15(met), 115 dB contour extends beyond the eastern boundary between 1,700 – 5,400 meters; beyond the southern boundary less than 1,600 meters; and beyond the eastern boundary between 500 – 1,500 meters. The PK15(met) 130 dB noise contour extends beyond the eastern boundary between 500 – 1,200 meters near Fountain, El Rancho and Midway Ranches; and beyond the western boundary between 500 – 1,000 meters near Red Rock Valley Estates and Turkey Canyon Ranch. The contours indicate a moderate probability of receiving noise complaints from most locations; with a higher probability of receiving noise complaints from certain locations. Replace the existing PK15(met) contours (Figure 4-3) in the Fort Carson Installation Environmental Noise Management Plan, January 2006, with enclosure 9.

Operational Noise Consultation, No. 52-ON-046N-06, Apr 06

(2) PCMS.

(a) The large caliber weapons CDNL noise contours for the proposed Hand Grenade Range are shown in enclosure 11. The LUPZ (57 CDNL) extends beyond the western installation boundary less than 1,250 meters and the Noise Zone II (62 CDNL) extends beyond the installation boundary less than 700 meters. The Noise Zone III (70 CDNL) contour does not extend off-post.

(b) The large caliber weapons PK15(met) noise contours for the proposed Hand Grenade Range are shown in enclosure 12. The PK15(met), 115 dB contour extends beyond the western boundary less than 1,250 meters. The PK15(met) 130 dB noise contour does not extend off-post. The contours indicate a low probability of receiving noise complaints.

b. SMALL CALIBER WEAPONS NOISE CONTOURS.

(a) Fort Carson. The small caliber weapons noise contours for existing operations at the Fort Carson small arms impact area are shown in enclosure 13. The Zone II [PK15(met) 87 dB] extends beyond the eastern boundary less than 700 meters, entering the city of Fountain. The Zone III [PK15(met) 104 dB] contours near range 29 extend beyond the eastern boundary less than 100 meters, just crossing Interstate 25. There will be no changes to the existing small caliber weapons noise contours due to BRAC activity.

(b) PCMS.

(1) Existing Range Facilities. Due to the distance of the ranges from the installation boundary and any noise sensitive land uses only Ranges 1, 3, and 7 were addressed. The noise contours for these existing small arms operations are shown in enclosure 14. The Zone II [PK15(met) 87 dB] contour extends beyond the western boundary less than 650 meters. The Zone III [PK15(met) 104 dB] contour does not extend beyond the installation boundary.

(2) Proposed Range Facilities. As a result of the non-live fire activity and the distance of the facility from the installation boundary; the Combined Arms Collective Training Facility will not create [PK15(met) 87 dB] or Zone III [PK15(met) 104 dB] noise contours that extend beyond the installation boundary. The proposed Live Fire Shoot House will not create [PK15(met) 87 dB] or Zone III [PK15(met) 104 dB] noise contours that extend beyond the installation boundary because the activity takes place inside the structure.

Operational Noise Consultation, No. 52-ON-046N-06, Apr 06

c. AVIATION NOISE CONTOURS.

(1) PCMS COMBAT ASSAULT LANDING STRIP (CAL S).

(a) The noise contours for the existing C130 operations utilizing the existing Combat Assault Landing Strip (CAL S) are shown in enclosure 15. The LUPZ (60 ADNL) extends beyond the western boundary less than one-tenth of a mile. The Noise Zone II (65 ADNL) and Noise Zone III (75 ADNL) contours do not extend beyond the boundary. However, there is the potential for aircraft to cause annoyance while entering/exiting the airspace.

(b) The noise contours for the future C130 and C17 operations utilizing the expanded CAL S are shown in enclosure 16. The LUPZ (60 ADNL) extends beyond the western boundary approximately one mile. The Noise Zone II (65 ADNL) extends beyond the western boundary approximately one quarter of a mile. The Noise Zone III (75 ADNL) contours do not extend beyond the boundary.

(c) The noise contours for the future C130 operations utilizing the two proposed CAL S are shown in enclosure 17. The LUPZ (60 ADNL), Noise Zone II (65 ADNL) and Noise Zone III (75 ADNL) contours do not extend beyond the boundary. However, there is the potential for aircraft to cause annoyance while entering/exiting the airspace.

(2) FORT CARSON AND PCMS FLIGHT CORRIDORS. The distances in Table 3 are added to the flight corridors width to account for annoyance created by activity taking place at the edge of the flight corridor. The supplement buffers *do not* account for the terrain at PCMS or Fort Carson. Enclosures 18 and 19 contain the annoyance flight corridor buffers for Fort Carson and PCMS.

TABLE 3. FORT CARSON AND PCMS SUPPLEMENTAL BUFFER FLIGHT CORRIDOR WIDTHS TO REDUCE ANNOYANCE POTENTIAL.

Supplemental Buffer Width to Flight Corridor	
Aircraft Type	NOE 100' AGL
Rotary Wing:	
AH-64	1/4 Mile
CH-47D	1/4 Mile
UH-60	1/4 Mile

8. RECOMMENDATIONS.

a. Include the information from this consultation in the Fort Carson appropriate NEPA documentation for realignment under Base Realignment and Closure actions.

Operational Noise Consultation, No. 52-ON-046N-06, Apr 06

b. Although no Federal Law prohibits the Department of Defense training and testing activities from making noise, the Services have always tried to be good neighbors. Due to the risk of noise complaints from off-post neighboring residents related to the proposed training noise, Fort Carson should continue the existing operational noise management and outreach program to inform the public of possible noise from training.

9. Please contact us if this report or any of our services did not meet your needs or expectations.

10. The point of contact is Ms. Kristy Broska or Dr. William Russell, Operational Noise Program, USACHPPM, at DSN 584-3829, commercial (410) 436-3829, or e-mail: kristy.broska@us.army.mil or william.russell4@us.army.mil.

FOR THE COMMANDER:

19 Encls
as


LAURIE A. CUMMINGS
COL, MS
Director, Environmental Health Engineering

CF:
COE (CESAM-PD-M) (w/encls)

REFERENCES

1. U.S. Air Force, 2005a, NOISEMAP/BASEOPS, Wright-Paterson Air Force Base, OH.
2. U.S. Air Force, 2005b, SELCAL Noise Model, Wright-Paterson Air Force Base, OH.
3. U.S. Army, 2000a, U.S. Army Construction Engineering Research Laboratories, BNOISE2 Computer Model.
4. U.S. Army, 2000b, U.S. Army Construction Engineering Research Laboratories, SARNAM Computer Model.
5. Rylander, et.al., 1974, "Re-Analysis of Aircraft Noise Annoyance Data Against the dBA Peak Concept," *Journal of Sound and Vibration*, Volume 36, pages 399 - 406.
6. Rylander and Bjorkman, 1988, "Maximum Noise Levels as Indicators of Biological Effects," *Journal of Sound and Vibration*, Volume 127, pages 555 - 563.

Enclosure 1

NOISE ZONES DESCRIPTIONS AND LAND USE GUIDELINES

1. Day Night Level Descriptions.

(a) The Noise Zone III consists of the area around the source of the noise in which the level is greater than 70 decibels (dB), C-weighted day-night sound level (CDNL) for large caliber weapons, greater than 104 PK15(met) for small arms and greater than 75 dB, A-weighted day-night sound level (ADNL) for aircraft activity. The noise level within Noise Zone III is considered so severe that noise-sensitive land uses should not be considered therein.

(b) The Noise Zone II consists of an area where the day-night sound level is between 62 and 70 dB CDNL for large caliber weapons; 87 and 104 PK15(met) for small arms; and 65 and 75 dB ADNL for aircraft activity. Exposure to noise within this area is considered significant, and use of land within Noise Zone II should normally be limited to activities such as industrial, manufacturing, transportation, and resource production. However, if the community determines that land in Noise Zone II areas must be used for residential purposes, then noise level reduction features of 25 to 30 decibels should be incorporated into the design and construction of the buildings.

(c) The Noise Zone I include all areas around a noise source in which the day-night sound level is less than 62 dB CDNL for large caliber weapons, less than 87 PK15(met) for small arms and 65 dB ADNL for aircraft activity. This area is usually acceptable for all types of land use activities.

(d) The Land Use Planning Zone (LUPZ) DNL noise contours, 57 dB CDNL and 60 dB ADNL, represent an annual average that separates the Noise Zone II from the Noise Zone I. Taking all operations that occur over the year and dividing by the number of training days generates the contours. But, the noise environment varies daily and seasonally because operations are not consistent through all 365 days of the year. In addition, the Federal Interagency Committee on Urban Noise document states "Localities, when evaluating the application of these guidelines to specific situations, may have different concerns or goals to consider." For residential land uses, depending on attitudes and other factors, a 57 CDNL or 60 ADNL may be considered by the public as an impact on the community environment. In order to provide a planning tool that could be used to account for days of higher than average operations and possible annoyance, the LUPZ contour is being included on the noise contour maps.

Enclosure 2

(e) See Table 1 for land use guidelines.

Table 1. Land Use Planning Guidelines.

Noise Zones	Large-Caliber Weapons (CDNL)	Aircraft Activity (ADNL)	Small Arms PK15(met)
LUPZ	57 – 62	60-65	NA
I	< 62	<65	<87
II	62 - 70	65-75	87-104
III	> 70	>75	>104

Note:

LUPZ = Land Use Planning Zone

< = less than

> = greater than

2. PK15(met) Noise Contour Description.

(a) Community annoyance due to many types of transportation and industrial noise is typically and appropriately assessed based on average noise level over a protracted time period. The DNL is the primary descriptor used for this purpose in the United States. The DNL is the time weighted energy average sound level with a 10-dB penalty added to the nighttime levels (2200 to 0700 hours). The use of average noise level over a protracted time period generally does not adequately assess community noise impact and complaint potential due to relatively infrequent blast noise events or weapon firing. For example, for a small arms range at which hundreds of rounds are fired each year, resultant peak levels (PK) can easily exceed 104 dB in regions that annual DNL values indicate to be adequately quiet for housing.

(b) To account for statistical variation in received weapons noise level due to weather, it is recommended that the PK15(met) noise level be calculated. The peak contours show the expected level that one would get on a sound level meter when a weapon was fired. Since weather conditions can cause noise levels to vary significantly from day to day (even from hour to hour) the programs calculate a range of peak levels. This range is based on weather conditions that favor or hinder sound propagation. By plotting the PK15(met) contour, events would be expected to fall within the contours 85% of the time. This gives the installation and the community a more realistic means to consider the areas impacted by training noise without putting stipulations on land that would only receive high sound levels under infrequent weather conditions that favor sound propagation. This metric represents the best available scientific quantification for assessing the complaint risk of large and small caliber weapons ranges. The complaint risk areas for PK15(met) noise contours are defined as follows:

(1) The high risk of complaint area consists of the area around the source of the noise in which PK15(met) noise contour is greater than 130 dB for large caliber weapons.

(2) The moderate risk of complaint area consists of an area where the PK15(met) noise contour is between 115 dB and 130 dB for large caliber weapons.

(3) The low risk of complaint area includes all areas around a noise source in which the PK15(met) noise contour is less than 115 dB for large caliber weapons.

(c) See Table 2 for complaint risk guidelines.

Table 2. Complaint Risk Guidelines.

Risk of Complaints	Large Caliber Weapons (20mm and greater)
	PK15(met) dB Noise Contour
Low	< 115
Moderate	115 - 130
High	> 130

DEMOLITION AND LARGE CALIBER WEAPON EXPENDITURE
FORT CARSON RANGE OPERATIONS

Firing Location	Weapon and Ammunition Type	Existing 2001 Ammunition		Gain One Heavy BCT	
		DayShots 0700-2200	NightShots 2200-0700	DayShots 0700-2200	NightShots 2200-0700
Hellfire North	Hellfire Missile, HE	0	0	145	35
Hellfire South	Hellfire Missile, HE	0	0	145	35
Mortar Point 02	120mm Mortar, HE	0	0	250	13
	120mm Mortar, Inert	0	0	1173	62
	60mm Mortar, HE	0	0	95	5
	60mm Mortar, Inert	0	0	472	25
	81mm Mortar, HE	45	2	33	2
	81mm Mortar, Inert	38	2	174	1
Mortar Point 03	120mm Mortar, HE	0	0	250	14
	120mm Mortar, Inert	0	0	1173	62
	60mm Mortar, HE	0	0	95	5
	60mm Mortar, Inert	0	0	472	25
	81mm Mortar, HE	14	1	10	0
	81mm Mortar, Inert	12	1	54	1
Mortar Point 16	120mm Mortar, HE	0	0	249	13
	120mm Mortar, Inert	0	0	1172	61
	60mm Mortar, HE	12	0	95	5
	60mm Mortar, Inert	0	0	471	24
	81mm Mortar, HE	29	2	22	1
	81mm Mortar, Inert	24	1	112	1
Mortar Point 17	120mm Mortar, HE	0	0	250	13
	120mm Mortar, Inert	0	0	1173	62
	60mm Mortar, HE	0	0	95	5
	60mm Mortar, Inert	0	0	471	25
	81mm Mortar, HE	149	8	112	6
	81mm Mortar, Inert	126	7	580	4
Mortar Point 20	120mm Mortar, HE	0	0	249	13
	120mm Mortar, Inert	0	0	1172	61
	60mm Mortar, HE	444	9	95	5
	60mm Mortar, Inert	0	0	471	24
	81mm Mortar, HE	192	10	144	8
	81mm Mortar, Inert	162	9	745	5
Mortar Point 24	120mm Mortar, HE	0	0	250	13
	120mm Mortar, Inert	0	0	1173	62
	60mm Mortar, HE	0	0	95	5
	60mm Mortar, Inert	0	0	471	25
	81mm Mortar, HE	476	25	357	19
	81mm Mortar, Inert	403	21	1850	12
Mortar Point 25	120mm Mortar, HE	0	0	250	13
	120mm Mortar, Inert	0	0	1172	62
	60mm Mortar, HE	0	0	95	5
	60mm Mortar, Inert	0	0	471	25
	81mm Mortar, HE	110	6	82	4
	81mm Mortar, Inert	93	5	427	2

Note: Inert is defined as any round that does not create noise upon impact.

Enclosure 3

DEMOLITION AND LARGE CALIBER WEAPON EXPENDITURE
FORT CARSON RANGE OPERATIONS, CONT'D.

Firing Location	Weapon and Ammunition Type	Existing 2001 Ammunition		Gain One Heavy BCT	
		Day Shots 0700-2200	Night Shots 2200-0700	Day Shots 0700-2200	Night Shots 2200-0700
Range 35B	Hand Grenade, M67, HE	0	0	10500	0
Range 103	40mm Grenade, HE	46482	2446	0	0
Range 105	120mm Tank, Inert	565	0	696	0
	25mm Gun, Inert	0	0	11588	0
Range 109	120mm Tank, Inert	196	84	81	35
	25mm Gun, Inert	27827	6957	14918	3729
Range 111 DMPTR	120mm Tank, Inert	2271	802	893	383
	25mm Gun, Inert	14178	9337	7601	1900
Range 115A	40mm Grenade HE	9986	526	0	0
Range 121A	Bangalore	0	0	36	0
	Crater Charge 40 lbs	114	0	100	0
	Demolition, C4 1.25 lbs	13659	0	9935	0
	Demolition, PETN 2 lbs	21	0	0	0
	Demolition, TNT 1 lb	1257	0	0	0
	Demolition, TNT 1/4 lb	1163	0	0	0
	M15 Mine	107	0	18	0
	M181A1 Mine	0	0	252	0
	M19 Mine	103	0	18	0
	M21 Mine	189	0	18	0
	Shape Charge 40 lbs	328	0	100	0
Range 123	20mm Gun, Inert	6602	0	0	0
	25mm Gun, Inert	183	0	0	0
	30mm Gun, Inert	0	0	95450	0
Range 125	TOW Missile, Inert	0	0	115	0
Range 127	120mm Tank, Inert	42	0	-42	0
	155mm Howitzer, HE	368	92	-368	-92
	155mm Howitzer, Inert	44	5	-44	-5
	25mm Gun, Inert	9481	499	-9481	-499
	TOW Missile, Inert	445	0	-445	0
Bangalore	22	0	-22	0	
Range 127 IPBC	25mm Gun, Inert	0	0	24395	6099
Range 139	AT4 Rocket, Inert	561	0	174	0
	LAW Rocket, Inert	195	0	36	0
Range 141	155mm Howitzer, HE	0	0	18	0
	155mm Howitzer, Inert	0	0	1	0
	Dragon Rocket, Inert	36	0	8	0
Range 143 DMPRC	120mm Tank, Inert	6705	2138	2598	1114
	25mm Gun, Inert	49376	21161	26471	6618
	TOW Missile, Inert	191	0	230	0
Range 145	120mm Tank, Inert	668	267	284	122
	25mm Gun, Inert	14178	9337	7601	1900
Range 149	Stinger Missile, HE	0	0	72	0
Range 151	20mm Gun, Inert	228	0	0	0
	25mm Gun, Inert	101	0	0	0

Note: Inert is defined as any round that does not create noise upon impact.

DEMOLITION AND LARGE CALIBER WEAPON EXPENDITURE
FORT CARSON RANGE OPERATIONS, CONT'D.

Firing Location	Weapon and Ammunition Type	Existing 2001 Ammunition		Gain One Heavy BCT	
		DayShots 0700-2200	NightShots 2200-0700	DayShots 0700-2200	NightShots 2200-0700
Range 155 CALFEX	120mm Tank, Inert	668	0	174	0
	25mm Gun, Inert	1087	0	5184	0
	155mm Howitzer, HE	79	20	124	30
	155mm Howitzer, Inert	744	287	17	12
Range 155E	120mm Mortar, HE	0	0	608	32
	120mm Mortar, Inert	0	0	722	70
	60mm Mortar, HE	0	0	319	17
	60mm Mortar, Inert	0	0	67	3
	81mm Mortar, HE	246	13	365	19
	81mm Mortar, Inert	209	11	76	4
	Demolition, C4 1.25 lbs	628	0	523	0
	Crater Charge, 40 lbs	21	0	8	0
	Shape Charge, 40 lbs	12	0	8	0
Training Area 07	155mm Howitzer, HE	745	166	281	71
	155mm Howitzer, Inert	0	255	15	11
Training Area 09	155mm Howitzer, HE	62	15	24	6
	155mm Howitzer, Inert	0	0	1	1
Training Area 10	155mm Howitzer, HE	268	74	102	26
	155mm Howitzer, Inert	0	42	7	4
Training Area 11	155mm Howitzer, HE	308	76	117	30
	155mm Howitzer, Inert	0	174	7	4
Training Area 12	155mm Howitzer, HE	314	74	119	30
	155mm Howitzer, Inert	0	19	6	4
Training Area 14	155mm Howitzer, HE	51	13	20	5
	155mm Howitzer, Inert	0	21	1	1
Training Area 16	155mm Howitzer, HE	104	26	40	10
	155mm Howitzer, Inert	0	20	2	2
Training Area 17	155mm Howitzer, HE	1019	254	385	97
	155mm Howitzer, Inert	0	381	22	16
Training Area 18	155mm Howitzer, HE	155	38	58	14
	155mm Howitzer, Inert	0	55	3	2
Training Area 20	155mm Howitzer, HE	305	76	115	29
	155mm Howitzer, Inert	0	98	6	5
Training Area 21	155mm Howitzer, HE	543	136	205	51
	155mm Howitzer, Inert	0	94	12	9
Training Area 24	155mm Howitzer, HE	975	244	368	93
	155mm Howitzer, Inert	0	659	21	16
Training Area 25	155mm Howitzer, HE	55	14	20	5
	155mm Howitzer, Inert	0	17	1	1
Training Area 27	155mm Howitzer, HE	23	6	10	3
	155mm Howitzer, Inert	0	7	1	1
Training Area 28	155mm Howitzer, HE	26	7	11	3
	155mm Howitzer, Inert	0	0	1	1

Note: Inert is defined as any round that does not create noise upon impact.

DEMOLITION AND LARGE CALIBER WEAPON EXPENDITURE

FORT CARSON RANGE OPERATIONS, CONT'D.

Firing Location	Weapon and Ammunition Type	Existing 2001 Ammunition		Gain One Heavy BCT	
		DayShots 0700-2200	NightShots 2200-0700	DayShots 0700-2200	NightShots 2200-0700
Training Area 30	155mm Howitzer, HE	46	11	17	4
	155mm Howitzer, Inert	0	45	1	1
Training Area 31	155mm Howitzer, HE	45	11	17	4
	155mm Howitzer, Inert	0	18	1	1
Training Area 40	155mm Howitzer, HE	47	12	17	4
	155mm Howitzer, Inert	0	0	1	1
Training Area 41	155mm Howitzer, HE	44	11	16	4
	155mm Howitzer, Inert	0	0	1	1

Note: Inert is defined as any round that does not create noise upon impact.

PINON CANYON MANEUVER SITE RANGE OPERATIONS

RANGE	DAYTIME (0700-2200) OPERATIONS	NIGHTTIME (2200-0700) OPERATIONS
PROPOSED HAND GRENADE	15,488	0

SMALL CALIBER WEAPON EXPENDITURE

FORT CARSON RANGE OPERATIONS

	PISTOL, 9 MM, LIVE	RIFLE, 5.56 MM, LIVE	MACHINE GUN, 7.62 MM, LIVE	SHOTGUN, 12 GAUGE, NONLETHAL
RANGE 3 - MILITARY POLICE QUALIFICATION COURSE	X			
RANGE 5 - COMBAT PISTOL QUALIFICATION COURSE	X			
RANGE 7A - KNOWN DISTANCE RANGE		X	X	
RANGE 9 - SF MULTIPLE USE RANGE		X	X	
RANGE 13A - ZERO RANGE	X			
RANGE 15 - MACHINE GUN ZERO RANGE			X	
RANGE 29 - CLOSE QUARTERS COMBAT RANGE	X			
RANGE 37 - SCALED MORTAR RANGE				X
RANGE 43 - SF MULTIPLE USE RANGE	X			
RANGE 45 - KNOWN DISTANCE RANGE			X	
RANGE 49 - AUTOMATED RECORD FIRE RANGE	X			
RANGE 51 - ZERO RANGE	X			
RANGE 55 - AUTOMATED FIELD FIRE RANGE	X			
RANGE 57 - AUTOMATED RECORD FIRE RANGE	X			
RANGE 63 - ZERO RANGE	X			
RANGE 65 - ZERO RANGE	X			
RANGE 69 - AUTOMATED RECORD FIRE	X			

PINON CANYON MANEUVER SITE RANGE OPERATIONS

	PISTOL, 9 MM, LIVE	RIFLE, 5.56 MM, LIVE	MACHINE GUN, 7.62 MM, LIVE	MACHINE GUN, 50 CAL, LIVE
RANGE 1 - COMBAT PISTOL QUALIFICATION COURSE	X			
RANGE 3 - AUTOMATED RECORD FIRE		X		
RANGE 7 - MULTI PURPOSE MACHINE GUN	X	X	X	

Enclosure 4

PINON CANYON COMBAT ASSAULT LANDING STRIP OPERATIONS

EXISTING COMBAT ASSAULT LANDING STRIP (CAL) OPERATIONS

AIRCRAFT TYPE	DAYTIME (0700-2200) OPERATIONS*	NIGHTTIME (2200-0700) OPERATIONS*
C130	48	0

FUTURE EXPANDED CALS OPERATIONS

AIRCRAFT TYPE	DAYTIME (0700-2200) OPERATIONS*	NIGHTTIME (2200-0700) OPERATIONS*
C130	16	0
C17	10	0

PROPOSED CALS LOCATION #1 OPERATIONS

AIRCRAFT TYPE	DAYTIME (0700-2200) OPERATIONS*	NIGHTTIME (2200-0700) OPERATIONS*
C130	16	0

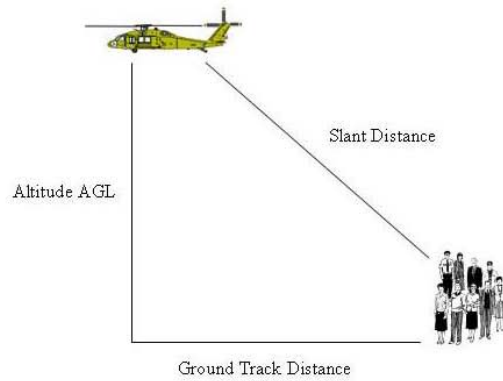
PROPOSED CALS LOCATION #2 OPERATIONS

AIRCRAFT TYPE	DAYTIME (0700-2200) OPERATIONS*	NIGHTTIME (2200-0700) OPERATIONS*
C130	16	0

**NOTE: Each operation consists of one landing and one takeoff.*

Enclosure 5

SUPPLEMENTAL BUFFER FLIGHT CORRIDOR

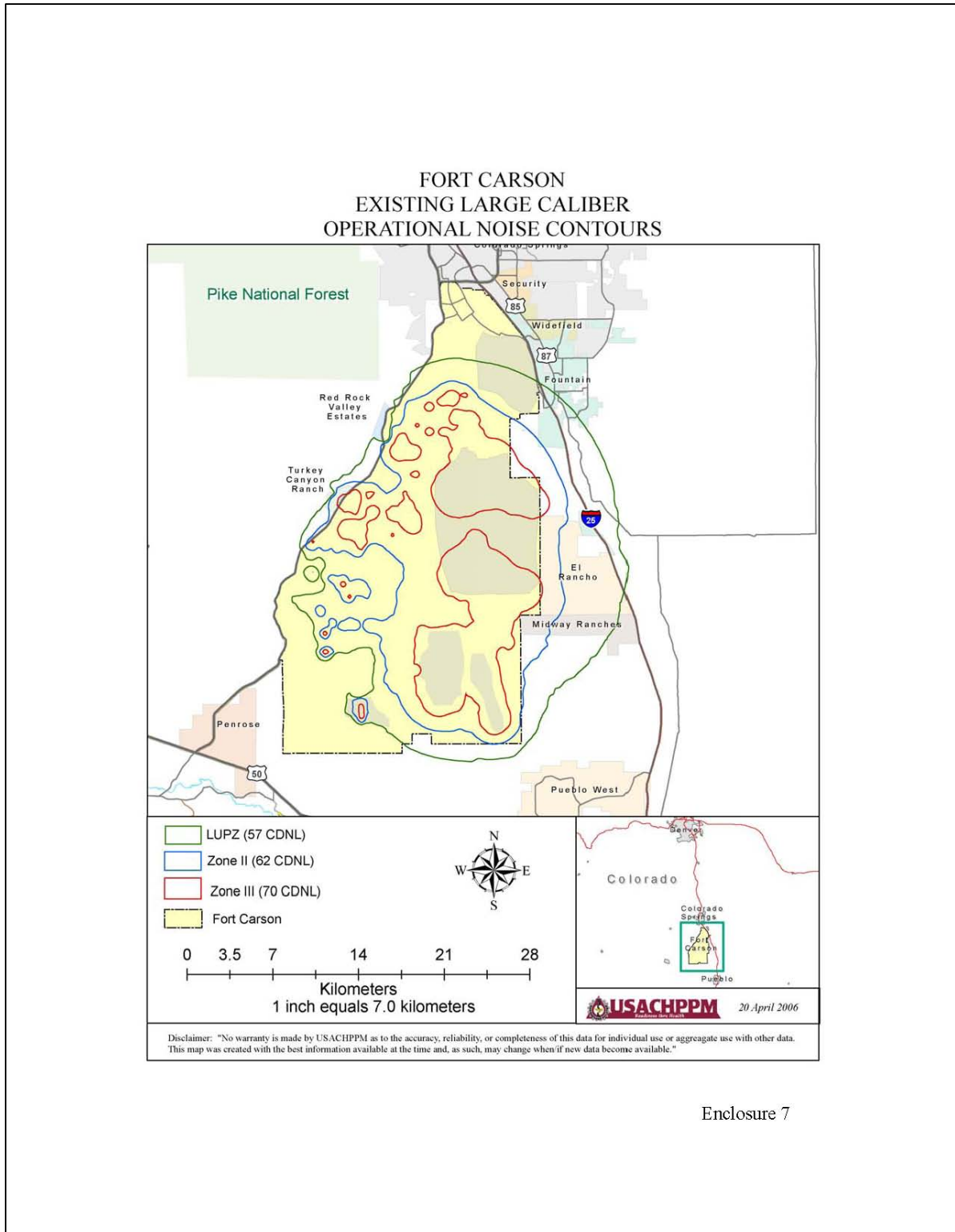
**DEFENITIONS:**

Altitude/AGL (Above Ground Level). Distance of the aircraft above the ground.

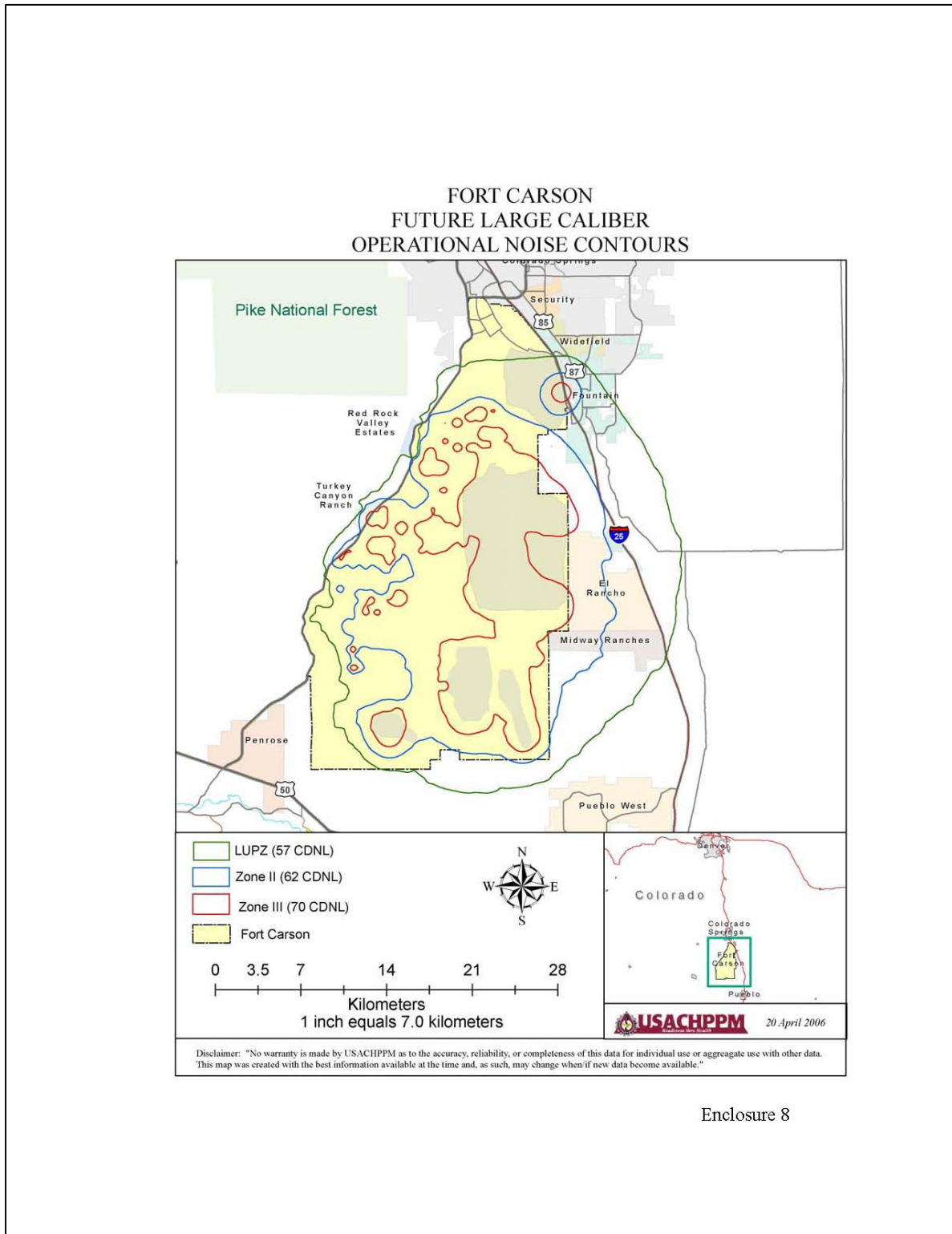
Ground Track Distance. The distance between receiver and the point on the Earth at which the aircraft is directly overhead.

Slant Distance. The line-of-sight distance between the receiver and the aircraft. The slant distance is the hypotenuse of the triangle represented by the altitude of the aircraft and the distance between the receiver and the aircraft's ground track distance.

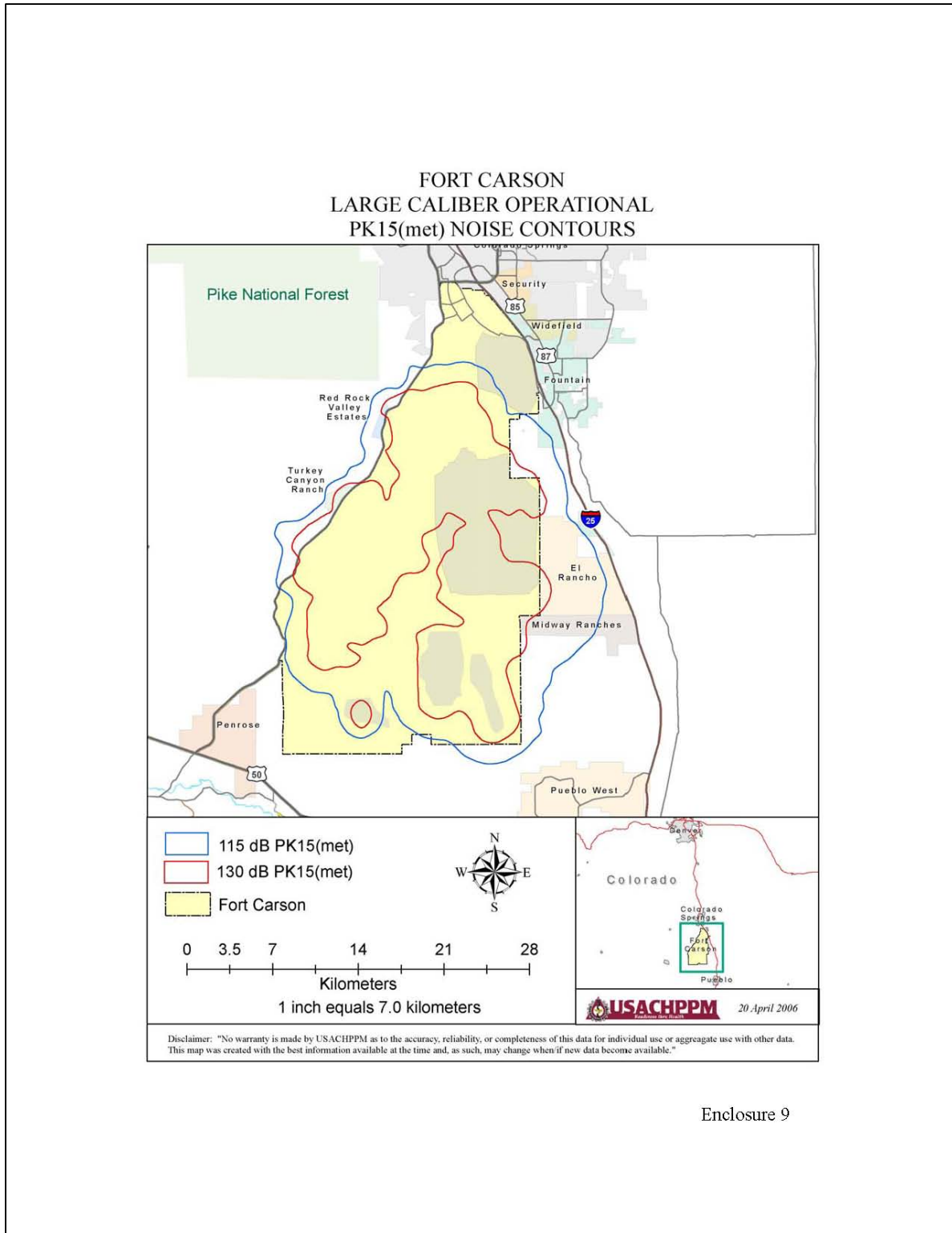
Enclosure 6



Enclosure 7

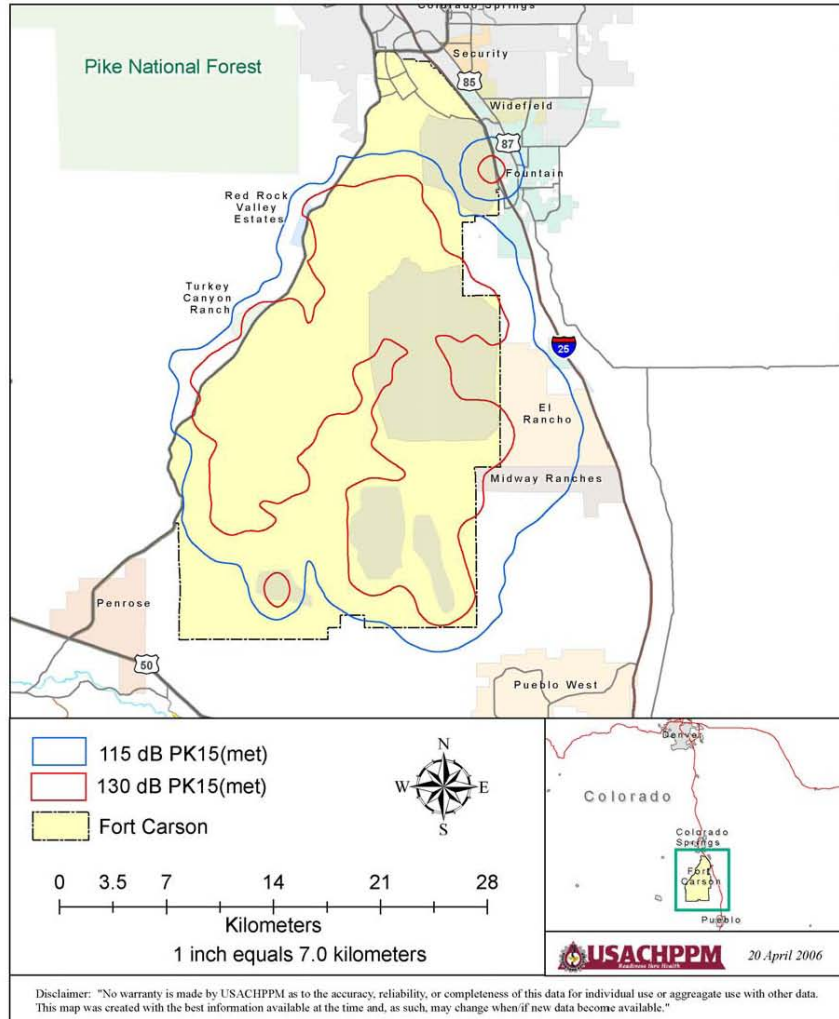


Enclosure 8

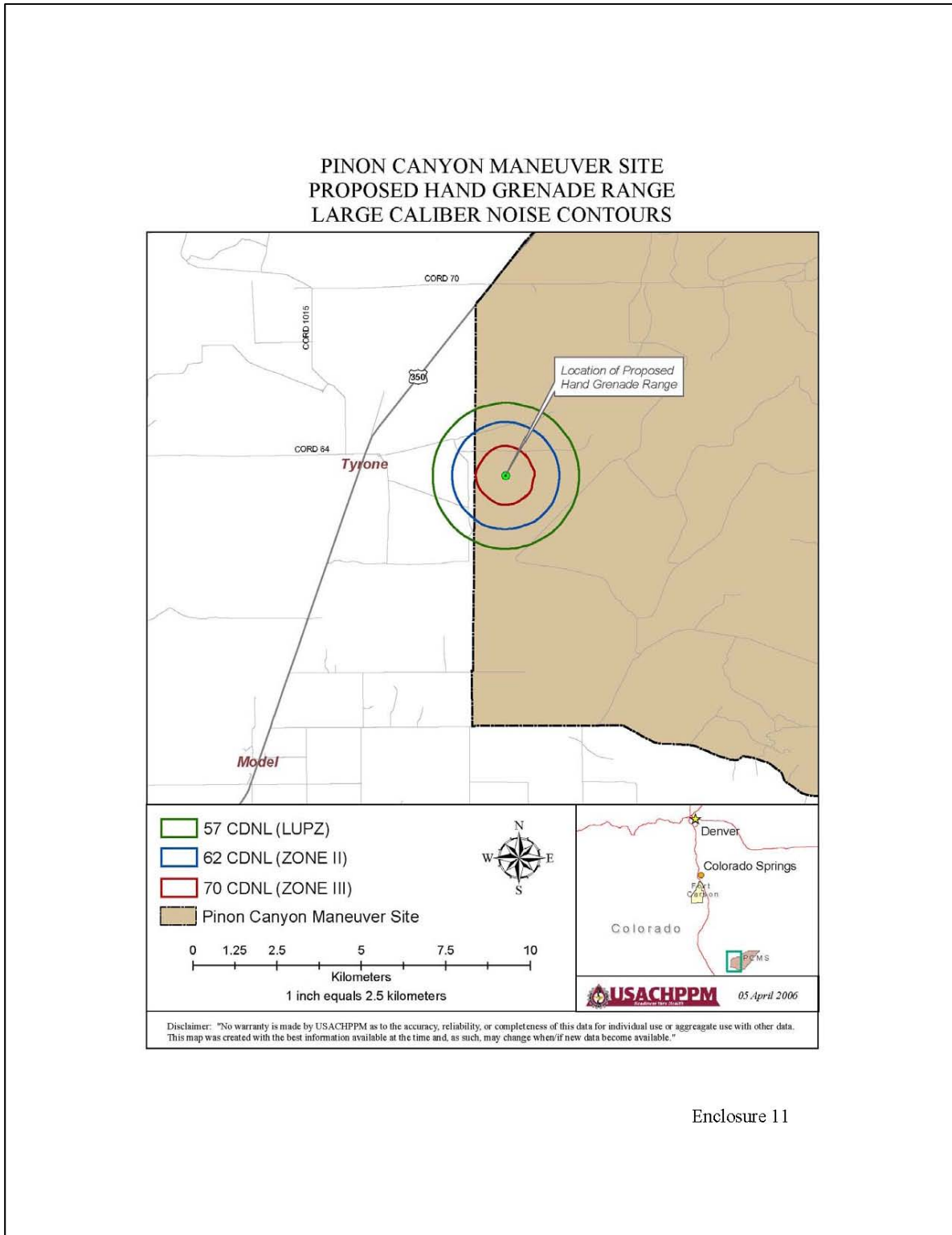


Enclosure 9

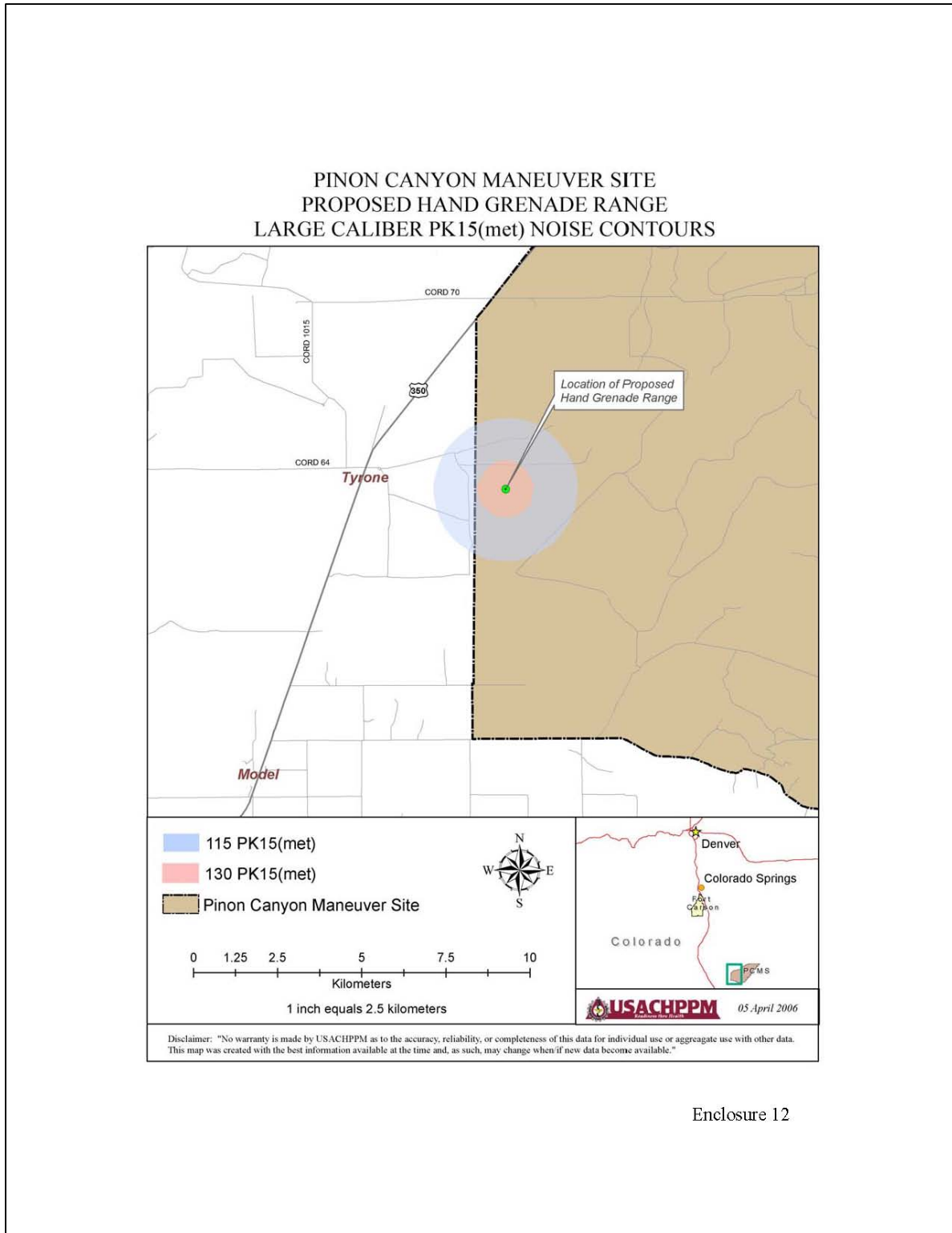
FORT CARSON FUTURE LARGE CALIBER OPERATIONAL PK15(met) NOISE CONTOURS



Enclosure 10

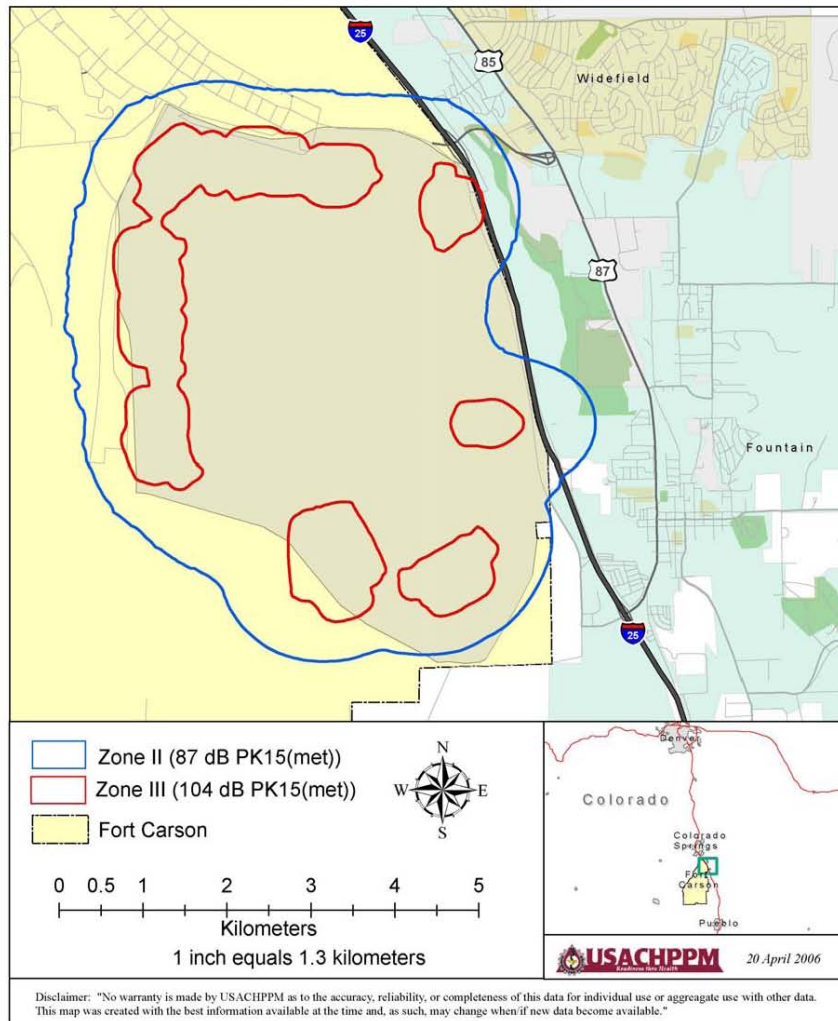


Enclosure 11



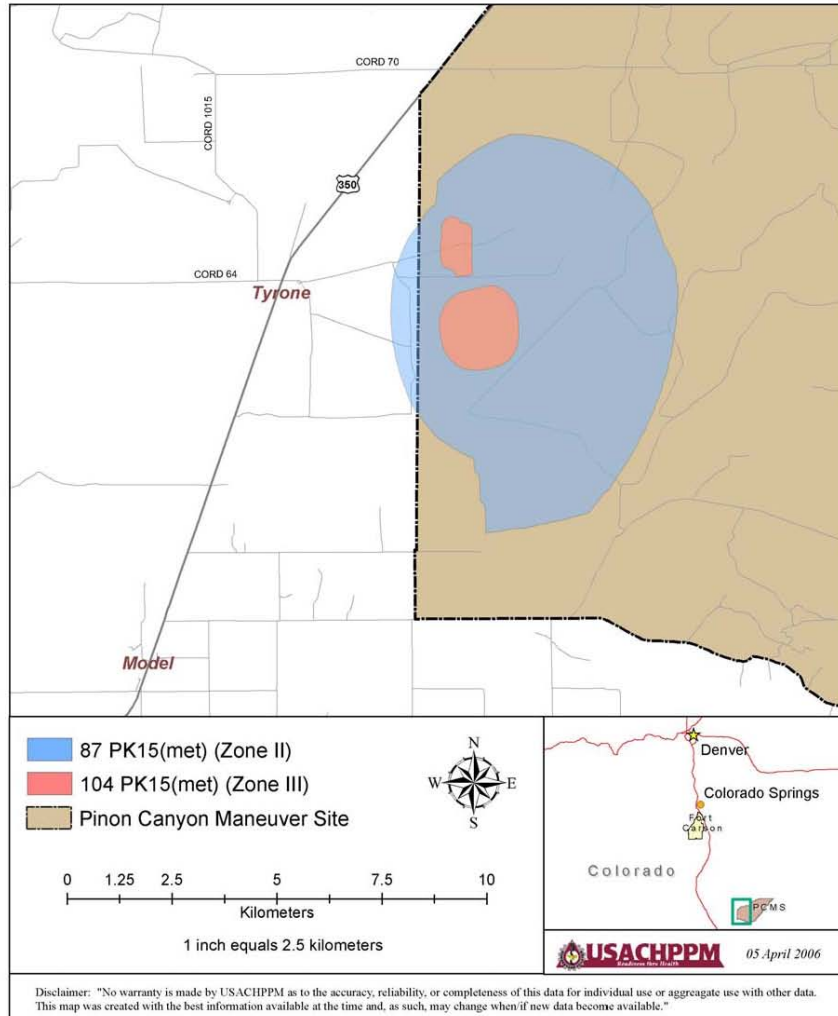
Enclosure 12

FORT CARSON SMALL CALIBER OPERATIONAL NOISE CONTOURS

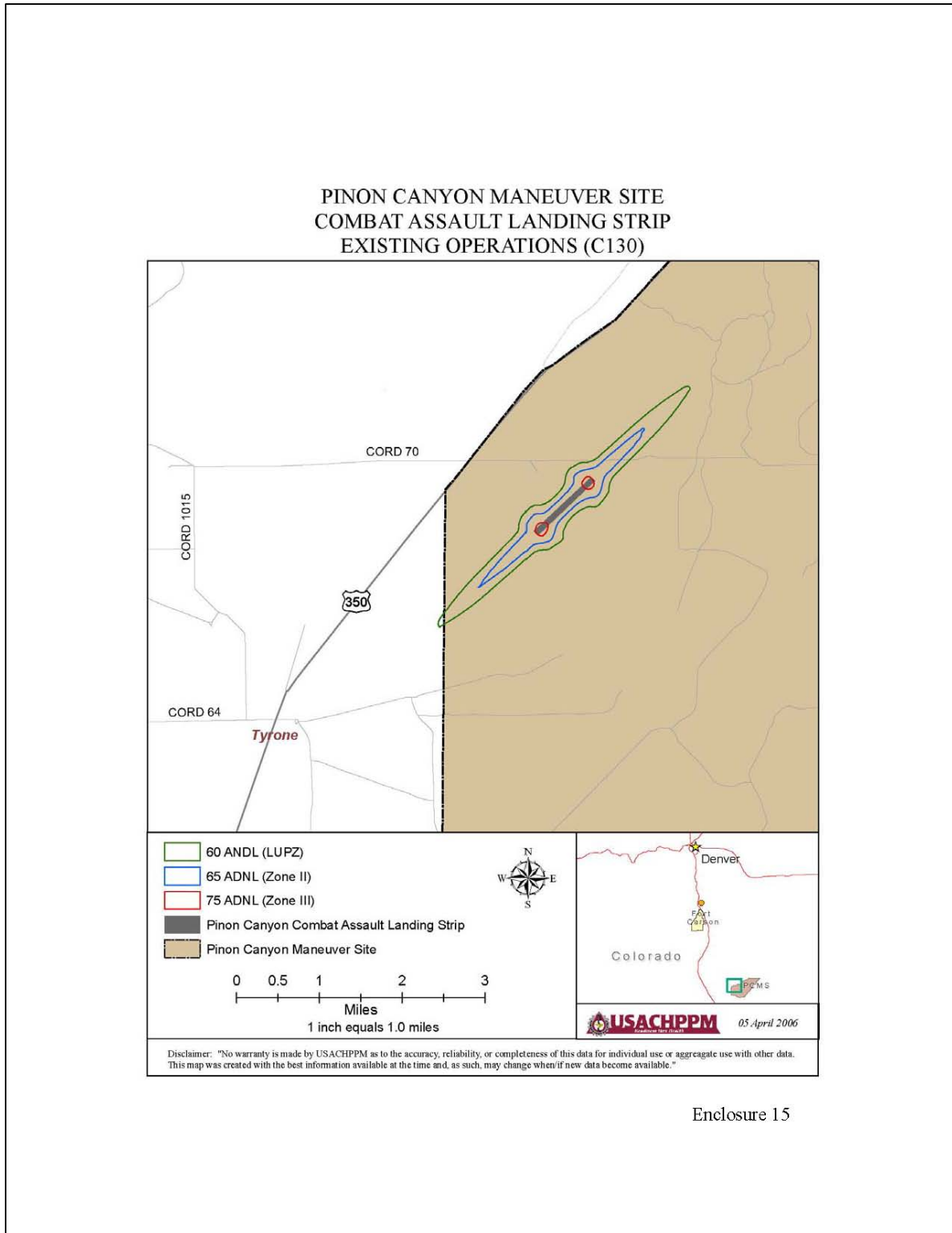


Enclosure 13

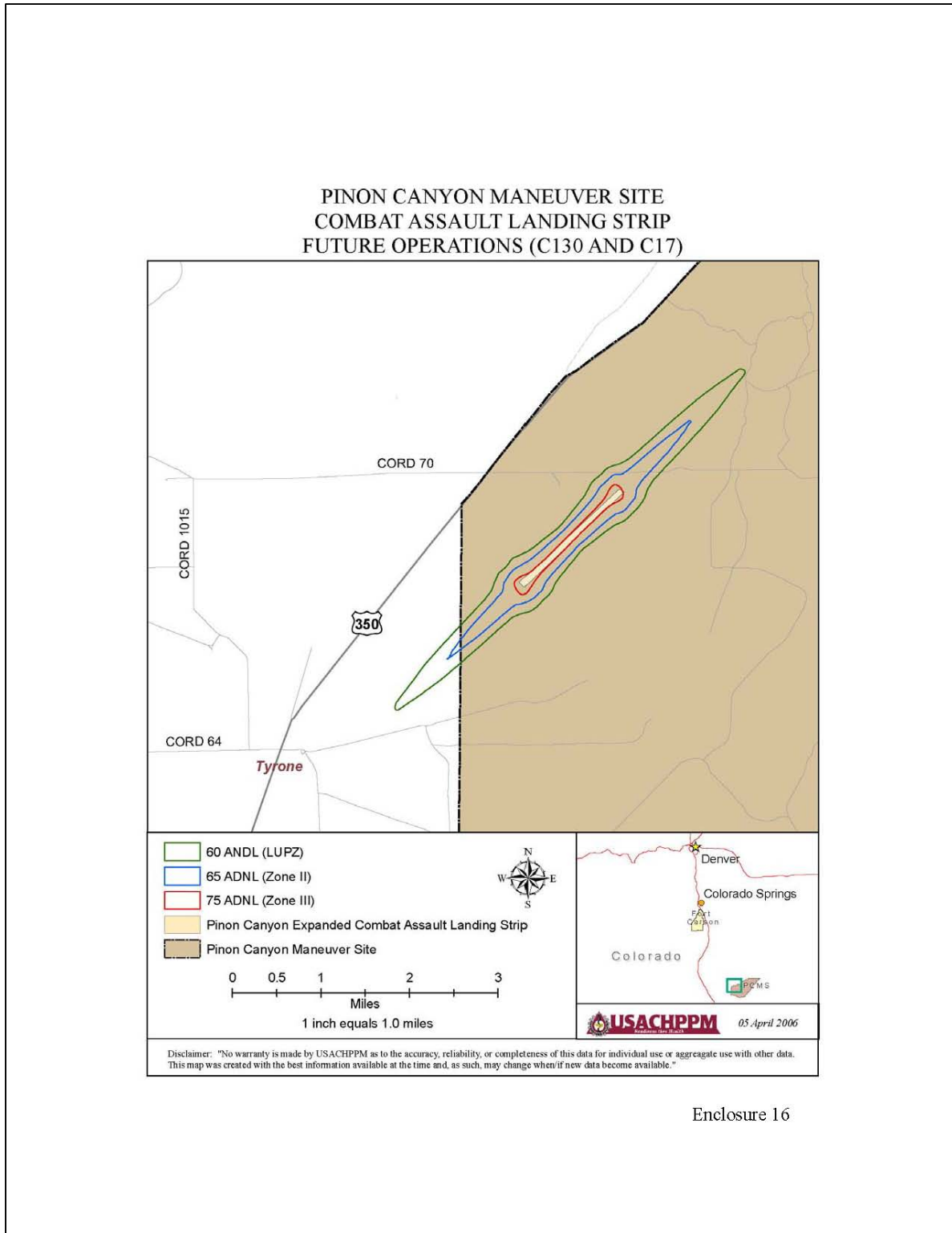
PINON CANYON MANEUVER SITE
SMALL CALIBER NOISE CONTOURS



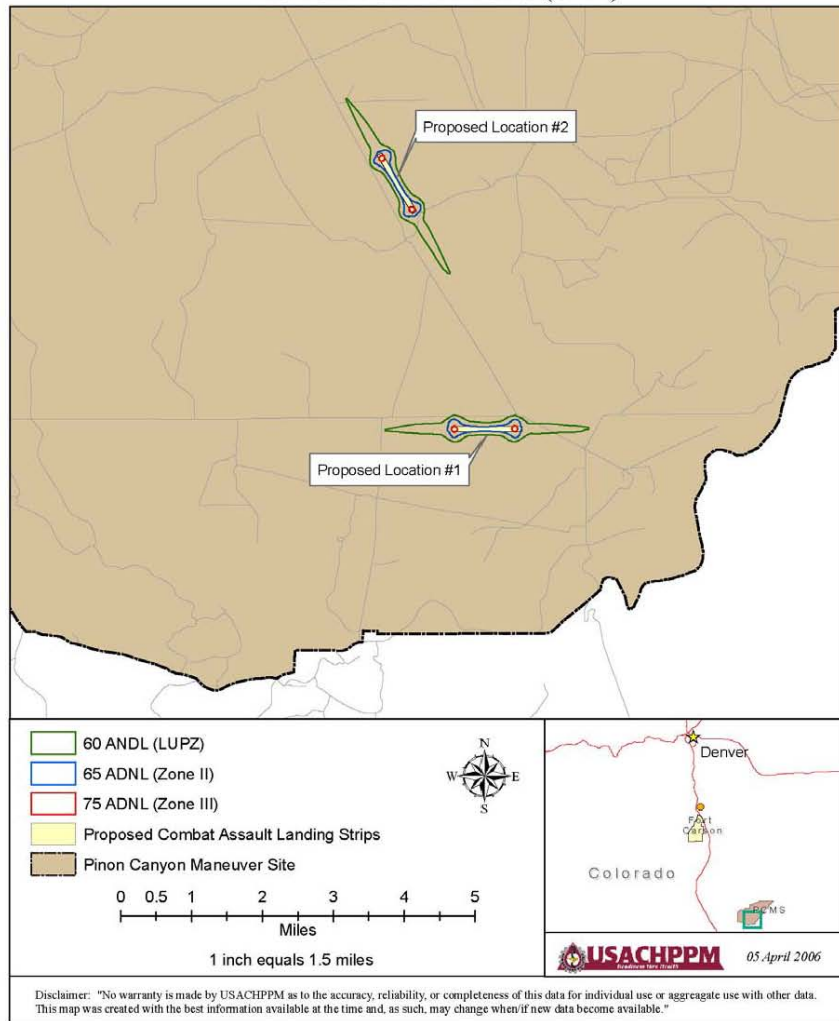
Enclosure 14



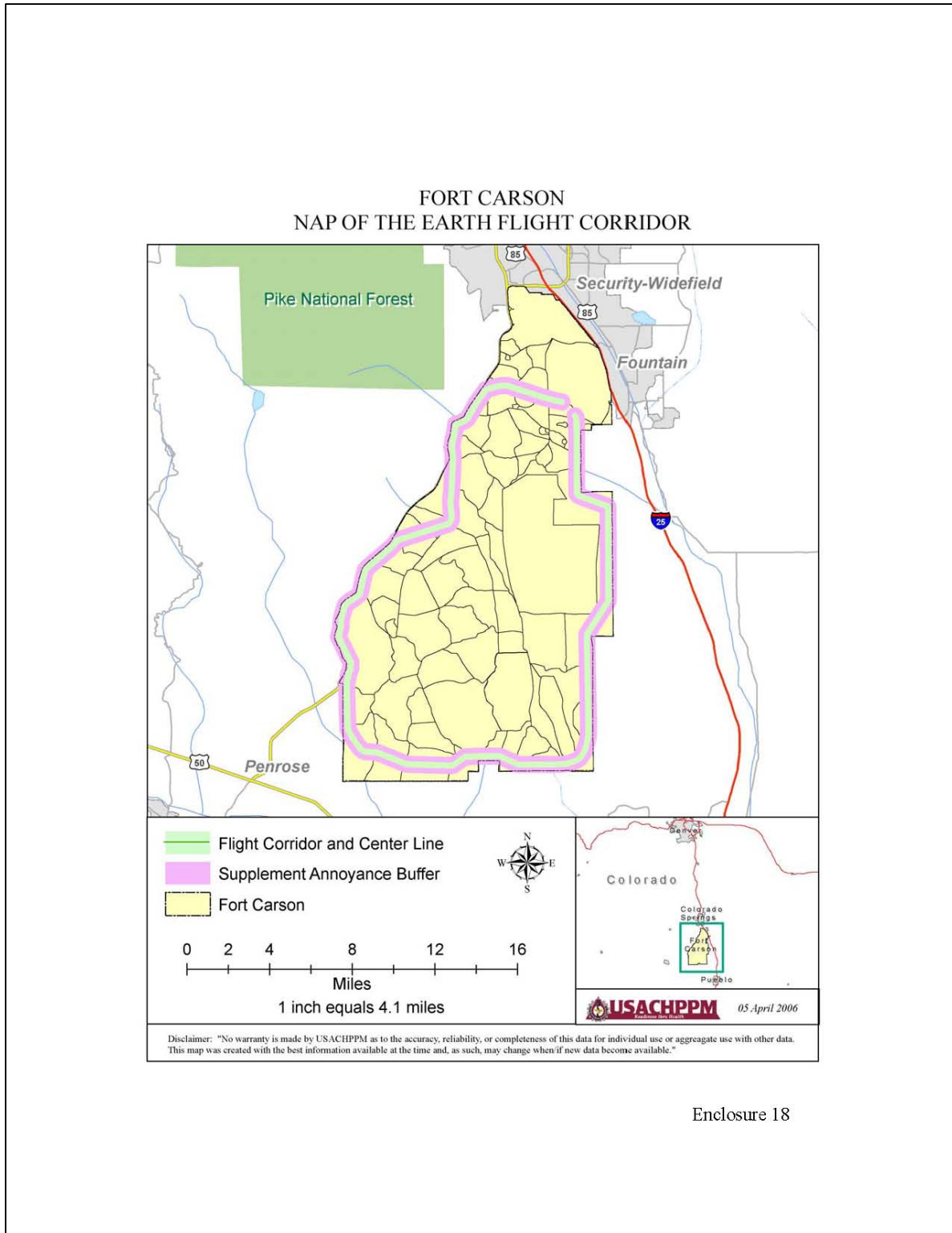
Enclosure 15



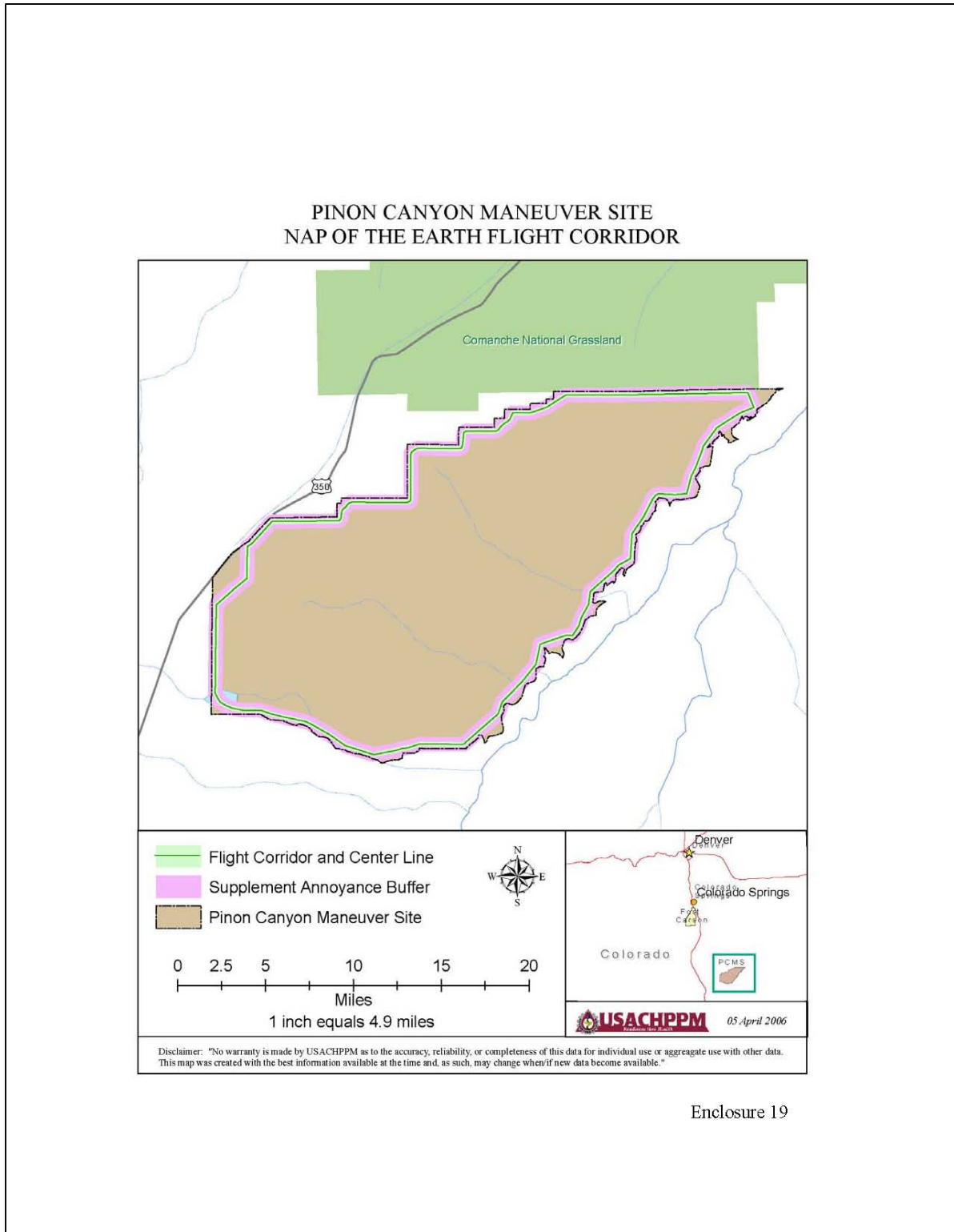
PINON CANYON MANEUVER SITE
PROPOSED COMBAT ASSAULT LANDING STRIPS
FUTURE OPERATIONS (C130)



Enclosure 17



Enclosure 18





DEPARTMENT OF THE ARMY
US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-EON

16 OCT 2008

MEMORANDUM FOR

Environmental Planning Support Branch (SFIM-AEC-TSP/Ms. Alicia Booher), U.S. Army Environmental Command, 5179 Hoadley Road, Aberdeen Proving Ground, MD 21010-5401
Office of the Director (AFZC-ECM/Mr. Tom Warren), Directorate of Environmental Compliance and Management, 1638 Elwell Street, Fort Carson, CO 80913-4356

SUBJECT: Addendum to Operational Noise Consultation 52-ON-046N-06, Operational Noise Contours for Fort Carson, CO, April 2006

1. **REFERENCES.** Enclosure 1 contains the references utilized in this consultation.
2. **AUTHORITY.** The Army Environmental Command, Aberdeen Proving Ground, MD requested and funded this study.
3. **PURPOSE.** To provide the U.S. Army Environmental Command and Fort Carson additional documentation for the potential stationing of a Combat Aviation Brigade (CAB) at Fort Carson under the Grow the Army plan.
4. **GENERAL.**
 - a. This consultation should be used in conjunction with the January 2006 Fort Carson Installation Environmental Noise Management Plan (U.S. Army 2006a) and the April 2006 Operational Noise Consultation (U.S. Army 2006b).
 - b. A CAB includes AH-64, CH-47, OH-58, and UH-60 aircraft. The existing aircraft activity at Fort Carson and Pifion Canyon Maneuver Site (PCMS) include the AH-64, CH-47, and UH-60.
5. **AIRFIELD ACTIVITY.** The addition of a CAB to the exiting Butts Army Airfield (AAF) activity would be acoustically insignificant to the noise contours. Last calendar year, Butts AAF had 19,515 daytime and 9,210 nighttime flights. The estimated yearly CAB activity would be 3,600 daytime and 1,000 nighttime flights.

Readiness thru Health

Addendum to Operational Noise Consultation, No. 52-ON-046N-06, Fort Carson, CO, Apr 06

6. FLIGHT CORRIDORS.

a. Helicopters routinely fly from Fort Carson to PCMS. The area between Fort Carson and PCMS does not have established air corridors. The only restriction is that aircraft must maintain a minimum altitude of 700 feet AGL unless they are operating in a designated low-level or Nap-of-the Earth (NOE) training route.

b. Since the helicopter activity is dispersed over a vast region, the low number of aircraft operations utilizing the airspace will not generate A-weighted day-night average level (ADNL) noise contours of 65 dBA or greater. Yet, there is always the potential for individual aircraft overflights to generate complaints or annoy people when operating nearby.

c. Scandinavian Studies (Rylander 1974 and Rylander 1988) have found that a good predictor of annoyance at airfields with 50 to 200 operations per day is the maximum level of the 3 loudest events. The maximum noise levels for the aircraft utilized in the vicinity of Fort Carson and PCMS are listed in Table 1. These maximum levels are compared with the levels listed in Table 2 to determine the percent of the population that would consider itself highly annoyed. While levels may be lower in the flight corridors with fewer than 50 operations per day, it is a tool in providing some indication of the percent of people who might be annoyed by individual overflights.

TABLE 1. MAXIMUM NOISE LEVELS OF ROTARY WING AIRCRAFT.

Slant Distance (Feet)	Maximum Level, dBA			
	AH-64	CH-47D	OH-58	UH-60
50	102	102	99	100
100	98	98	93	94
200	92	92	87	88
500	83	84	79	80
700	80	81	76	77
1,500	73	74	70	69
2,000	70	71	65	66

Addendum to Operational Noise Consultation, No. 52-ON-046N, Fort Carson, CO, Apr 06

TABLE 2. PERCENTAGE OF POPULATION HIGHLY ANNOYED FROM AIRCRAFT NOISE (Rylander 1974).

Maximum, dBA	Percentage Highly Annoyed
70	5
75	13
80	20
85	28
90	35

d. There is one low-level flight training route, Route Hawk, between Fort Carson and PCMS that is used for NOE training. While utilizing Route Hawk, aircraft avoid all houses, buildings, people, livestock, and moving vehicles by a minimum slant range of ½ nautical miles (0.43 statute miles). Fort Carson may lower the typical altitude flown in Route Hawk from 100 feet above ground level (AGL) to 50 feet AGL. A detailed description of Route Hawk is contained in Enclosure 2.

e. The maximum levels in Table 1 are compared with the levels listed in Table 2 to determine the percent of the population that would consider itself highly annoyed. Based upon these levels, if aircraft in Route Hawk maintain a ½ nautical mile slant distance from buildings, people, livestock, and moving vehicles, the annoyance risk should remain low even if the allowed minimum flight altitude is lowered from 100 to 50 feet AGL within the route.

f. Helicopters flying from Fort Carson to PCMS, outside of Route Hawk, should maintain a slant distance 1,760 feet (0.3 statute miles) from buildings, people, livestock, and moving vehicles to reduce the potential for annoyance.

7. CONCLUSIONS.

a. **LAND USE COMPATIBILITY.** The addition of a CAB at Fort Carson would not create any additional Zone II noise contours at Butts AAF.

b. **ANNOYANCE POTENTIAL.** There is a potential that individual overflights of aircraft utilizing the airspace at Fort Carson and PCMS may cause annoyance to those living nearby. However, the low number of operations, minimum flight altitudes, and stand off distances imposed for NOE operations greatly minimize this potential.

8. RECOMMENDATIONS.

a. Include the information from this consultation in the appropriate National Environmental Policy Act documentation.

Addendum to Operational Noise Consultation, No. 52-ON-046N, Fort Carson, CO, Apr 06

b. Although no Federal Law prohibits the Department of Defense training and testing activities from making noise, the Services have always tried to be good neighbors. Though there are currently few residences exposed to high noise levels, Fort Carson should continue to monitor both the noise environment and any proposed land use changes surrounding the installations.

9. Please contact us if this consultation or any of our services did not meet your needs or expectations.

10. The point of contact is Ms. Kristy Broska or Ms. Catherine Stewart, Operational Noise Program, USACHPPM, at DSN 584-3829, commercial (410) 436-3829, or e-mail: kristy.broska@us.army.mil or catherine.stewart@us.army.mil.

FOR THE COMMANDER:



DONALD F. ARCHIBALD
COL, MS
Director, Environmental Health Engineering

2 Encls
as

Addendum to Operational Noise Consultation, No. 52-ON-046N-06, Fort Carson, CO, Apr 06

REFERENCES

1. U.S. Air Force, 2005, SELCalc2 Noise Model, Wright-Patterson Air Force Base, OH.
2. U.S. Army, 2006a, U.S. Army Center for Health Promotion and Preventive Medicine, Fort Carson Installation Environmental Noise Management Plan, January 2006.
3. U.S. Army, 2006b, U.S. Army Center for Health Promotion and Preventive Medicine, Operational Noise Consultation 52-ON-046N-06, Operational Noise Contours for Fort Carson, CO, April 2006.
4. Rylander, et.al., 1974, "Re-Analysis of Aircraft Noise Annoyance Data Against the dBA Peak Concept," Journal of Sound and Vibration, Volume 36, pages 399 - 406.
5. Rylander and Bjorkman, 1988, "Maximum Noise Levels as Indicators of Biological Effects," Journal of Sound and Vibration, Volume 127, pages 555 - 563.

Enclosure 1

Addendum to Operational Noise Consultation, No. 52-ON-046N-06, Fort Carson, CO, Apr 06

ROUTE HAWK OPERATIONAL DETAILS

1. Route Hawk is established for the purpose of conducting both day and night low-level tactical navigation operations. Route Hawk is 1 mile wide; ½ mile either side of centerline with a floor of 100 feet AGL and a ceiling of 300 feet AGL. For noise abatement, aircraft avoid all houses, buildings, people, livestock, and moving vehicles by a minimum slant range of ½ nautical miles (0.43 statute miles).
2. The figure depicts Route Hawk and is defined by the following check points:
 - a. SP Hawk, River Bridge vicinity EC 15365388
 - b. H-1, Highway Bridge vicinity EC 14544527
 - c. H-2, Railroad Bridge vicinity EC 09734105
 - d. H-3, Highway Bridge vicinity EC 16833383
 - e. H-4, Highway Bridge vicinity EC 14672121
 - f. H-5, I-25 Bridge vicinity EC 23040836
 - g. H-6, Highway T-Intersection vicinity EB 44167713
 - h. H-7, Railroad Bridge vicinity EB 75765310
 - i. H-8, Railroad Bridge vicinity EB 83205877
 - j. H-9, Highway T-Intersection vicinity EB 84299465
 - k. H-10, Road Triangle vicinity EC 71343870
 - l. H-11, Building on Railroad vicinity EC 62745833
 - m. H-12/RP, Railroad Bridge vicinity EC 31626513

Enclosure 2

FIGURE. ROUTE HAWK.

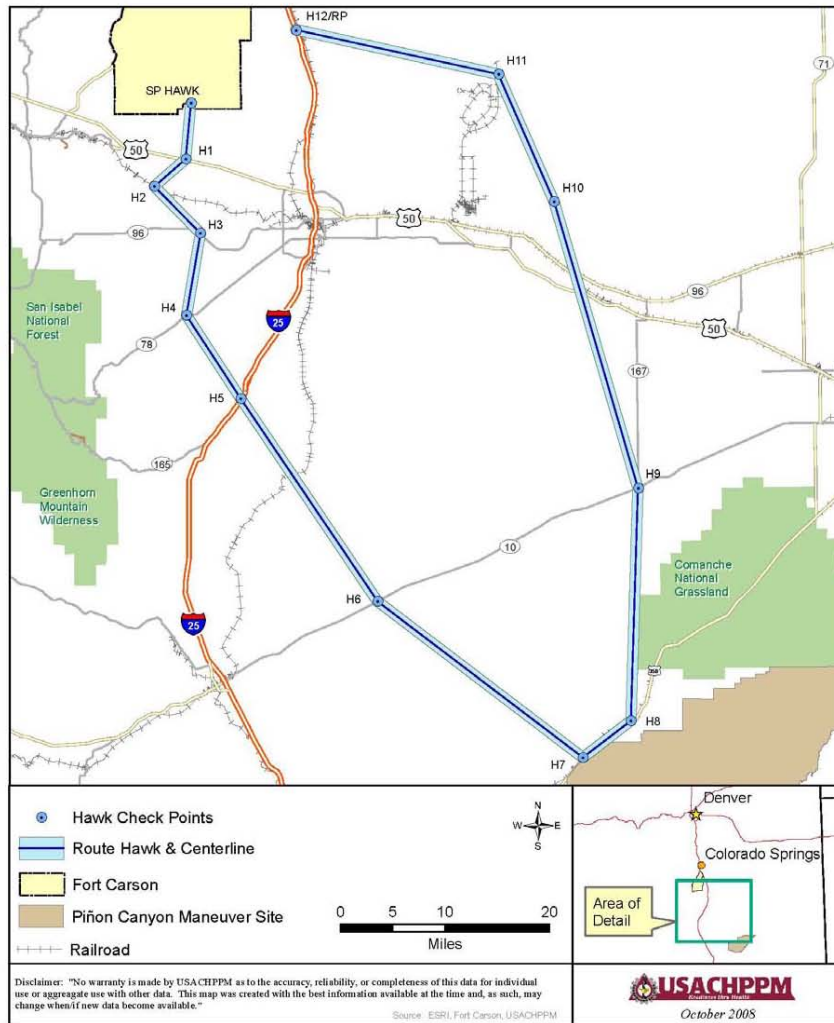



Image 3. JBLM (Fort Lewis) Operational Noise Consultation, 2009

DEPARTMENT OF THE ARMY
US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-EON 04 MAR 2009


MEMORANDUM FOR

Environmental Planning Support Branch (IMAE-TSP/Ms. Alicia Booher), U.S. Army
Environmental Command, 5179 Hoadley Road, Aberdeen Proving Ground, MD 21010-5401
Environmental Division (IMWE-LEW-PWE/Mr. Ian Larson), Directorate of Public Works,
2012 Liggett Avenue, Fort Lewis, WA 98433-9500

SUBJECT: Operational Noise Consultation, No. 52-ON-0BE1-09, Grow the Army Operational
Noise Contours for Fort Lewis, WA, February 2009

1. We are enclosing 2 copies of the consultation.
2. Please contact us if this consultation or any of our services did not meet your needs or expectations.
3. The point of contact is Ms. Kristy Broska, Environmental Protection Specialist or Ms. Catherine Stewart, Program Manager, Operational Noise, USACHPPM, at DSN 584-3829, Commercial (410) 436-3829, or email: kristy.broska@us.army.mil or catherine.stewart@us.army.mil.

FOR THE COMMANDER:


DONALD F. ARCHIBALD
COL, MS
Director, Environmental Health Engineering

Encl

Readiness thru Health

U.S. Army Center for Health Promotion and Preventive Medicine



OPERATIONAL NOISE CONSULTATION
NO. 52-ON-0BE1-09
GROW THE ARMY
OPERATIONAL NOISE CONTOURS
FORT LEWIS, WASHINGTON
FEBRUARY 2009



CHPPM FORM 433-E (MCHP CS-IPD), OCT 03

Distribution authorized to U.S. Government agencies only; protection of privileged information evaluating another command; Feb 09. Other requests for this document shall be referred to Environmental Division (IMWE-LEW-PWE/Mr. Ian Larson), Directorate of Public Works, 2012 Liggett Avenue, Fort Lewis, WA 98433-9500

Preventive Medicine Survey: 40-5fl

Readiness Thru Health

DESTRUCTION NOTICE - Destroy by any method that will prevent disclosure of contents or reconstruction of the document.



DEPARTMENT OF THE ARMY
US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MD 21010-5403

EXECUTIVE SUMMARY
OPERATIONAL NOISE CONSULTATION
NO. 52-ON-0BE1-09
GROW THE ARMY
OPERATIONAL NOISE CONTOURS
FORT LEWIS, WASHINGTON
FEBRUARY 2009

1. **PURPOSE.** To provide Fort Lewis updated noise contours for the appropriate National Environmental Policy Act (NEPA) documentation for realignment under the Grow the Army Plan.

2. **CONCLUSIONS.**

a. The return to a full-up training component of 3 Stryker Brigade Combat Teams could result in an increase in the number of complaints received from residents who were previously unexposed or infrequently exposed to the noise from military training.

b. The additional activity of a Combat Service Support unit, Headquarters Unit, and a Combat Aviation Brigade would not have a perceptible impact upon the noise contours.

c. Although the local conditions at Fort Lewis require noise-sensitive land uses in Noise Zone II, on and off post, this type of land use is strongly discouraged.

3. **RECOMMENDATIONS.**

a. Include the information from this consultation in the appropriate Fort Lewis NEPA documentation.

b. Although no Federal Law prohibits Department of Defense training and testing activities from making noise, the Services have always tried to be good neighbors. Fort Lewis should continue with its Operational Noise Management Program including complaint management and monitoring both the noise environment and any proposed land use changes surrounding the installation as recommended in the Fort Lewis Installation Operational Noise Management Plan (U.S. Army 2005c).

Readiness thru Health

Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA: Feb 09

TABLE OF CONTENTS

Paragraph	Page
1. REFERENCES	1
2. AUTHORITY	1
3. PURPOSE.....	1
4. GENERAL.....	1
5. NOISE CONTOURING PROCEDURES	2
a. Demolition and Large Caliber Operations.....	2
b. Small Caliber Operations	2
c. Aviation Operations.....	2
6. DEMOLITION AND LARGE CALIBER NOISE CONTOUR MODELING RESULTS .	4
a. Demolition and Large Caliber Weapons C-Weighted Day Night Level Noise Contours	4
(1) Contemporary Operating Environment	4
(2) Projected Operating Environment	4
(3) Land Use Compatibility.....	5
(4) Grenade Launcher.....	5
(5) Simulator Activity	5
b. Demolition and Large Caliber Weapons PK15(met) Noise Contours	8
(1) Complaint Risk for the Contemporary Operating Environment.....	8
(2) Complaint Risk for the Projected Operating Environment.....	8
(3) Complaint Risk for the High Mobility Artillery Rocket System (Inert) Firing.....	8
7. SMALL CALIBER NOISE CONTOUR MODELING RESULTS	12
8. AVIATION OPERATIONS NOISE CONTOUR MODELING RESULTS	14
a. Gray Army Airfield A-Weighted Day Night Level Noise Contours.....	14
(1) Contemporary Operating Environment	14
(2) Projected Operating Environment	14

Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

b. Flight Corridors	14
c. Annoyance Potential.....	14
9. CONCLUSIONS.....	17
10. RECOMMENDATIONS.....	17

Appendices

A – References	A-1
B – Glossary of Terms, Acronyms and Abbreviations	B-1
C – Noise Zone Descriptions	C-1
D – Demolition and Large Caliber Weapon Expenditure, Fort Lewis, Washington.....	D-1
E – Small Caliber Range Utilization, Fort Lewis, Washington.....	E-1
F – Aircraft Utilization, Gray Army Airfield, Fort Lewis, Washington.....	F-1

List of Figures

Figure 1 – Fort Lewis Contemporary Operating Environment, Demolition and Large Caliber Operational Noise Contours	6
Figure 2 – Fort Lewis Projected Operating Environment, Demolition and Large Caliber Operational Noise Contours	7
Figure 3 – Fort Lewis Contemporary Operating Environment, Complaint Risk Contours for Demolition and Large Caliber Operations.....	9
Figure 4 – Fort Lewis Projected Operating Environment, Complaint Risk Contours for Demolition and Large Caliber Operations.....	10
Figure 5 – Fort Lewis Complaint Risk Contours for the High Mobility Artillery Rocket System (Inert) Firing.....	11
Figure 6 – Fort Lewis Small Caliber Operational Noise Contours.....	13
Figure 7 – Fort Lewis – Gray Army Airfield, Contemporary Operating Environment Operational Noise Contours	15
Figure 8 – Fort Lewis – Gray Army Airfield, Projected Operating Environment Operational Noise Contours	16

Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

List of Tables

1 – Maximum Noise Levels of Rotary Wing Aircraft	3
2 – Percentage of Populations Highly Annoyed from Aircraft Noise	3
3 – Predicted Peak Noise Levels for Typical Army Simulators	5
4 – Supplemental Buffer to Reduce Annoyance Potential.....	14
C-1 – Land Use Planning Guidelines.....	C-2
C-2 – Complaint Risk Guidelines	C-3
D-1 – Demolition and Large Caliber Weapons: Contemporary Operating Environment	D-2
D-2 – Demolition and Large Caliber Weapons: Projected Operating Environment	D-6
E – Small Caliber Weapons Utilization.....	E-2
F-1 – Gray Army Airfield: Contemporary Operating Environment.....	F-1
F-2 – Gray Army Airfield: Projected Operating Environment.....	F-1

Operational Noise Consultation, No. 52-ON-0BIE-09, Fort Lewis, WA; Feb 09

OPERATIONAL NOISE CONSULTATION
NO. 52-ON-0BE1-09
GROW THE ARMY
OPERATIONAL NOISE CONTOURS
FORT LEWIS, WASHINGTON
FEBRUARY 2009

1. REFERENCES. A list of the references used in this consultation is in Appendix A. A glossary of terms and abbreviations used are in Appendix B.
2. AUTHORITY. The Army Environmental Command, Aberdeen Proving Ground, MD funded this consultation.
3. PURPOSE. To provide Fort Lewis updated noise contours for the appropriate National Environmental Policy Act (NEPA) documentation for realignment under the Grow the Army Plan.
4. GENERAL. This consultation addresses the contemporary and projected operating environments at Fort Lewis.
 - a. The contemporary operating environment was based upon the activity utilized between December 2007 and November 2008. The operations include all of the units at Fort Lewis; including a Stryker Brigade Combat Team (SBCT), the Army Reserve, and Army National Guard.
 - b. The projected operating environment includes:
 - (1) Projected Operating Environment Scenario 1. Fort Lewis has 3 SBCTs assigned; however, only 1 SBCT has been at Fort Lewis in a full-up training mode at a time due to deployments. Scenario 1 reflects the contemporary operating environment with the full-up training mode of three SBCTs.
 - (2) Projected Operating Environment Scenario 2. Fort Lewis is programmed to receive a 1,000 soldier Combat Service Support (CSS) unit and a 1,900 soldier Headquarters (HQ) Unit. The additional weapons activity of the CSS and HQ unit would consist of small caliber (.50 caliber and below) operations only.
 - (3) Projected Operating Environment Scenario 3. Fort Lewis may also receive a Combat Aviation Brigade (CAB). The additional weapons activity of the CAB unit would consist of small caliber (.50 caliber and below) operations only. The stationing of a CAB would increase the rotary wing aircraft stationed at Gray Army Airfield (AAF).

Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

c. Appendix C contains the Noise Zone Descriptions and Land Use Guidelines used in this consultation.

5. NOISE CONTOURING PROCEDURES.

a. DEMOLITION AND LARGE CALIBER OPERATIONS.

(1) The noise simulation program used to assess demolition and large caliber weapons (20mm and greater) noise is the Blast Noise Impact Assessment (BNOISE2) program (U.S. Army 2003a). The BNOISE2 program requires operational data concerning the types of weapons fired from each range or firing point (including demolitions), the number and types of ammunition fired from each weapon, the location of targets for each range or firing point, and the amount of propellant used to reach the target. Existing records on range utilization along with reasonable assumptions are used as BNOISE2 inputs. The assessment period used to create the Fort Lewis C-weighted Day-Night average sound Level (CDNL) contours was 250 days.

(2) The inputs used to generate the demolition and large caliber noise contours for this consultation were created using the data summarized in Appendix D.

b. SMALL CALIBER OPERATIONS.

(1) The noise simulation program used to assess small caliber weapons (.50 caliber and below) noise is the Small Arms Range Noise Assessment Model (SARNAM) (U.S. Army 2003b). The SARNAM program requires operational data concerning types of weapons.

(2) The inputs used to generate the small caliber noise contours for this report were created using the data summarized in Appendix E. Due to the interior location of most of the small caliber ranges, only those ranges that could have an impact on the cantonment area or the civilian community were analyzed.

c. AVIATION OPERATIONS.

(1) AIRFIELD ACTIVITY.

(a) The noise simulation program used to assess aircraft noise is NoiseMap/Baseops (U.S. Air Force 2005a). The NoiseMap/Baseops program requires operational data concerning type of aircraft, altitude, flight tracks, and number of operations. The metric used to create the airfield noise contours is the A-weighted Day-Night average Level (ADNL). The ADNL is based upon a daily average.

(b) The inputs used to generate the airfield activity noise contours for Gray AAF were created using the data summarized in Appendix G.

Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

(2) FLIGHT CORRIDORS.

(a) The low number of aircraft operations utilizing the flight corridors/routes will not generate ADNL noise contours. Yet, there is the potential for aircraft to cause annoyance leading to noise complaints while entering/exiting the airspace.

(b) Scandinavian Studies (Rylander 1974 and Rylander 1988) have found that a good predictor of annoyance at airfields with 50 to 200 operations per day is the maximum level of the 3 loudest events. The maximum noise levels for the aircraft utilized in the flight corridors are listed in Table 1. These maximum levels are compared with the levels listed in Table 2 to determine the percent of the population that would consider itself highly annoyed. While levels may be lower in the flight corridors with fewer than 50 operations per day, it is a tool in providing some indication of the percent of people who might be annoyed.

TABLE 1. MAXIMUM NOISE LEVELS OF ROTARY WING AIRCRAFT.

Slant Distance (feet)	Maximum Level, dBA			
	AH-64	CH-47	OH-58	UH-60
100	98	98	93	94
200	92	92	87	88
500	83	84	79	80
1,000	77	78	72	73
1,500	73	74	68	69
2,000	70	71	65	66
2,500	67	68	62	63

TABLE 2. PERCENTAGE OF POPULATION HIGHLY ANNOYED FROM AIRCRAFT NOISE. (Rylander 1974)

Maximum, dBA	Percentage Highly Annoyed
70	5
75	13
80	20
85	28
90	35

(c) Flight corridors vary in width depending upon the type of aircraft and type of activity. Generally, the aircraft fly the centerline of the flight corridor, but at times may fly anywhere within the corridor. Thus, to account for possible annoyance, the area of possible noise impact must be expanded based on the actual aircraft location within the corridor. For example, if a flight corridor is 1 mile in width for an AH-64 at 500 feet above ground level (AGL), to account for variation in aircraft location, a buffer should be delineated that would account for activity

Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

anywhere within the corridor, not just along the centerline. The SELCalc2 Program (U.S. Air Force 2005b) was used to calculate how far from the outer edges of the flight corridor the maximum A-weighted (dBA) noise level would be above 70, based on the altitude, ground track distance, and slant distance of the aircraft. Based on these results, a buffer area of 1/3 mile was added to each side of the corridor. This gives an adequate buffer to reduce possible annoyance. Appendix G contains a graphic description of AGL, ground track, and slant distance.

6. DEMOLITION AND LARGE CALIBER NOISE CONTOUR MODELING RESULTS.

a. DEMOLITION AND LARGE CALIBER WEAPONS CDNL NOISE CONTOURS.

(1) Contemporary Operating Environment.

(a) Figure 1 contains the demolition and large caliber weapons contours for the Contemporary Operating Environment at Fort Lewis. These contours were developed using the Contemporary Operating Environment table (Table D-1) in Appendix D.

(b) The Land Use Planning Zone (LUPZ) 57 decibel (dB) CDNL extends approximately 4,500 meters beyond the western boundary, towards the town of Lacey; approximately 1,500 meters into the DuPont area; approximately 4,000 meters beyond the southern boundary, encompassing the towns of North Yelm and Yelm; and approximately 5,500 meters beyond the southeastern boundary. The Noise Zone II (62 dB CDNL) extends beyond the western boundary approximately 1,000 meters encompassing the Nisqually Indian Community; less than 500 meters beyond the southern boundary, into North Yelm; and beyond the southeastern boundary 2,000 meters, encompassing the town of Roy. The Noise Zone III (70 dB CDNL) contour extends beyond the western boundary less 500 meters into the Nisqually Indian Community and approximately 200 meters beyond the southeastern boundary near the town of Roy.

(2) Projected Operating Environment. Under the Projected Scenarios 2 and 3, there was no difference between the projected ammunition expenditure or operational data for large caliber and demolition activity. Therefore, only one contour is presented in this consultation for the Projected Operating Environment.

(a) Figure 2 contains the demolition and large caliber weapons contours for the Projected Operating Environment (Scenario 1) at Fort Lewis. These contours were developed using the Projected Operating Environment table (Table E-2) in Appendix D.

(b) The LUPZ (57 dB CDNL) extends approximately 7,000 meters beyond the boundary in most directions. The Noise Zone II (62 dB CDNL) extends beyond the western boundary approximately 2,000 meters encompassing the Nisqually Indian Community; less than 1,500 meters beyond the southern boundary, into Yelm; and beyond the southeastern boundary 3,000 meters, encompassing the town of Roy. The Noise Zone III (70 dB CDNL) contour extends

beyond the western boundary approximately 1,000 meters into the Nisqually Indian Community and approximately 400 meters beyond the southeastern boundary near the town of Roy. The increased size is driven by the full-up training mode of 3 SBCTs. The increased size is a cumulative effect and is not driven by one particular weapon or activity.

(3) Land Use Compatibility. Current land use in the Zone II area consists of residential, scattered residential, and undeveloped areas. The lands in the Zone III areas are undeveloped. Although the local conditions at Fort Lewis require noise-sensitive land uses in Noise Zone II, on and off post, this type of land use is strongly discouraged in Army Regulation 200-1 (AR 200-1) (U.S. Army 2007). Noise-sensitive land uses are acceptable within the LUPZ and the Noise Zone I, normally not recommend in Noise Zone II, and not recommended in Noise Zone III.

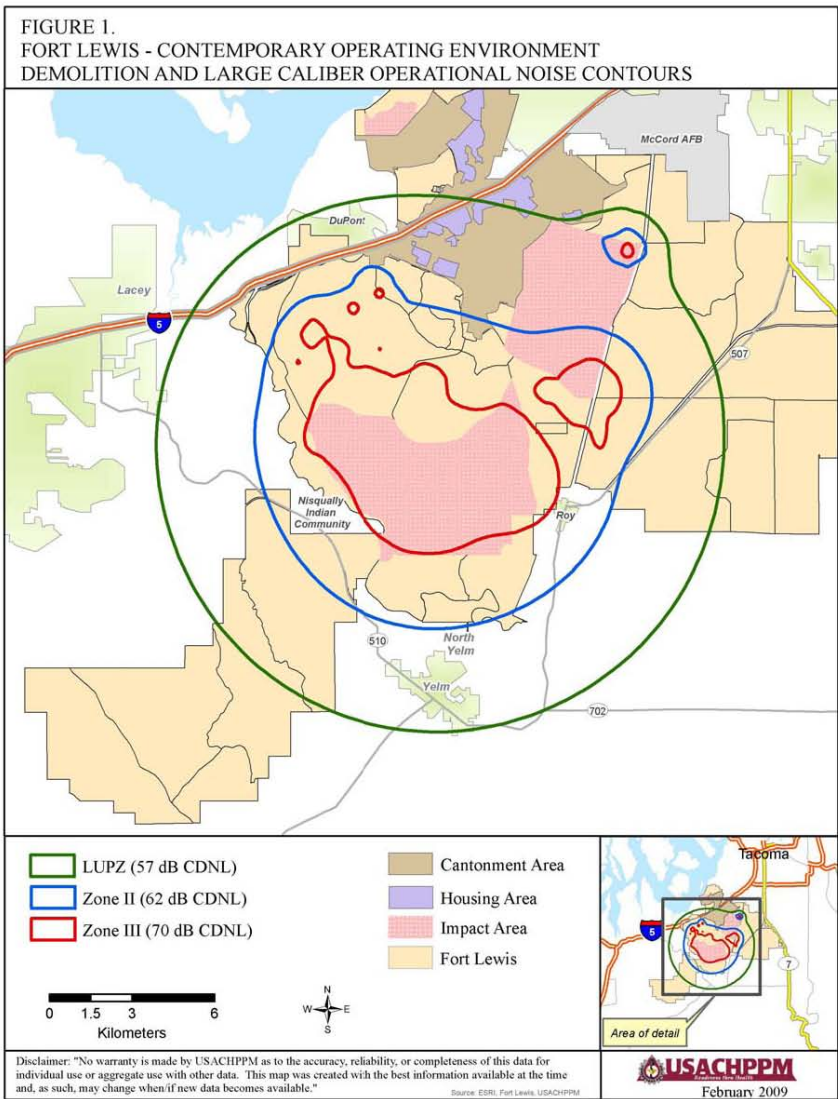
(4) Grenade Launchers. The Inert 40mm grenade activity is not included in the noise contours. The launch noise of a 40mm grenade launcher is relatively low. Additionally, the other large caliber activity occurring overpowers the launch noise of the grenade launchers.

(5) Simulator Activity. Simulator noise levels will vary depending on the type (i.e. artillery, ground burst, and grenade) but typically the variation will be limited to a few decibels. Due to the nature of simulator activity occurring in a training area, the activity was not included in the noises contours unless it occurred at a fixed firing point or range. For simulator activity occurring at a non-fixed location, Table 3 gives an approximation of noise levels that would be anticipated under average weather conditions and under weather conditions that favor sound propagation. Based on the levels below, it can be inferred that under average weather conditions, the risk of complaints will be low beyond 500 meters. Under bad weather conditions, such as during a temperature inversion, or when there is a strong wind blowing in the direction of the receiver, the distance increases to approximately 800 meters.

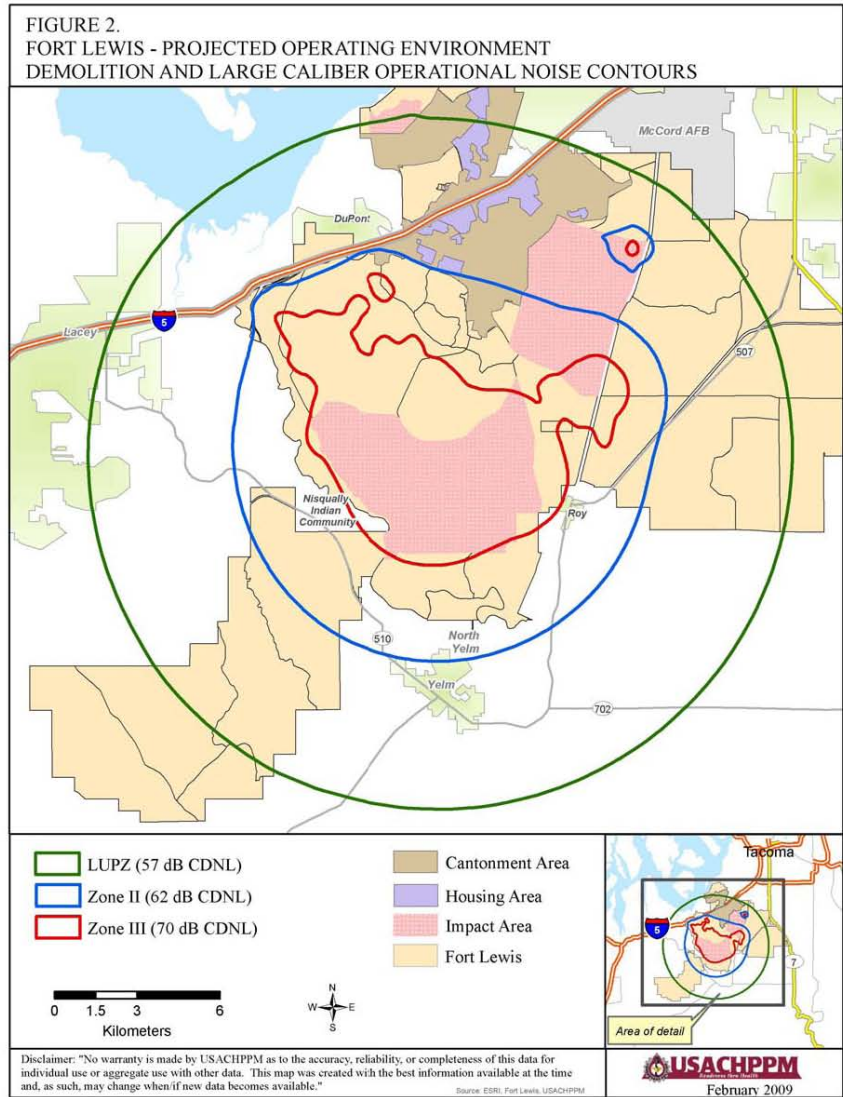
TABLE 3. PREDICTED PEAK NOISE LEVELS FOR TYPICAL ARMY SIMULATORS.

Distance from source (meters)	Average Weather Conditions (PK50(met))	Bad Weather Conditions (Pk15(met))
200	125	130
300	120	127
400	117	123
500	114	121
600	111	118
700	109	116
800	107	114

Operational Noise Consultation, No. 52-ON-0B1E-09, Fort Lewis, WA; Feb 09



Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09



Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

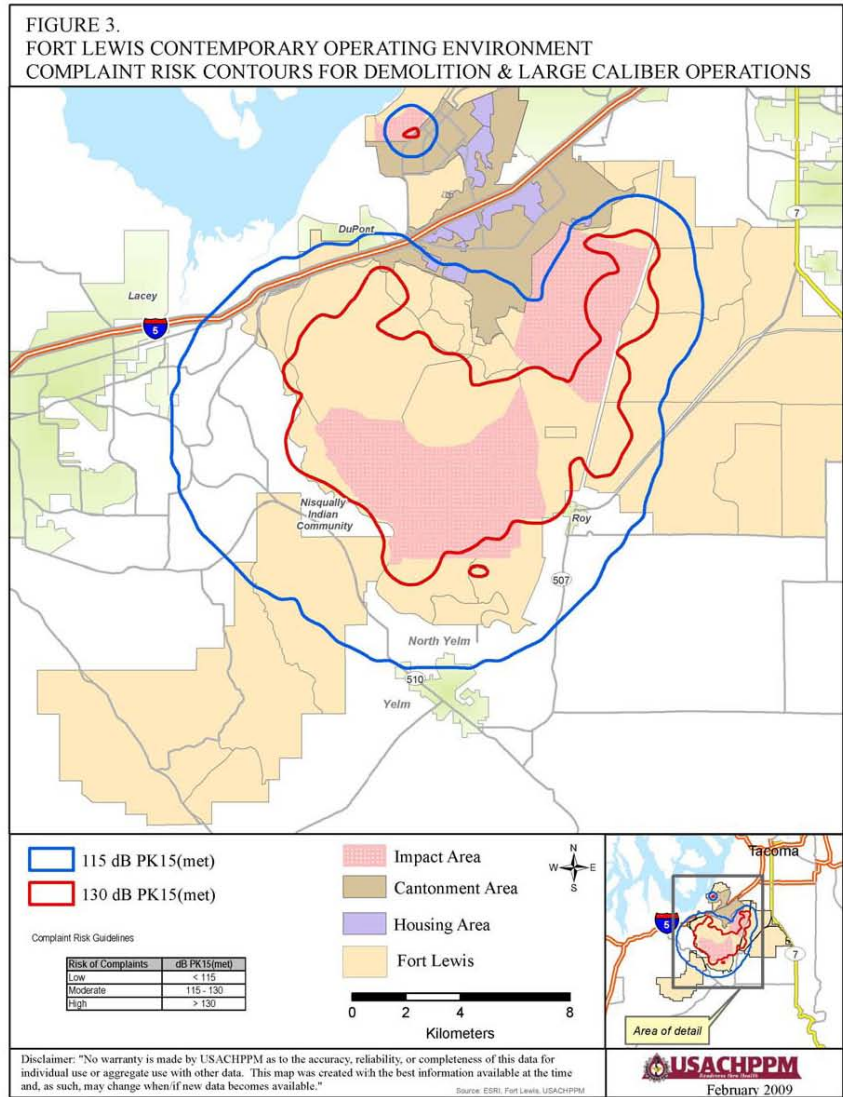
b. **DEMOLITION AND LARGE CALIBER WEAPONS PK15(met) NOISE CONTOURS.** To predict the risk of complaints for demolition and large caliber weapon operations, PK15(met) contours were developed. Appendix C contains the complaint risk guidelines.

(1) Complaint Risk for the Contemporary Operating Environment. Figure 3 contains the complaint risk contours for the demolition and large caliber weapons for the contemporary operating environment at Fort Lewis. The moderate complaint risk contour (PK15(met) 115 dB) extends beyond much of the boundary. The high complaint risk contour (PK15(met) 130 dB) extends beyond the boundary into the Nisqually Indian Community and near the town of Roy.

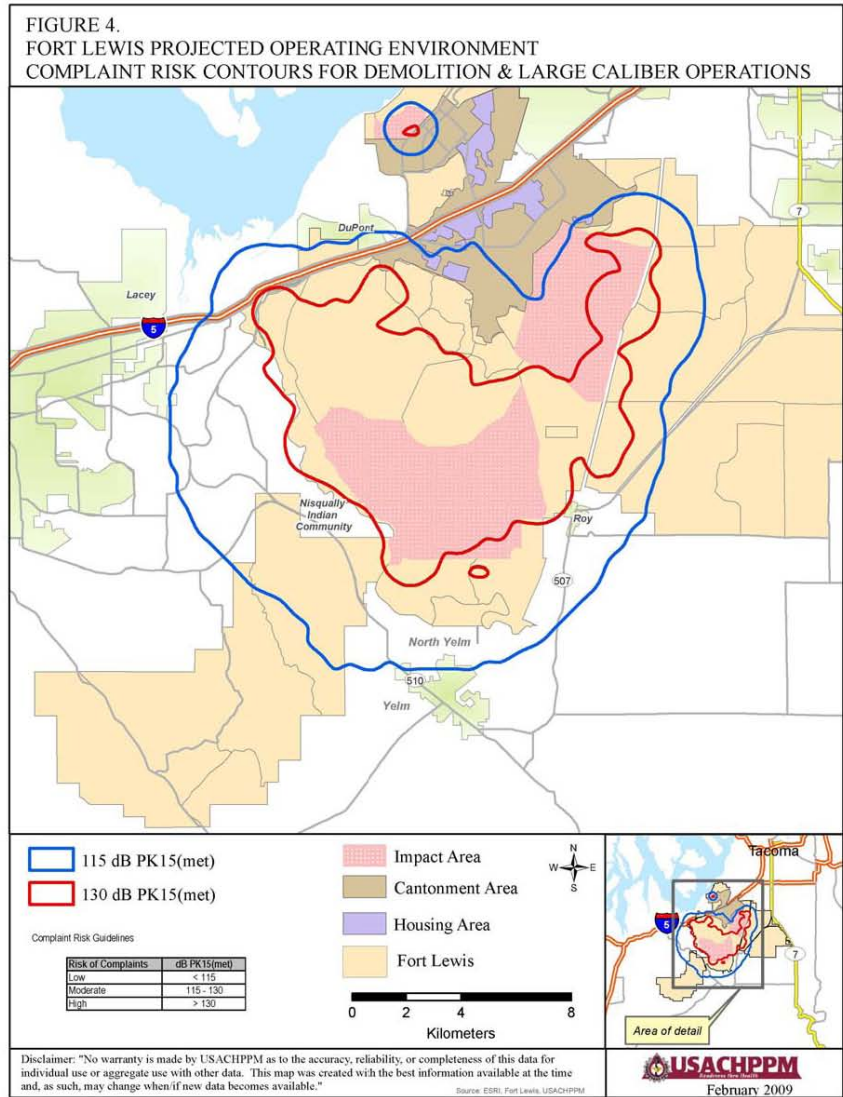
(2) Complaint Risk for the Projected Operating Environment. Figure 4 contains the complaint risk contours for the demolition and large caliber weapons for the projected operating environment, including the High Mobility Artillery Rocket System (HIMARS) firing. The weapon and ammunition types utilized are identical between the contemporary and projected operating environments except for the addition of the HIMARS. The HIMARS firing increased the area of complaint risk contours near the firing point.

(3) Complaint Risk for the Projected HIMARS Firing. Figure 5 contains the complaint risk contours for the projected HIMARS firing. The moderate complaint risk contour (PK15(met) 115 dB) extends beyond the Fort Lewis boundary. The high complaint risk contour (PK15(met) 130 dB) extends beyond the western boundary approximately 500 meters.

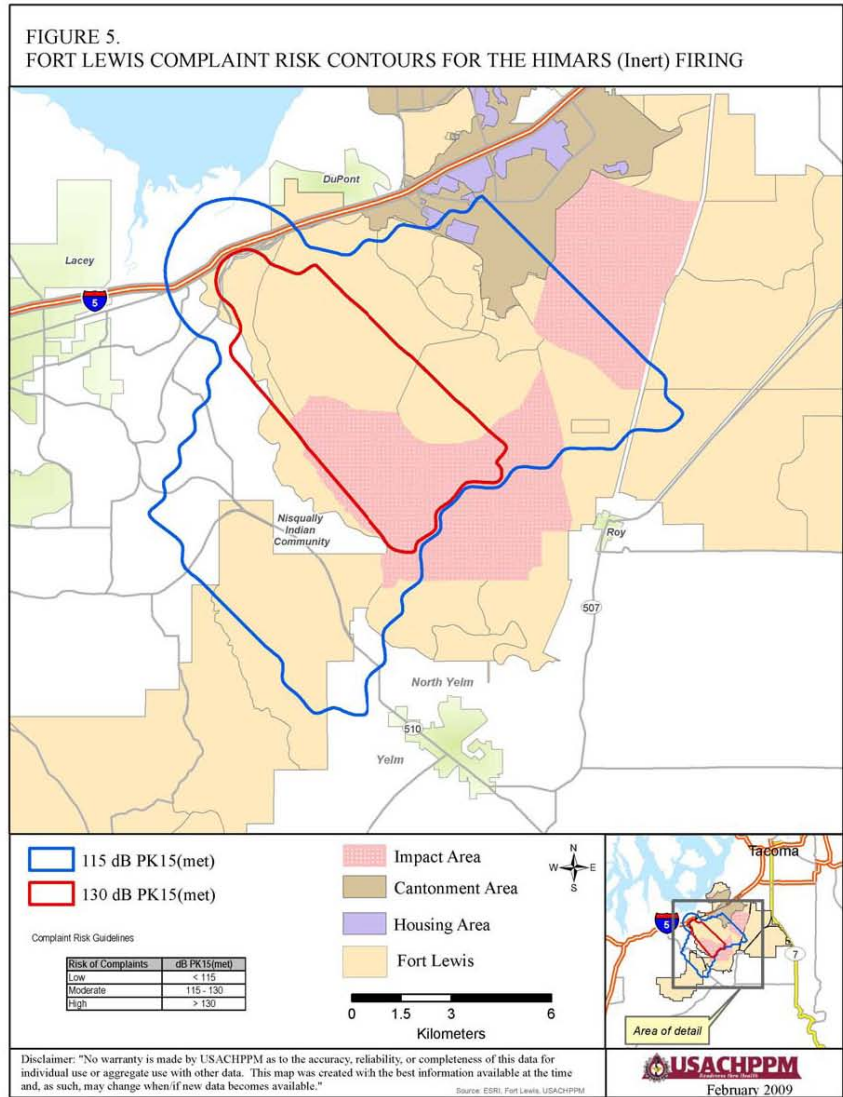
Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09



Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09



Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09



Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

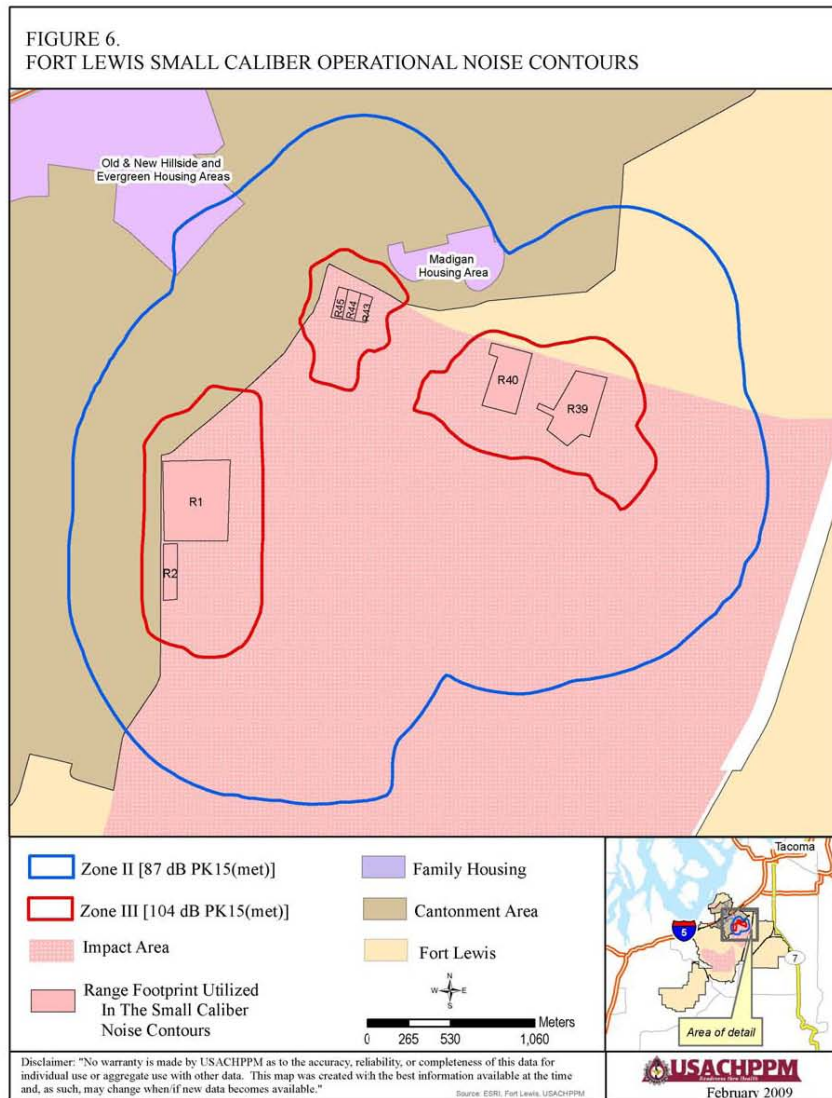
7. SMALL CALIBER WEAPONS NOISE CONTOURS MODELING RESULTS.

a. The contours for small arms operations at Fort Lewis were created using PK15(met) as prescribed in AR 200-1 (U.S. Army 2007). The contours show the predicted peak levels for individual rounds (metric term is PK15(met)). Since the contours are based on peak levels rather than a cumulative or average level, the size of the contours will not change if the number of rounds fired increases. Therefore, it was only necessary to develop one small arms noise contour. The noise contours were created using the data from the table in Appendix F.

b. The noise contours for small arms operations near the Fort Lewis cantonment area are shown in Figure 6. The Zone II [PK15(met) 87 dB] noise contour extends into the Evergreen, Hillside, and Madigan housing areas. The Zone III [PK15(met) 104 dB] noise contours do not extend into the housing areas.

c. Although the local conditions at Fort Lewis require noise-sensitive land uses in Noise Zone II, on post, this type of land use is strongly discouraged in AR 200-1 (U.S. Army 2007). Noise-sensitive land uses are acceptable within the LUPZ and the Noise Zone I, normally not recommend in Noise Zone II, and not recommended in Noise Zone III. However, if the community determines that land in Noise Zone II (attributable to small arms) areas must be used for residential purposes, then the noise level reduction (NLR) features of 25 to 30 dB should be incorporated into the design and construction of new buildings to mitigate interior noise levels. Normal construction can be expected to provide a NLR of 20 dB.

FIGURE 6.
FORT LEWIS SMALL CALIBER OPERATIONAL NOISE CONTOURS



Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

8. AVIATION NOISE CONTOURS MODELING RESULTS.

a. GRAY AAF ADNL NOISE CONTOURS.

(1) CONTEMPORARY OPERATING ENVIRONMENT. The noise contours for the airfield in the Contemporary Operating Environment are shown in Figure 7. These contours were developed using Table F-1 in Appendix F. The LUPZ (60 ADNL) and Zone II (65 ADNL) noise contours do not extend into the family housing areas or beyond the installation boundary. The low number of operations does not produce a Zone III (75 ADNL) noise contour.

(2) PROJECTED OPERATING ENVIRONMENT. The noise contours for the airfields in the projected operating environment are shown in Figure 8. These contours were developed using Table F-2 in Appendix F. The additional airfield activity reflects the possibility of fielding a CAB. Due to the small increase in operations, the projected operating noise contours are indistinguishable from the contemporary operating contours.

b. FLIGHT CORRIDORS.

(1) The Fort Lewis flight corridor generally follows the installation boundary avoiding areas that are off limits to aviation or that have altitude restrictions. There may be multiple aircraft or multiple types of aircraft in the corridor at one time. Since the buffers are based on maximum levels, the number of aircraft in the corridor at one time does not affect the size of the annoyance potential buffer.

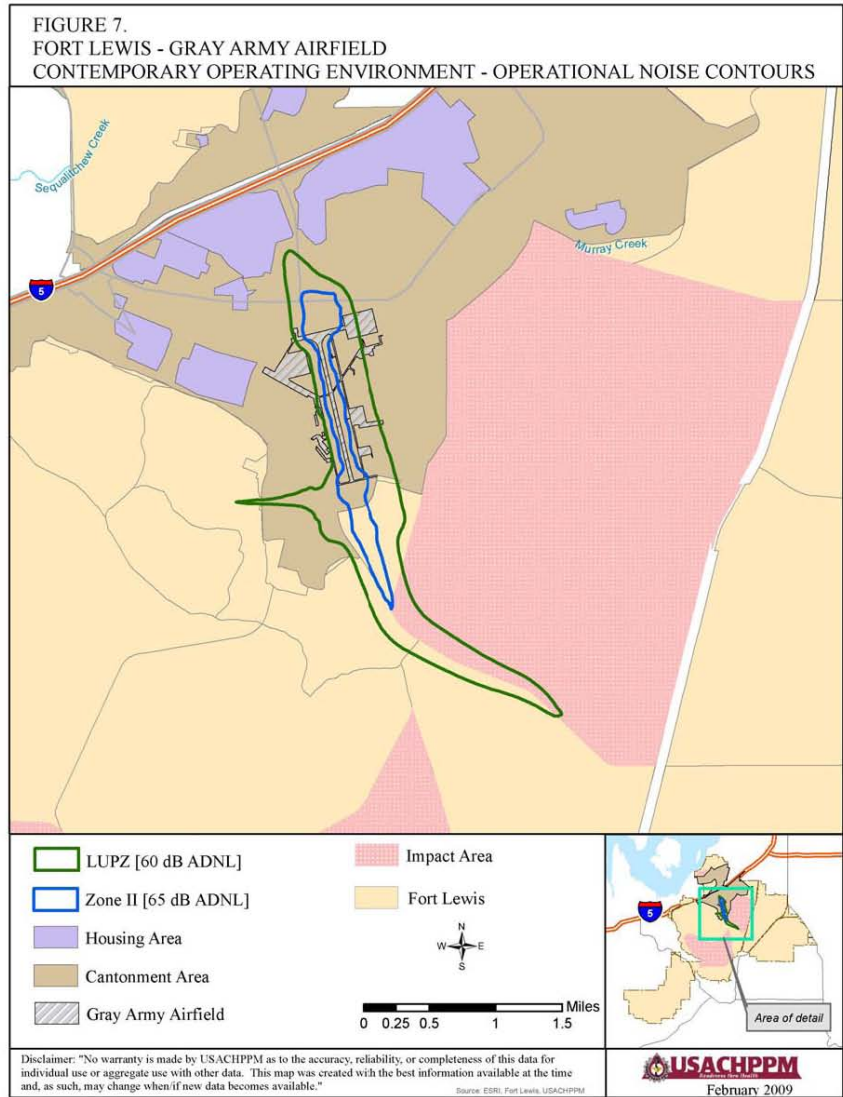
(2) The supplemental buffer width is based upon achieving maximum values of 70 dBA and/or a 5 percent complaint risk or more at the receiver. The distance in Table 4 is added to the flight corridor width to account for annoyance created by activity taking place at the edge of the flight corridors. The supplemental buffers *can not* account for any terrain features.

TABLE 4. SUPPLEMENTAL BUFFER TO REDUCE ANNOYANCE POTENTIAL.

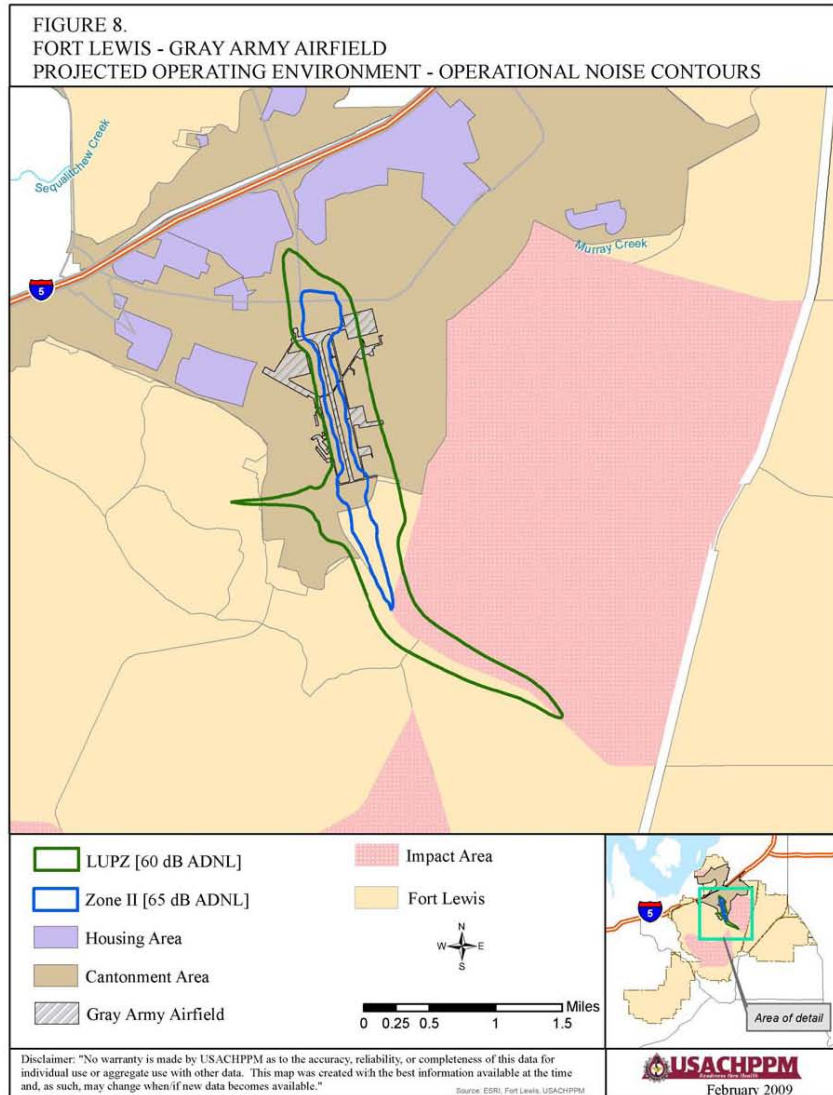
Aircraft Type	Supplemental Buffer Width to Flight Corridor 2,000 feet AGL and below
AH-64	1/3 Mile
CH-47	1/3 Mile
OH-58	1/4 Mile
UH-60	1/4 Mile

c. ANNOYANCE POTENTIAL. There is the potential for aircraft utilizing the Fort Lewis airspace to cause annoyance.

Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09



Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09



Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

9. CONCLUSIONS.

- a. The return to a full-up training component of 3 SBCTs could result in an increase in the number of complaints received from residents who were previously unexposed or infrequently exposed to the noise from military training.
- b. The additional activity of the CSS, HQ, and/or CAB would not have a perceptible impact upon the noise contours.
- c. Although the local conditions at Fort Lewis require noise-sensitive land uses in Noise Zone II, on and off post, this type of land use is strongly discouraged.

10. RECOMMENDATIONS.

- a. Include the information from this consultation in the appropriate Fort Lewis NEPA documentation.
- b. Although no Federal Law prohibits the Department of Defense training and testing activities from making noise, the Services have always tried to be good neighbors. Fort Lewis should continue with its Operational Noise Management Program including complaint management, and monitoring both the noise environment and any proposed land use changes surrounding the installation as recommended in the Fort Lewis Installation Operational Noise Management Plan (U.S. Army 2005c).



KRISTY BROSKA
Environmental Protection Specialist
Operational Noise

APPROVED:



CATHERINE STEWART
Program Manager
Operational Noise

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

APPENDIX A

REFERENCES

1. U.S. Air Force, 2005a, NOISEMAP/BASEOPS, Wright-Patterson Air Force Base, OH.
2. U.S. Air Force, 2005b, SELcalc Noise Model, Wright-Patterson Air Force Base, OH.
3. U.S. Army, 2003a, U.S. Army Construction Engineering Research Laboratories, BNOISE2 Computer Model, Version 1.3.2003-07-03.
4. U.S. Army, 2003b, U.S. Army Construction Engineering Research Laboratories, SARNAM Computer Model, Version 2.6.2003-06-06.
5. U.S. Army, 2005c, U.S. Army Center for Health Promotion and Preventive Medicine, Fort Lewis Installation Operational Noise Management Plan, September 2005.
6. U.S. Army, 2007, Army Regulation 200-1, Environmental Protection and Enhancement, Chapter 14 Operational Noise.
7. Rylander, et.al., 1974, "Re-Analysis of Aircraft Noise Annoyance Data Against the dBA Peak Concept," *Journal of Sound and Vibration*, Volume 36, pages 399 - 406.
8. Rylander and Bjorkman, 1988, "Maximum Noise Levels as Indicators of Biological Effects," *Journal of Sound and Vibration*, Volume 127, pages 555 - 563.

A-1

B-63

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

APPENDIX B

GLOSSARY OF TERMS, ACRONYMS & ABBREVIATIONS

B-1. GLOSSARY OF TERMS.

Above Ground Level – distance of the aircraft above the ground.

A-Weighted Sound Level - The ear does not respond equally to sounds of all frequencies, but is less efficient at low and high frequencies than it is at medium or speech range frequencies. Thus, to obtain a single number representing the sound pressure level of a noise containing a wide range of frequencies in a manner approximating the response of the ear, it is necessary to reduce, or weight, the effects of the low and high frequencies with respect to the medium frequencies. Thus, the low and high frequencies are de-emphasized with the A-weighting.

The A-scale sound level is a quantity, in decibels, read from a standard sound-level meter with A-weighting circuitry. The A-scale weighting discriminates against the lower frequencies according to a relationship approximating the auditory sensitivity of the human ear. The A-scale sound level measures approximately the relative "noisiness" or "annoyance" of many common sounds.

Average Sound Level - the mean-squared sound exposure level of all events occurring in a stated time interval, plus ten times the common logarithm of the quotient formed by the number of events in the time interval, divided by the duration of the time interval in seconds.

C-Weighted Sound Level - a quantity, in decibels, read from a standard sound level meter with C-weighting circuitry. The C-scale incorporates slight de-emphasis of the low and high portion of the audible frequency spectrum.

Day-Night Average Sound Level (DNL) - the 24-hour average frequency-weighted sound level, in decibels, from midnight to midnight, obtained after addition of 10 decibels to sound levels in the night from midnight up to 7 a.m. and from 10 p.m. to midnight (0000 up to 0700 and 2200 up to 2400 hours).

Decibels (dB) – a logarithmic sound pressure unit of measure.

Ground Track Distance – the distance between the receiver and the point on the Earth at which the aircraft is directly overhead.

Land Use Planning Zone (LUPZ) - DNL noise contours represent an annual average that separates the Noise Zone II from the Noise Zone I.

B-1

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

Noise – any sound without value.

Noise Level Reduction (NLR) – the difference, in decibels, between the A-weighted sound level outside a building and the A-weighted sound level inside a designated room in the building. The NLR is dependent upon the transmission loss characteristics of the building surfaces exposed to an exterior noise source, the particular noise characteristics of the exterior noise source and the acoustic properties of the designated room in the building.

PK15(met) - the maximum value of the instantaneous sound pressure for each unique sound source, and applying the 15 percentile rule accounting for meteorological variation.

Slant Distance – the line of sight distance between the receiver and the aircraft. The slant distance is the hypotenuse of the triangle represented by the altitude AGL of the aircraft and the distance between the receiver and the aircraft's ground track distance.

B-2. GLOSSARY OF ACRONYMS AND ABBREVIATIONS.

AAF	Army Airfield
ADNL	A-weighted Day-Night Level
AGL	Above Ground Level
BNOISE2	Blast Noise Impact Assessment
CDNL	C-weighted Day-Night Level
CSS	Combat Support Service
dB	Decibels
dBA	Decibels, A-weighted
DNL	Day-Night Average Sound Level
HQ	Headquarters
LUPZ	Land Use Planning Zone
MAX	Maximum sound level
NEPA	National Environmental Policy Act
NLR	Noise Level Reduction
PK15(met)	Unweighted Peak, 15% Metric
SARNAM	Small Arms Range Noise Assessment Model
SBCT	Stryker Brigade Combat Team
USACERL	U.S. Army Construction Engineering Research Laboratories
USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine

B-2

B-65

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

APPENDIX C

NOISE ZONE DESCRIPTIONS

C-1. REFERENCE. U.S. Army, 2007, Army Regulation 200-1, Environmental Protection and Enhancement, Chapter 14 Operational Noise.

C-2. For a detailed explanation of Noise Zone Descriptions and Land Use Guidelines see Army Regulation 200-1, Chapter 14 (U.S. Army 2007).

C-3. Day Night Level (DNL). DNL is used to describe the cumulative or total noise exposure during a prescribed time period. DNL is the energy average noise level calculated with a 10 decibel penalty for operations occurring between 2200 and 0700.

C-4. PK15(met) Noise Contour Description. PK15(met) is the peak sound level, factoring in the statistical variations caused by weather, that is likely to be exceeded only 15 percent of the time (i.e., 85 percent certainty that sound will be within this range). This "85 percent solution" gives the installation and the community a means to consider the areas impacted by training noise without putting stipulations on land that would only receive high sound levels under infrequent weather conditions that greatly favor sound propagation. PK15(met) does not take the duration or the number of events into consideration, so the size of the contours will remain the same regardless of the number of events.

C-5. Land Use Guidelines.

a. The Noise Zone III consists of the area around the noise source in which the level is greater than 70 decibels (dB) C-weighted day-night average sound level (CDNL) for large caliber weapons, greater than 104 PK15(met) for small caliber weapons, or greater than 75 dB A-weighted DNL. Noise-sensitive land uses (such as housing, schools, and medical facilities) are not recommended within Noise Zone III.

b. The Noise Zone II consists of an area where the DNL is between 62 and 70 dB CDNL for large caliber weapons, between 87 and 104 PK15(met) for small caliber weapons, or between 65 and 75 dB ADNL. Land within Noise Zone II should normally be limited to activities such as industrial, manufacturing, transportation, and resource production. However, if the community determines that land in Noise Zone II (attributable to small arms or aviation) areas must be used for residential purposes, then noise level reduction (NLR) features of 25 to 30 decibels should be incorporated into the design and construction of *new* buildings to mitigate noise levels. For large caliber weapons, NLR features can not adequately mitigate the low-frequency component of large caliber weapons noise.

C-1

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

c. The Noise Zone I includes all areas around a noise source in which the day-night sound level is less than 62 dB CDNL for large caliber weapons, less than 87 PK15(met) for small arms weapons, or less than 65 dB ANDL. This area is usually acceptable for all types of land use activities.

d. The Land Use Planning Zone (LUPZ) DNL noise contours (57 dB CDNL or 60 dB ADNL) represent an annual average that separates the Noise Zone II from the Noise Zone I. Taking all operations that occur over the year and dividing by the number of training days generates the contours. But, the noise environment varies daily and seasonally because operations are not consistent through all 365 days of the year. In addition, the Federal Interagency Committee on Urban Noise document states "Localities, when evaluating the application of these guidelines to specific situations, may have different concerns or goals to consider." For residential land uses, depending on attitudes and other factors, a 57 CDNL or 60 ADNL may be considered by the public as an impact on the community environment. In order to provide a planning tool that could be used to account for days of higher than average operations and possible annoyance, the LUPZ contour is being included on the noise contour maps.

e. See Table C-1 for land use guidelines.

Table C-1. LAND USE PLANNING GUIDELINES.

Noise Zones	Large-Caliber Weapons (CDNL)	Aircraft Activity (ADNL)	Small Arms PK15(met)
LUPZ	57 – 62	60-65	NA
I	< 62	<65	<87
II	62 - 70	65-75	87-104
III	> 70	>75	>104

C-6. Complaint Risk Guidelines for Demolition Activity and Large Caliber Weapons.

a. The peak contours show the expected level that one would get on a sound level meter when a weapon was fired. Since weather conditions can cause noise levels to vary significantly from day to day (even from hour to hour) the programs calculate a range of peak levels. By plotting the PK15(met) contour, events would be expected to fall within the contours 85 percent of the time. This metric represents the best available scientific quantification for assessing the complaint risk of large caliber weapons ranges. The complaint risk areas for PK15(met) noise contours are defined as follows:

C-2

B-67

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

(1) The high risk of complaint consists of the area around the noise source in which PK15(met) is greater than 130 dB for large caliber weapons.

(2) The moderate risk of complaint area consists of where the PK15(met) noise contour is between 115 dB and 130 dB for large caliber weapons.

(3) The low risk of complaint area is where the PK15(met) noise level is less than 115 dB for large caliber weapons.

b. See Table C-2 for complaint risk guidelines.

Table C-2. COMPLAINT RISK GUIDELINES.

Risk of Complaints	Large Caliber Weapons
	PK15(met) dB Noise Contour
Low	< 115
Moderate	115 - 130
High	> 130

C-3

B-68

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

APPENDIX D

DEMOLITION AND LARGE CALIBER WEAPON EXPENDITURE FORT LEWIS, WASHINGTON

1. Under the Grow the Army Plan, Fort Lewis requested the analysis of the contemporary and projected operating environments.

a. The contemporary operating environment was based upon the activity utilized between December 2007 and November 2008. The operations included all of the units at Fort Lewis; a Stryker Brigade Combat Team (SBCT), the Army Reserve, and Army National Guard.

b. The projected operating environments included:

- Scenario 1. Fort Lewis has three SBCTs assigned; however, only one SBCT has been at Fort Lewis in a full-up training mode at a time due to deployments. The Projected Operational Environment reflects the contemporary operating environment with the full-up training mode of three SBCTs.
- Scenario 2. Fort Lewis is programmed to receive a 1,000 soldier Combat Service Support (CSS) unit and a 1,900 soldier Headquarters (HQ) Unit. The additional weapons activity of the CSS and HQ unit would consist of small caliber (.50 caliber and below) operations only.
- Scenario 3. Fort Lewis may also receive a Combat Aviation Brigade (CAB). The additional weapons activity of the CAB would consist of small caliber (.50 caliber and below) operations only.

2. Under the Projected Scenarios 2 and 3 there was no difference between the projected ammunition expenditure or operational data for large caliber and demolition activity (20mm and greater). Therefore, only one contour is presented in this consultation for the Projected Operating Environment.

3. Table D-1 lists the quantity of ammunition expended by type and range facility for the Contemporary Operating Environment. Table D-2 lists the quantity of ammunition expended by type and range facility for the Projected Operating Environment.

D-1

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

TABLE D-1. DEMOLITION AND LARGE CALIBER WEAPONS: CONTEMPORARY OPERATING ENVIRONMENT.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)
Firing Point 2511B	155mm Howitzer, HE	309	77
	155mm Howitzer, Inert	8	33
Firing Point 2512	60mm Mortar, HE	36	9
	81mm Mortar, HE	35	9
	120mm Mortar, HE	76	19
	120mm Mortar, Inert	2	0
	155mm Howitzer, HE	476	119
	155mm Howitzer, Inert	74	22
Firing Point 3409	155mm Howitzer, HE	747	197
	165mm Cannon, HE	120	30
Training Area 04	120mm Mortar, HE	11	17
	120mm Mortar, Inert	512	216
	155mm Howitzer, HE	1471	368
	155mm Howitzer, Inert	28	113
	165mm Cannon, HE	37	9
Training Area 06	105mm Howitzer, HE	80	20
	155mm Howitzer, HE	424	106
Training Area 12	155mm Howitzer, HE	110	28
Mortar Point 01	60mm Mortar, Inert	13	3
	81mm Mortar, HE	131	32
	81mm Mortar, Inert	17	4
	120mm Mortar, HE	16	4
	120mm Mortar, Inert	16	4
Mortar Point 02	81mm Mortar, HE	3	1
Mortar Point 04	60mm Mortar, HE	62	0
	60mm Mortar, Inert	74	18
	81mm Mortar, HE	7	2
	81mm Mortar, Inert	70	17
	120mm Mortar, HE	288	72
	120mm Mortar, Inert	296	110
Mortar Point 05	60mm Mortar, Inert	205	51
	81mm Mortar, HE	138	32
	81mm Mortar, Inert	312	76
	120mm Mortar, Inert	990	278
Mortar Point 06	60mm Mortar, HE	854	214
	60mm Mortar, Inert	19	82
	81mm Mortar, HE	21	5
	81mm Mortar, Inert	177	30
	120mm Mortar, HE	145	37
	120mm Mortar, Inert	693	303
Mortar Point 07	60mm Mortar, HE	385	96
	60mm Mortar, Inert	343	101
	81mm Mortar, HE	316	80
	81mm Mortar, Inert	140	82
	120mm Mortar, HE	416	104
	120mm Mortar, Inert	1885	615

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum, wp, smoke.

D-2

B-70

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

TABLE D-1. DEMOLITION AND LARGE CALIBER WEAPONS: CONTEMPORARY OPERATING ENVIRONMENT, CONT'D.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)
Mortar Point 08	60mm Mortar, HE	58	14
	60mm Mortar, Inert	24	6
	81mm Mortar, HE	24	6
	120mm Mortar, HE	168	42
	120mm Mortar, Inert	700	248
Mortar Point 10	60mm Mortar, HE	67	17
	81mm Mortar, HE	80	19
	120mm Mortar, HE	38	10
	120mm Mortar, Inert	136	34
Mortar Point 11	AT4 Rocket, HE	80	20
	60mm Mortar, HE	19	5
	60mm Mortar, Inert	448	112
	81mm Mortar, HE	102	25
	81mm Mortar, Inert	115	25
	120mm Mortar, HE	659	169
	120mm Mortar, Inert	1594	654
Mortar Point 12	60mm Mortar, HE	96	24
	60mm Mortar, Inert	132	160
	81mm Mortar, Inert	82	47
	120mm Mortar, HE	392	88
	120mm Mortar, Inert	1048	476
Mortar Point 13	60mm Mortar, HE	13	3
	60mm Mortar, Inert	26	6
	81mm Mortar, HE	153	39
	81mm Mortar, Inert	14	34
NBC1	Simulator, Hand Grenade, M116	50	0
OP02	TOW Missile, Inert	17	0
	TOW Missile, HE	6	0
	155mm Howitzer, HE	188	46
REGENBURG	Demolition, C4, 1.25 lbs	2	0
	Simulator, Hand Grenade, M116	61	0
	Simulator, Ground Burst, M115A2	19	0
Range 24	Hand Grenade, Fragmenting	31293	0
Range 25 Maze	Demolition, Sheet, 38 ft p/roll, 0.5 lbs p/ft	5	0
Range 28	Simulator, Ground Burst, M115A2	3	0
	Simulator, Hand Grenade, M116	3	0
Range 31	Demolition, C4, 1.25 lbs	2	0
	Simulator, Hand Grenade, M116	96	0
	Simulator, Main Tank Gun, M30	4	0
Range 36	Hand Grenade, Fragmenting	821	0
	Simulator, Hand Grenade, M116	19	0
Range 39	Simulator, Ground Burst, M115A2	185	0
	Simulator, Hand Grenade, M116	207	0
	Simulator, Main Tank Gun, M30	125	0

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum, wp, smoke.

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

TABLE D-1. DEMOLITION AND LARGE CALIBER WEAPONS: CONTEMPORARY OPERATING ENVIRONMENT, CONT'D.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)
Range 40	Simulator, Anti-Tank/GM/Rocket Launch, M22	15	0
	Simulator, Ground Burst, M115A2	15	0
Range 52	RAAWS, Inert	6	16
	60mm Mortar, HE	24	6
	81mm Mortar, HE	113	29
	120mm Mortar, HE	70	18
Range 58	Demolition, C4, 1.25 lbs	341	85
	Mine, Claymore M18A1	39	9
	Shape Charge, 40 lbs	4	1
	155mm Howitzer, HE	1	0
Range 59	AT4 Rocket, HE	1716	255
	LAW Rocket, HE	137	15
	SMAW, HE	41	5
	RAAWS, Inert	142	38
	RPG-7, HE	13	1
	Hand Grenade, Fragmenting	13	1
Range 60	RAAWS, Inert	62	15
Range 62	Demolition, C4, 1.25 lbs	320	80
	Demolition, Sheet, 38 ft p/roll, 0.5 lbs p/ft	1	0
Range 72	Simulator, Hand Grenade, M116	30	0
Range 74	60mm Mortar, HE	101	25
	60mm Mortar, Inert	467	117
	81mm Mortar, HE	160	39
	81mm Mortar, Inert	69	5
	120mm Mortar, HE	101	15
	120mm Mortar, Inert	173	43
	155mm Howitzer, HE	15	4
	155mm Howitzer, Inert	8	0
	Demolition, C4, 1.25 lbs	3	1
	Range 75	RAAWS, Inert	5
60mm Mortar, HE		19	5
60mm Mortar, Inert		78	20
81mm Mortar, Inert		21	5
120mm Mortar, HE		56	14
120mm Mortar, Inert		90	44
105mm Howitzer, HE		3	1
Hand Grenade, Fragmenting		2	1
Simulator, Hand Grenade, M116		7	0
Simulator, Ground Burst, M115A2		7	0
Range 76	RAAWS, Inert	23	5
	60mm Mortar, HE	38	10
	60mm Mortar, Inert	27	26
	120mm Mortar, HE	21	5
	Simulator, Ground Burst, M115A2	23	0

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum, wp, smoke.

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

TABLE D-1. DEMOLITION AND LARGE CALIBER WEAPONS: CONTEMPORARY OPERATING ENVIRONMENT, CONT'D.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)
Range 79	AT4 Rocket, HE	50	13
	Dragon Missile, HE	9	3
	RAAWS, HE	11	3
	40mm Grenade, HE	14453	3613
	81mm Mortar, HE	1553	388
	155mm Howitzer, HE	226	57
	155mm Howitzer, Inert	11	0
	Mine, Claymore M18A1	54	14
Range 87	Simulator, Ground Burst, M115A2	60	16
	Simulator, Hand Grenade, M116	84	20
Range 94	40mm Grenade, HE	5	0
Range 109	Simulator, Ground Burst, M115A2	11	0
Range 113	Simulator, Main Tank Gun, M30	30	0

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum, wp, smoke.

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

TABLE D-2. DEMOLITION AND LARGE CALIBER WEAPONS: PROJECTED OPERATING ENVIRONMENT.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)	DIFFERENCE FROM CONTEMPORARY OPERATIONS
Firing Point 2412	MLKS, Inert	216	0	<i>new activity</i>
Firing Point 2511B	155mm Howitzer, HE	926	232	<i>increase of rounds</i>
	155mm Howitzer, Inert	16	99	
Firing Point 2512	60mm Mortar, HE	36	9	
	81mm Mortar, HE	35	9	
	120mm Mortar, HE	76	19	
	120mm Mortar, Inert	2	0	
	155mm Howitzer, HE	476	119	
	155mm Howitzer, Inert	74	22	
Firing Point 3409	155mm Howitzer, HE	747	197	
	165mm Cannon, HE	120	30	
Training Area 04	120mm Mortar, HE	11	17	
	120mm Mortar, Inert	512	216	
	155mm Howitzer, HE	4327	1082	<i>increase of rounds</i>
	155mm Howitzer, Inert	277	48	<i>increase of rounds</i>
	165mm Cannon, HE	45	9	<i>increase of rounds</i>
Training Area 06	105mm Howitzer, HE	80	20	
	155mm Howitzer, HE	424	106	
Training Area 12	155mm Howitzer, HE	110	28	
Mortar Point 01	60mm Mortar, Inert	13	3	
	81mm Mortar, HE	131	32	
	81mm Mortar, Inert	17	4	
	120mm Mortar, HE	16	4	
	120mm Mortar, Inert	16	4	
Mortar Point 02	81mm Mortar, HE	3	1	
Mortar Point 03	Mine, Claymore M18A1	245	61	
Mortar Point 04	60mm Mortar, HE	62	0	
	60mm Mortar, Inert	74	18	
	81mm Mortar, HE	7	2	
	81mm Mortar, Inert	70	17	
	120mm Mortar, HE	288	72	
	120mm Mortar, Inert	296	110	
Mortar Point 05	60mm Mortar, Inert	374	94	
	81mm Mortar, HE	146	35	
	81mm Mortar, Inert	787	197	
	120mm Mortar, Inert	2011	533	
Mortar Point 06	60mm Mortar, HE	854	214	
	60mm Mortar, Inert	19	82	
	81mm Mortar, HE	21	5	
	81mm Mortar, Inert	177	30	
	120mm Mortar, HE	145	37	
	120mm Mortar, Inert	693	303	
Mortar Point 07	60mm Mortar, HE	732	183	<i>increase of rounds</i>
	60mm Mortar, Inert	871	101	<i>increase of rounds</i>
	81mm Mortar, HE	393	99	<i>increase of rounds</i>
	81mm Mortar, Inert	211	155	<i>increase of rounds</i>
	120mm Mortar, HE	416	104	
	120mm Mortar, Inert	2957	871	<i>increase of rounds</i>

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum, wp, smoke.

D-6

B-74

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

TABLE D-2. DEMOLITION AND LARGE CALIBER WEAPONS: PROJECTED OPERATING ENVIRONMENT, CONT'D.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)	DIFFERENCE FROM CONTEMPORARY OPERATIONS
Mortar Point 08	60mm Mortar, HE	58	14	
	60mm Mortar, Inert	24	6	
	81mm Mortar, HE	24	6	
	120mm Mortar, HE	168	42	
	120mm Mortar, Inert	700	248	
Mortar Point 10	60mm Mortar, HE	67	17	
	81mm Mortar, HE	80	19	
	120mm Mortar, HE	38	10	
	120mm Mortar, Inert	136	34	
Mortar Point 11	AT4 Rocket, HE	80	20	
	60mm Mortar, HE	19	5	
	60mm Mortar, Inert	448	112	
	81mm Mortar, HE	102	25	
	81mm Mortar, Inert	115	25	
	120mm Mortar, HE	659	169	
	120mm Mortar, Inert	1594	654	
Mortar Point 12	60mm Mortar, HE	96	24	
	60mm Mortar, Inert	132	160	
	81mm Mortar, Inert	82	47	
	120mm Mortar, HE	392	88	
	120mm Mortar, Inert	1579	633	<i>increase of rounds</i>
Mortar Point 13	60mm Mortar, HE	13	3	
	60mm Mortar, Inert	26	6	
	81mm Mortar, HE	153	39	
	81mm Mortar, Inert	14	34	
NBC1	Simulator, Hand Grenade, M116	50	0	
OP02	TOW Missile, Inert	17	0	
	TOW Missile, HE	6	0	
	155mm Howitzer, HE	188	46	
REGENBURG	Demolition, C4, 1.25 lbs	2	0	
	Simulator, Hand Grenade, M116	61	0	
	Simulator, Ground Burst, M115A2	19	0	
Range 24	Hand Grenade, Fragmenting	35053	0	<i>increase of rounds</i>
Range 25 Maze	Demolition, Sheet, 38 ft p/roll, 0.5 lbs p/ft	5	0	
Range 28	Simulator, Ground Burst, M115A2	3	0	
	Simulator, Hand Grenade, M116	3	0	
Range 31	Demolition, C4, 1.25 lbs	2	0	
	Simulator, Hand Grenade, M116	96	0	
	Simulator, Main Tank Gun, M30	4	0	
Range 32	Simulator, Hand Grenade, M116	154	0	<i>new activity</i>
Range 36	Hand Grenade, Fragmenting	821	0	
	Simulator, Hand Grenade, M116	19	0	
Range 39	Simulator, Ground Burst, M115A2	185	0	
	Simulator, Hand Grenade, M116	207	0	
	Simulator, Main Tank Gun, M30	125	0	
Range 40	Simulator, Anti-Tank/GM/Rocket Launch, M22	15	0	
	Simulator, Ground Burst, M115A2	15	0	

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum. wp, smoke.

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

TABLE D-2. DEMOLITION AND LARGE CALIBER WEAPONS: PROJECTED OPERATING ENVIRONMENT, CONT'D.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)	DIFFERENCE FROM CONTEMPORARY OPERATIONS
Range 52	RAAWS, Inert	6	16	
	60mm Mortar, HE	24	6	
	81mm Mortar, HE	113	29	
	120mm Mortar, HE	70	18	
Range 58	Demolition, C4, 1.25 lbs	341	85	
	Mine, Claymore M18A1	39	9	
	Shape Charge, 40 lbs	4	1	
	155mm Howitzer, HE	1	0	
Range 59	AT4 Rocket, HE	1881	255	<i>increase of rounds</i>
	LAW Rocket, HE	137	15	
	SMAW, HE	41	5	
	RAAWS, Inert	142	38	
	RPG-7, HE	13	1	
	Hand Grenade, Fragmenting	13	1	
Range 60	AT4 Rocket, HE	12	3	<i>new activity</i>
	RAAWS, Inert	62	15	
Range 62	Demolition, C4, 1.25 lbs	432	108	<i>increase of rounds</i>
	Demolition, Sheet, 38 ft p/roll, 0.5 lbs p/ft	1	0	
Range 72	Simulator, Hand Grenade, M116	30	0	
Range 74	60mm Mortar, HE	302	76	<i>increase of rounds</i>
	60mm Mortar, Inert	570	142	<i>increase of rounds</i>
	81mm Mortar, HE	478	119	<i>increase of rounds</i>
	81mm Mortar, Inert	165	5	<i>increase of rounds</i>
	120mm Mortar, HE	302	76	<i>increase of rounds</i>
	120mm Mortar, Inert	173	43	
	155mm Howitzer, HE	46	9	<i>increase of rounds</i>
	155mm Howitzer, Inert	19	5	<i>increase of rounds</i>
	Demolition, C4, 1.25 lbs	3	1	
	Range 75	RAAWS, Inert	5	0
60mm Mortar, HE		19	5	
60mm Mortar, Inert		78	20	
81mm Mortar, Inert		21	5	
120mm Mortar, HE		87	12	<i>increase of rounds</i>
120mm Mortar, Inert		90	44	
105mm Howitzer, HE		3	1	
Hand Grenade, Fragmenting		7	2	<i>increase of rounds</i>
Simulator, Hand Grenade, M116		7	0	
Simulator, Ground Burst, M115A2		7	0	
Range 76	RAAWS, Inert	23	5	
	60mm Mortar, HE	38	10	
	60mm Mortar, Inert	27	26	
	120mm Mortar, HE	21	5	
	Simulator, Ground Burst, M115A2	23	0	

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum. wp, smoke.

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

TABLE D-2. DEMOLITION AND LARGE CALIBER WEAPONS: PROJECTED OPERATING ENVIRONMENT, CONT'D.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)	DIFFERENCE FROM CONTEMPORARY OPERATIONS
Range 79	AT4 Rocket, HE	50	13	
	Dragon Missile, HE	9	3	
	RAAWS, HE	11	3	
	40mm Grenade, HE	22083	5521	<i>increase of rounds</i>
	81mm Mortar, HE	1553	388	
	155mm Howitzer, HE	226	57	
	155mm Howitzer, Inert	11	0	
	Mine, Claymore M18A1	54	14	
Range 87	Simulator, Ground Burst, M115A2	60	16	
	Simulator, Hand Grenade, M116	84	20	
Range 94	40mm Grenade, HE	15	0	<i>increase of rounds</i>
Range 109	Simulator, Ground Burst, M115A2	11	0	
Range 113	Simulator, Main Tank Gun, M30	30	0	

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum, wp, smoke.

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

APPENDIX E

SMALL CALIBER RANGE UTILIZATION

1. Under the Grow the Army Plan, Fort Lewis requested the analysis of the contemporary and projected operating environments.

a. The contemporary operating environment was based upon the activity utilized between December 2007 and November 2008. The operations included all of the units at Fort Lewis; a Stryker Brigade Combat Team (SBCT), the Army Reserve, and Army National Guard.

b. The projected operating environments included:

- Scenario 1. Fort Lewis has three SBCTs assigned; however, only one SBCT has been at Fort Lewis in a full-up training mode at a time due to deployments. Scenario 1 reflects contemporary operating environment with the full-up training mode of 3 SBCTs.
- Scenario 2. Fort Lewis is programmed to receive a 1,000 soldier Combat Service Support (CSS) unit and a 1,900 soldier Headquarters (HQ) Unit. The additional weapons activity of the CSS and HQ unit would consist of small caliber (.50 caliber and below) operations only.
- Scenario 3. Fort Lewis may also receive a Combat Aviation Brigade (CAB). The additional weapons activity of the CAB would consist of small caliber (.50 caliber and below) operations only.

2. The small arms range utilization and type of ammunition expenditure was identical under all the operating environments. The difference between operating environments was an increase quantity of round expenditure. The contours show the predicted peak levels for individual rounds (metric term is PK15(met)). Since the contours are based on peak levels rather than a cumulative or average level, the size of the contours will not change if the number of rounds fired increases. Therefore it was only necessary to develop one small arms noise contour.

E-1

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

3. Ammunition Expenditure. The table lists the ranges and type of weapons utilized to develop the small arms noise contours.

TABLE E. SMALL CALIBER WEAPONS UTILIZATION

	PISTOL, 9 MM	PISTOL, 9 MM, NON-LETHAL	PISTOL, .45 CAL	TRAINER AT4, 9MM TPT	RIFLE, 5.56 MM	RIFLE, 5.56 MM, BLANK	MACHINE GUN, 7.62 MM	MACHINE GUN, 7.62 MM, BLANK	MACHINE GUN, 50 CAL, BLANK	SHOTGUN, 12 GAUGE
Range 01				√						
Range 02	√			√						
Range 39		√		√	√	√	√	√	√	√
Range 40				√	√	√		√		
Range 43	√		√	√		√				
Range 44	√			√		√				
Range 45	√		√	√		√				√

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

APPENDIX F

AVIATION ACTIVITY
FORT LEWIS, WASHINGTON

F-1. Tables F-1 and F-2 contain the aviation activity for the Gray Army Airfield (AAF). The activity is illustrated in both an estimated daily summary and an annual summary.

TABLE F-1. GRAY AAF – CONTEMPORARY OPERATING ENVIRONMENT.

Estimated Daily Sorties*			Annual (Dec 07 - Nov 08) Sorties*		
Aircraft Type	Daytime Activity (0700-2200)	Nighttime Activity (2200-0700)	Aircraft Type	Daytime Activity (0700-2200)	Nighttime Activity (2200-0700)
CH-47	20	6	CH-47	5,118	1,419
OH-58	25	7	OH-58	6,216	1,723
UH-60	20	6	UH-60	5,118	1,419
C-12	2	<1	C-12	549	152
C-23	2	<1	C-23	366	102

* Sortie is defined as either an arrival or a departure.

TABLE F-2. GRAY AAF – PROJECTED OPERATING ENVIRONMENT.

Projected Estimated Daily Sorties*			Projected Annual Sorties*		
Aircraft Type	Daytime Activity (0700-2200)	Nighttime Activity (2200-0700)	Aircraft Type	Daytime Activity (0700-2200)	Nighttime Activity (2200-0700)
AH-64	2	1	AH-64	470	202
CH-47	22	7	CH-47	5,387	1,534
OH-58	27	8	OH-58	6,686	1,925
UH-60	22	7	UH-60	5,588	1,621
C-12	2	<1	C-12	549	152
C-23	2	<1	C-23	366	102

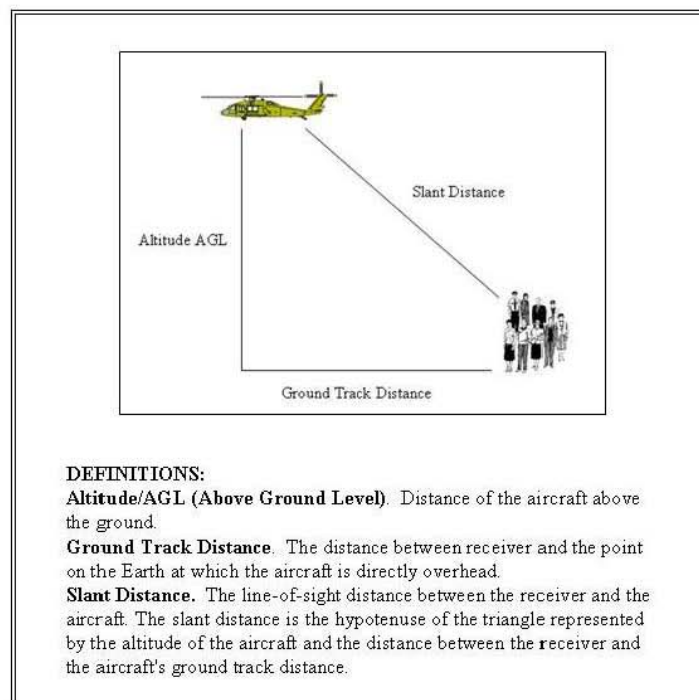
* Sortie is defined as either an arrival or a departure.

F-1

Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

F-2. Figure F depicts the terminology used in the supplemental annoyance buffers for aircraft over flights.

FIGURE F. SUPPLEMENTAL BUFFER FLIGHT CORRIDOR DESCRIPTION



F-2

B-81

(This page was intentionally left blank)

7536 **Appendix C. EIFS Explanation and Detailed Results for Fort Carson and**
7537 **JBLM Analyses**

7538 The analysis of socioeconomic effects at Fort Carson and JBLM is facilitated by the use of the
7539 EIFS and the use of three recent analyses associated with the transformation and restructuring of
7540 the Army. They are *Final Environmental Impact Analysis for Army Growth and Force Structure*
7541 *Realignment*, October, 2007, *Final Environmental Impact Statement for Implementation of Fort*
7542 *Carson Grow the Army Stationing Decisions, Vol. 1*, February 2009, and *Final Environmental*
7543 *Impact of the Fort Lewis Army Growth and Force Structure Realignment, Vol. 1*, July 2010.

7544 **C.1. Introduction**

7545 The socioeconomic analysis requirements of NEPA have been established over the years through
7546 successful early NEPA litigation (“McDowell v. Schlesinger”, U.S. District Court, Western District of
7547 Missouri, Western Division, No. 75-CV-234-W-4 (June 19,1975) and “Breckinridge v. Schlesinger”, U.S.
7548 District Court, Eastern District of Kentucky, No. 75-100 (October 31,1975)), as well as the practical need
7549 for communication and collaboration with affected communities. The social and economic effects of
7550 BRAC actions are especially relevant and important, as these issues are often the source of community
7551 concerns and subsequent controversies.

7552 **C.2. The EIFS and the Hierarchical Approach.**

7553 The Model:

7554 The EIFS (Huppertz, Claire E.; Bloomquist, Kim M.; Barbehenn, Jacinda M.; *EIFS 5.0 Economic Impact*
7555 *Forecast System, User’s Reference Manual*; U.S. Army Construction Engineering Research Lab
7556 [USACERL] Technical Report TA-94/03; July 1994.) has been a mainstay of Army NEPA practice since
7557 its initial development and implementation in the mid-1970s. EIFS provides a mechanism to estimate
7558 impacts, and ascertain the "significance" of projected impacts, using the RTV technique. This analysis
7559 and determination can be readily documented, and if significance thresholds are not exceeded, the
7560 analysis can be completed. EIFS was designed to address NEPA applications, providing a “two-tier”
7561 approach to the process. That process includes a simple and quick aggregate model (sufficient to ascertain

7562 the overall magnitude of impacts) and a more detailed, sophisticated input-output (I-O) model to further
7563 analyze impacts that appear significant, in NEPA terms, and worthy of additional expenditures and
7564 analyses. This “two-tier” approach is consistent with the two common levels of NEPA analysis, the EA
7565 and the EIS. EIFS has facilitated efficient and effective completion of such analyses for approximately
7566 three decades.

7567 Complete documentation of the model, its development, and applicable theoretical underpinnings is
7568 available in numerous publications:

7569 Huppertz, Claire E.; Bloomquist, Kim M.; Barbehenn, Jacinda M.; *EIFS 5.0 Economic Impact*
7570 *Forecast System, User’s Reference Manual*; USACERL Technical Report TA-94/03; July 1994.

7571 Isard, W., *Methods of Regional Analysis*, MIT Press, 1960.

7572 Isard, W. and Langford, T., *Regional Input-Output Study: Recollections, Reflections, and Diverse*
7573 *Notes on the Philadelphia Experience*, MIT Press, 1971.

7574 Isserman, A., "The Location Quotient Approach to Estimating Regional Economic Impacts", *AIP*
7575 *Journal*, January, 1977, pp. 33-41.

7576 Isserman, A., "Estimating Export Activity in a Regional Economy: A Theoretical and Empirical
7577 Analysis of Alternative Methods", *International Regional science Review*, Vol. 5, 1980, pp. 155-
7578 184.

7579 Leigh, R., "The Use of Location Quotients in Urban Economic Base Studies," *Land Economics*,
7580 Vol 46, May, 1970, pp 202-205.

7581 Mathur, V.K. and Rosen, H.S. , "Regional Employment Multiplier: A New Approach," *Land*
7582 *Economics*, Vol 50, 1974, pp 93-96.

7583 Mayer, W. and Pleeter, S., "A Theoretical Justification for the Use of Location Quotients,"
7584 *Regional Science and Urban Economics*, Vol 5, 1975, pp 343-355.

7585 Robinson, D.P., Hamilton, J.W., Webster, R.D., and Olson, M.J., *Economic Impact Forecast*
7586 *System (EIFS) II: User's Manual, Updated Edition*, Technical Report N-69/ADA144950,
7587 USACERL, 1984.

7588 Robinson, D.P. and Webster, R.D., *Enhancements to the Economic Impact Forecast System*
7589 *(EIFS)*, Technical Report N-175/ADA142652, USACERL, April, 1984.

7590 Rogers, Claudia and Webster, Ron, "Qualitative Answers to Quantitative Questions," *Impact*
7591 *Assessment*, IAIA, Vol.12, No.1, 1999.

7592 Thompson, W., *A Preface to Urban Economics*, Johns Hopkins Press, 1965.

7593 Tiebout, C., *The Community Economic Base*, New York Committee for Economic Development,
7594 1962.

7595 USACERL, "Methods for Evaluating the Significance of Impacts: The RTV and FSI Profiles,"
7596 USACERL EIFS Tutorial; July 1987.

7597 U.S. Army, DA, DA Pamphlet 200-2, "Economic Impact Forecast System-User Instructions,"
7598 1980.

7599 U.S. Army, "Base Realignment and Closure "How-To" Manual for Compliance with the National
7600 Environmental Policy Act", revised and published as official Department of Army Guidance,
7601 1995.

7602 U.S. Army, *Army Regulation 5-20*, "Commercial Activities"

7603 Webster, R.D. and Shannon, E.; *The Rational Threshold Value Technique for the Evaluation of*
7604 *Regional Economic Impacts*; USACERL Technical Report TR N-49/ADA055561; 1978.

7605 Webster, R.D., Hamilton, J.W., and Robinson, D.P., "The Two-Tier Concept for Economic
7606 Analysis: Introduction and User Instructions," USACERL Technical Report N-127/ADA118855.

7607 These efforts reflect development of a tool for specific NEPA application, following the successful NEPA
7608 litigation referenced in the Introduction. As EIFS has been used for Army NEPA analyses, the results of

7609 EIFS analyses have been reviewed by stakeholder (affected community) representatives, and, as a result
7610 of BRAC application, twice reviewed by the Government Accounting Office (GAO). During such
7611 reviews, the analyses and resultant decisions were upheld, and EIFS was lauded as a uniform
7612 (nonarbitrary and noncapricious) approach to such requirements. Drawing from a national, uniform
7613 database, and using a common, systematic approach, EIFS allows for the improved comparison of project
7614 alternatives (the heart of NEPA analysis), and provides comparable analyses across the U.S.

7615 **NEPA Process Improvement:**

7616 Since NEPA was implemented, it has been commonly criticized as expensive and time-consuming. While
7617 these criticisms have been often justified, the President's CEQ has actively promoted NEPA process
7618 improvements; first in the publication of the CEQ NEPA regulations (CEQ, *Regulations for Implementing*
7619 *the Procedural Provisions of the National Environmental Policy Act*, Reprint, 40 CFR Parts 1500-1508,
7620 Executive Office of the President, Council on Environmental Quality, 1992.), and, more recently, through
7621 a NEPA anniversary introspective (CEQ, *The National Environmental Policy Act: A Study of its*
7622 *Effectiveness After Twenty-five Years*, Executive Office of the President, Council on Environmental
7623 Quality, January, 1997.) and the formal CEQ NEPA Task Force (CEQ, *The NEPA Task Force Report to*
7624 *the Council on Environmental Quality: Modernizing NEPA Implementation*; September, 2003.). All three
7625 CEQ initiatives call for more "focus" on NEPA documents, eliminating the analyses of minor or
7626 unimportant issues, and focusing, instead, on those issues that should be part of an informed agency
7627 decision. The use of EIFS, and the "two-tier" approach is consistent with these CEQ recommendations.

7628 **Determining Significance:**

7629 While EIFS was being developed, communities began to question the rationale for determining the
7630 significance of socioeconomic impacts. USACERL was directed to develop a defensible procedure for
7631 such a determination, resulting in the RTV technique (Webster, R.D.; and Shannon, E.; *The Rational*
7632 *Threshold Value Technique for the Evaluation of Regional Economic Impacts*; USACERL Technical
7633 Report TR N-49/ADA055561; 1978). This technique relies on the yearly Bureau of Economic Analysis
7634 (BEA) time series data on employment, income, and population to evaluate historical trends with in a
7635 subject community (region); and uses those trends to measure the "resilience" of the local community to
7636 change, or its ability to accommodate such change. This approach has worked well when communicating

7637 with affected communities. The combined use of RTV with the EIFS model meet the two pronged
7638 approach for significance determinations: intensity and context (CEQ, 1992).

7639 The initial EIFS implementation (USACERL, 1975) included the analysis of numerous variables:
7640 business volume, personal income, employment, government revenues and expenditures, income and
7641 employment distribution, local housing impacts, regional economic stability, school system impacts,
7642 government bond obligations, population, welfare and dependency, social control, and aesthetic
7643 considerations. The selection of these variables was based on the predictive capability of forecasting
7644 techniques and data availability. Over some 30 years of practice, pragmatism and sufficiency led to the
7645 use of sales volume, employment, personal income, and population as indicators of impacts (as a "first
7646 tier" approximation of effects). These effects can also be readily evaluated (and significance determined)
7647 using the BEA time series data. Population, important in its own right, is also a valuable indicator of other
7648 factors (e.g., impact on local government revenues and expenditures, housing, local school systems, and
7649 the change in welfare and dependency), as impacts on such variables are driven, to a large extent, by a
7650 population change.

7651 Using BEA time series data is used to analyze the four variables for the ROI, the RTV model produces
7652 thresholds for assessing the magnitude of impacts. The RTV technique is simple, starting with a straight
7653 line between the first year of record and the last year of record for that variable, establishing the average
7654 rate of change over time. Then, each yearly deviation from that growth rate is calculated and converted to
7655 a percentage. The largest historical changes (both increase and decrease) are used to define significance
7656 thresholds.

7657

7658 The following figure illustrates the RTV concept:

7659 **Figure 13. Economic Impact Forecast System**

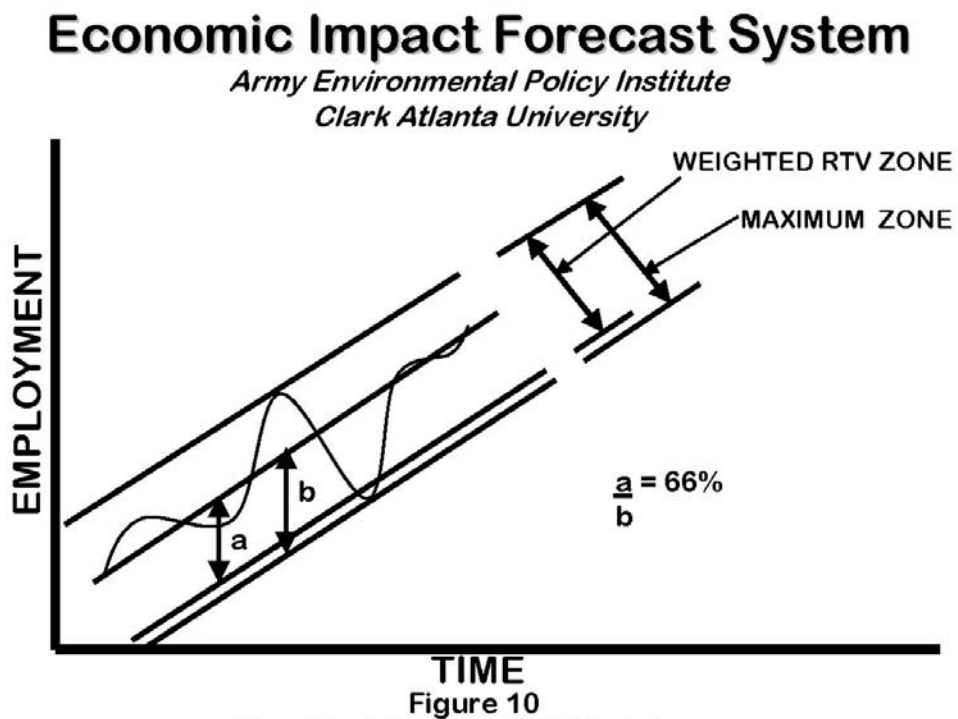


Figure 10
 Visual Depiction of the RTV Technique

7660

7661 A "factor of safety" is applied to negative thresholds, as shown in the figure, to produce a conservative
 7662 analysis; while 100 percent of the maximum positive thresholds are used; as indicated below:

	<u>Increase</u>	<u>Decrease</u>
7664 Total sales volume	100 percent	75 percent
7665 Total employment	100 percent	66 percent
7666 Personal Income	100 percent	66 percent
7667 Total population	100 percent	50 percent

7668 The maximum positive historical fluctuation is used because of the positive connotations generally
7669 associated with economic growth. While economic growth can produce unacceptable impacts and the
7670 "smart growth" concept is increasingly favored, the effects of reductions and closures are usually much
7671 more controversial. These adjustments, while arbitrary, are sensible. The negative sales volume threshold
7672 is adjusted by 75 percent, as sales volume impacts can be absorbed by such factors as the manipulation of
7673 inventory, new equipment, etc; and the impacts on individual workers or proprietors is indirect, if at all.
7674 Changes in employment and income, however, are impacts that immediately affect individuals; thus they
7675 are adjusted by 66 percent. Population is extremely important as an indicator of other social issues and is
7676 thus adjusted by 50 percent.

7677 To adjust dollar amounts for inflation (to create "constant dollars" prior to calculations), the Consumer
7678 Price Index (CPI) is used for appropriate years, and all dollar values are adjusted to 1987 equivalents.

7679 The main strength of the RTV approach stems from its reliance on data for each individual ROI. This
7680 approach addressed previous criticism of more basic approaches that applied arbitrary criteria to all
7681 communities. This approach establishes unique criteria, representative of local community patterns, and,
7682 while a community may not completely agree, a common frame of reference is established. Critics of the
7683 RTV technique have questioned the arbitrary selection of the maximum allowable deviations to indicate
7684 impact significance, but the process has proven workable over the years.

7685 **C.3. EIFS REPORT**

7686 **Project Name:** JBLM CAB Stationing

7687 **Study Area:** 53053 Pierce, WA

7688 53067 Thurston, WA

FORECAST INPUT	
Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	2700
Average Income of Affected Military	\$37,000
Percent of Military Living On-post	50

7689

FORECAST OUTPUT		
Multiplier	2.43	
Sales Volume - Direct	\$31,843,120	
Sales Volume - Induced	\$45,535,670	
Sales Volume - Total	\$77,378,790	0.3%
Income - Direct	\$99,900,000	
Income - Induced	\$8,773,712	
Income - Total	\$108,673,700	0.52%
Employment - Direct	2904	
Employment - Induced	292	
Employment - Total	3196	0.76%
Local Population	6723	
Local Off-base Population	3362	0.78%

7690

RTV SUMMARY				
	Sales Volume	Income	Employment	Population
Positive RTV	5.01 %	4.96 %	2.79 %	1.97 %
Negative RTV	-4.67 %	-4.06 %	-7.1 %	-2.54 %

7691

RTV DETAILED					
SALES VOLUME					
Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	3663956	19272409	0	-1193327	0
1970	3939364	19618033	345624	-847703	-4.32
1971	4165340	19868672	250639	-942688	-4.74
1972	4291438	19826444	-42228	-1235555	-6.23
1973	4819374	20964277	1137833	-55494	-0.26
1974	5539580	21659758	695481	-497846	-2.3
1975	6281812	22551705	891947	-301380	-1.34
1976	7107766	24166404	1614699	421372	1.74
1977	7855838	25060123	893719	-299608	-1.2
1978	9101606	26940754	1880631	687304	2.55
1979	10344594	27516620	575866	-617461	-2.24
1980	11891616	27826381	309761	-883566	-3.18
1981	13418212	28580792	754410	-438917	-1.54
1982	14437904	28875808	295016	-898311	-3.11
1983	15309530	29700488	824680	-368647	-1.24
1984	16636302	30943522	1243034	49707	0.16
1985	17859598	32147276	1203755	10428	0.03
1986	18961960	33373050	1225773	32446	0.1
1987	20085014	34144524	771474	-421853	-1.24
1988	21629048	35255348	1110824	-82503	-0.23
1989	23734096	37025190	1769842	576515	1.56
1990	27003196	40234762	3209572	2016245	5.01
1991	28534742	40519334	284572	-908755	-2.24
1992	30924834	42676271	2156937	963610	2.26
1993	32503888	43555210	878939	-314388	-0.72
1994	33971710	44163223	608013	-585314	-1.33
1995	35895070	45586739	1423516	230189	0.5
1996	38181346	46963056	1376317	182990	0.39
1997	41710204	50052245	3089189	1895862	3.79
1998	44639550	53121064	3068820	1875493	3.53
1999	46894924	54398112	1277047	83720	0.15
2000	50904218	57012724	2614612	1421285	2.49
2001	54246640	59128838	2116113	922786	1.56
2002	56233638	60169993	1041155	-152172	-0.25
2003	58132228	61038839	868847	-324480	-0.53

7692

7693

INCOME					
Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	1848106	9721038	0	-596213	0
1970	1983704	9878846	157808	-438405	-4.44
1971	2095463	9995359	116513	-479700	-4.8
1972	2161606	9986620	-8739	-604952	-6.06
1973	2439573	10612143	625523	29310	0.28
1974	2797070	10936544	324401	-271812	-2.49
1975	3167073	11369792	433248	-162965	-1.43
1976	3580564	12173918	804126	207913	1.71
1977	3956082	12619902	445984	-150229	-1.19
1978	4583753	13567909	948007	351794	2.59
1979	5209534	13857360	289452	-306761	-2.21
1980	5976305	13984554	127193	-469020	-3.35
1981	6742200	14360886	376332	-219881	-1.53
1982	7252786	14505572	144686	-451527	-3.11
1983	7686427	14911668	406096	-190117	-1.27
1984	8350786	15532462	620794	24581	0.16
1985	8963188	16133738	601276	5063	0.03
1986	9517554	16750895	617157	20944	0.13
1987	10074840	17127228	376333	-219880	-1.28
1988	10848494	17683045	555817	-40396	-0.23
1989	11911863	18582506	899461	303248	1.63
1990	13543521	20179846	1597340	1001127	4.96
1991	14309461	20319435	139588	-456625	-2.25
1992	15510801	21404905	1085471	489258	2.29
1993	16307276	21851750	446844	-149369	-0.68
1994	17041089	22153416	301666	-294547	-1.33
1995	18002766	22863513	710097	113884	0.5
1996	19151333	23556140	692627	96414	0.41
1997	20917815	25101378	1545238	949025	3.78
1998	22388361	26642150	1540772	944559	3.55
1999	23522972	27286648	644498	48285	0.18
2000	25509714	28570880	1284232	688019	2.41
2001	27190294	29637420	1066541	470328	1.59
2002	28177359	30149774	512354	-83859	-0.28
2003	29131884	30588478	438704	-157509	-0.51

7694

7695

Employment				
Population				
Year	Value	Change	Deviation	%Deviation
1969	480736	0	-13734	0
1970	490236	9500	-4234	-0.86
1971	497542	7306	-6428	-1.29
1972	486504	-11038	-24772	-5.09
1973	480906	-5598	-19332	-4.02
1974	504564	23658	9924	1.97
1975	525732	21168	7434	1.41
1976	536948	11216	-2518	-0.47
1977	553549	16601	2867	0.52
1978	574491	20942	7208	1.25
1979	592365	17874	4140	0.7
1980	614079	21714	7980	1.3
1981	629458	15379	1645	0.26
1982	642085	12627	-1107	-0.17
1983	645741	3656	-10078	-1.56
1984	655589	9848	-3886	-0.59
1985	666902	11313	-2421	-0.36
1986	676604	9702	-4032	-0.6
1987	690832	14228	494	0.07
1988	711355	20523	6789	0.95
1989	725934	14579	845	0.12
1990	753533	27599	13865	1.84
1991	774147	20614	6880	0.89
1992	795467	21320	7586	0.95
1993	813388	17921	4187	0.51
1994	825394	12006	-1728	-0.21
1995	840833	15439	1705	0.2
1996	852493	11660	-2074	-0.24
1997	864644	12151	-1583	-0.18
1998	881050	16406	2672	0.3
1999	897535	16485	2751	0.31
2000	912334	14799	1065	0.12
2001	930995	18661	4927	0.53
2002	948451	17456	3722	0.39
2003	961440	12989	-745	-0.08

7696

7697 **C.4. EIFS REPORT**

7698 **Project Name:** Fort Carson CAB Stationing

7699 **Study Area:** 08041 El Paso, CO

7700 08043 Fremont, CO

7701 08101 Pueblo, CO

7702

FORECAST INPUT	
Change In Local Expenditures	\$0
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	2700
Average Income of Affected Military	\$37,100
Percent of Military Living On-post	50

7703

FORECAST OUTPUT		
Multiplier	2.77	
Sales Volume - Direct	\$31,929,190	
Sales Volume - Induced	\$56,514,660	
Sales Volume - Total	\$88,443,850	0.34%
Income - Direct	\$100,170,000	
Income - Induced	\$11,782,220	
Income - Total	\$111,952,200	0.74%
Employment - Direct	2912	
Employment - Induced	375	
Employment - Total	3287	0.84%
Local Population	6723	
Local Off-base Population	3362	1.01%

7704

7705

RTV SUMMARY				
	Sales Volume	Income	Employment	Population
Positive RTV	5.64 %	5.63 %	4.04 %	3.17 %
Negative RTV	-4 %	-3.62 %	-3.95 %	-1.59 %

7706

RTV DETAILED					
SALES VOLUME					
Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	2363070	12429748	0	-934960	0
1970	2685242	13372505	942757	7797	0.06
1971	2976060	14195806	823301	-111659	-0.79
1972	3426442	15830162	1634356	699396	4.42
1973	3943390	17153746	1323584	388624	2.27
1974	4397648	17194804	41057	-893903	-5.2
1975	4794118	17210884	16080	-918880	-5.34
1976	5238588	17811199	600316	-334644	-1.88
1977	5708070	18208743	397544	-537416	-2.95
1978	6509472	19268037	1059294	124334	0.65
1979	7474228	19881446	613409	-321551	-1.62
1980	8482164	19848264	-33183	-968143	-4.88
1981	9846214	20972436	1124172	189212	0.9
1982	10702396	21404792	432356	-502604	-2.35
1983	11520376	22349529	944737	9777	0.04
1984	13092704	24352429	2002900	1067940	4.39
1985	14256596	25661873	1309443	374483	1.46
1986	15126812	26623189	961316	26356	0.1
1987	15915066	27055612	432423	-502537	-1.86
1988	16746320	27296502	240889	-694071	-2.54
1989	17769370	27720217	423716	-511244	-1.84
1990	18333156	27316402	-403815	-1338775	-4.9
1991	19419060	27575065	258663	-676297	-2.45
1992	20993114	28970497	1395432	460472	1.59
1993	22216856	29770587	800090	-134870	-0.45
1994	23959042	31146755	1376168	441208	1.42
1995	26135008	33191460	2044706	1109746	3.34
1996	28182416	34664372	1472912	537952	1.55
1997	30137754	36165305	1500933	565973	1.56
1998	33039476	39316976	3151672	2216712	5.64
1999	35557594	41246809	1929833	994873	2.41
2000	39031928	43715759	2468950	1533990	3.51
2001	40904790	44586221	870462	-64498	-0.14
2002	41977940	44916396	330175	-604785	-1.35

RTV DETAILED

SALES VOLUME

Year	Value	Adj_Value	Change	Deviation	%Deviation
2003	43003188	45153347	236952	-698008	-1.55

7707

INCOME

Year	Value	Adj_Value	Change	Deviation	%Deviation
1969	1188908	6253656	0	-465948	0
1970	1348723	6716641	462984	-2964	-0.04
1971	1493302	7123051	406410	-59538	-0.84
1972	1720810	7950142	827092	361144	4.54
1973	1983142	8626668	676525	210577	2.44
1974	2206155	8626066	-602	-466550	-5.41
1975	2407721	8643718	17652	-448296	-5.19
1976	2631543	8947246	303528	-162420	-1.82
1977	2863802	9135528	188282	-277666	-3.04
1978	3262735	9657696	522167	56219	0.58
1979	3742079	9953930	296235	-169713	-1.7
1980	4248027	9940383	-13547	-479495	-4.82
1981	4930629	10502240	561857	95909	0.91
1982	5357920	10715840	213600	-252348	-2.35
1983	5768372	11190642	474802	8854	0.08
1984	6553819	12190103	999462	533514	4.38
1985	7132834	12839101	648998	183050	1.43
1986	7568997	13321435	482334	16386	0.12
1987	7968124	13545811	224376	-241572	-1.78
1988	8382614	13663661	117850	-348098	-2.55
1989	8892960	13873018	209357	-256591	-1.85
1990	9176789	13673416	-199602	-665550	-4.87
1991	9714439	13794503	121088	-344860	-2.5
1992	10504802	14496627	702123	236175	1.63
1993	11116836	14896560	399933	-66015	-0.44
1994	11977634	15570924	674364	208416	1.34
1995	13061771	16588449	1017525	551577	3.33
1996	14085368	17325003	736553	270605	1.56
1997	15064877	18077852	752850	286902	1.59
1998	16513456	19651013	1573160	1107212	5.63
1999	17772765	20616407	965395	499447	2.42
2000	19502458	21842753	1226346	760398	3.48
2001	20443716	22283650	440897	-25051	-0.11
2002	20969505	22437370	153720	-312228	-1.39
2003	21487457	22561830	124460	-341488	-1.51

7708

EMPLOYMENT				
Year	Value	Change	Deviation	%Deviation
1969	164237	0	-7582	0
1970	168720	4483	-3099	-1.84
1971	170442	1722	-5860	-3.44
1972	183927	13485	5903	3.21
1973	199140	15213	7631	3.83
1974	201795	2655	-4927	-2.44
1975	197713	-4082	-11664	-5.9
1976	202334	4621	-2961	-1.46
1977	206628	4294	-3288	-1.59
1978	214876	8248	666	0.31
1979	226848	11972	4390	1.94
1980	231333	4485	-3097	-1.34
1981	238611	7278	-304	-0.13
1982	242897	4286	-3296	-1.36
1983	248214	5317	-2265	-0.91
1984	266565	18351	10769	4.04
1985	279060	12495	4913	1.76
1986	285229	6169	-1413	-0.5
1987	288096	2867	-4715	-1.64
1988	297442	9346	1764	0.59
1989	301542	4100	-3482	-1.15
1990	300957	-585	-8167	-2.71
1991	306396	5439	-2143	-0.7
1992	315867	9471	1889	0.6
1993	328471	12604	5022	1.53
1994	348621	20150	12568	3.61
1995	361817	13196	5614	1.55
1996	377479	15662	8080	2.14
1997	392208	14729	7147	1.82
1998	406666	14458	6876	1.69
1999	417138	10472	2890	0.69
2000	428918	11780	4198	0.98
2001	431583	2665	-4917	-1.14
2002	429395	-2188	-9770	-2.28
2003	429608	213	-7369	-1.72

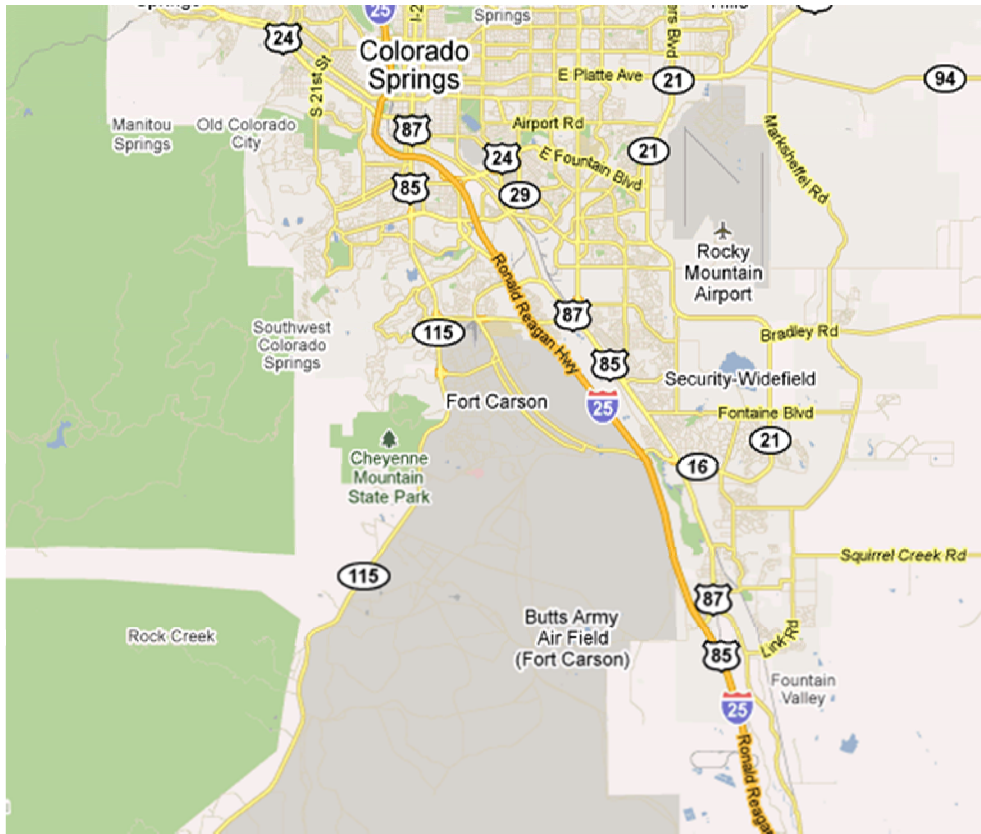
7709
7710
7711
7712

POPULATION				
Year	Value	Change	Deviation	%Deviation
1969	367959	0	-10757	0
1970	378845	10886	129	0.03
1971	393892	15047	4290	1.09
1972	414727	20835	10078	2.43
1973	439424	24697	13940	3.17
1974	444616	5192	-5565	-1.25
1975	447054	2438	-8319	-1.86
1976	443715	-3339	-14096	-3.18
1977	452406	8691	-2066	-0.46
1978	456115	3709	-7048	-1.55
1979	463710	7595	-3162	-0.68
1980	466859	3149	-7608	-1.63
1981	476858	9999	-758	-0.16
1982	487475	10617	-140	-0.03
1983	500324	12849	2092	0.42
1984	509889	9565	-1192	-0.23
1985	525817	15928	5171	0.98
1986	538814	12997	2240	0.42
1987	551940	13126	2369	0.43
1988	552476	536	-10221	-1.85
1989	553642	1166	-9591	-1.73
1990	552879	-763	-11520	-2.08
1991	560222	7343	-3414	-0.61
1992	579579	19357	8600	1.48
1993	599848	20269	9512	1.59
1994	624880	25032	14275	2.28
1995	641861	16981	6224	0.97
1996	653738	11877	1120	0.17
1997	665551	11813	1056	0.16
1998	680778	15227	4470	0.66
1999	694883	14105	3348	0.48
2000	707505	12622	1865	0.26
2001	725482	17977	7220	1
2002	736745	11263	506	0.07
2003	744453	7708	-3049	-0.41

7713

7714 **Appendix D. Fort Carson Transportation Analysis for CAB PEIS**

7715 This analysis focuses on the potential of adding a CAB at Fort Carson. Fort Carson is in central Colorado
7716 near Colorado Springs and approximately 75 miles (121 km) from Denver (Figure 14). The ROI of the
7717 affected environment for traffic and transportation aspects of the proposed action include Fort Carson and
7718 the western portion of El Paso County to include the communities of Colorado Springs, Stratmoor,
7719 Snowy, Cimarron Hills, Fountain, Widefield, and Security. Major roads that border Fort Carson are I-25
7720 to the east, SH 115 to the west, and Academy Boulevard to the north. Other major routes in the area
7721 include US 24, SH 85, SH 16, and Powers Boulevard.



7722 **Reference: www.maps.google.com**

7723 **Figure 14. Fort Carson, CO and surrounding road network**

7724 The population of El Paso County in 2000 was 16 times greater than it was in 1900. The majority of
7725 growth in El Paso County has been since 1950. Between 1900 and 1950 the County experienced an

7726 average annual growth rate of 1.7 percent. Between 1950 and 2000 the annual average growth rate was
 7727 four percent as the population grew from 73,400 to 526,900. These rates exceed both the growth rates for
 7728 the U.S. as a whole, as well as the State of Colorado. Since 1950, El Paso County saw a nearly 600
 7729 percent increase in population, while Colorado increased by approximately 225 percent and the U.S. by
 7730 86 percent (El Paso County, 2004).

7731 **D.1. Traffic and Roadways**

7732 A comprehensive daily traffic count was conducted by El Paso County for the Major Corridors Plan (El
 7733 Paso County, 2004). Other traffic counts from the PPACG and CDOT were used to complement the El
 7734 Paso County data.

7735 This traffic count data is presented graphically
 7736 in Figure 15. The relative volumes are
 7737 presented by the different band widths; the
 7738 wider the band the greater the vehicle count. In
 7739 general, El Paso County’s transportation
 7740 corridors operate at acceptable congestion
 7741 levels except for:

- 7742 • Woodmen Road
- 7743 • US 24
- 7744 • Baptist Road east of I-25
- 7745 • SH 105 east of I-25

7746 The PPACG conducted a study to evaluate the
 7747 regional impacts of growth of Fort Carson’s
 7748 population (PPACG, 2010a). The existing
 7749 conditions scenario of the study (2010) evaluates
 7750 traffic based on conditions in late 2009 to early
 7751 2010. At this time there were approximately 24,000 Soldiers assigned to Fort Carson and of these about

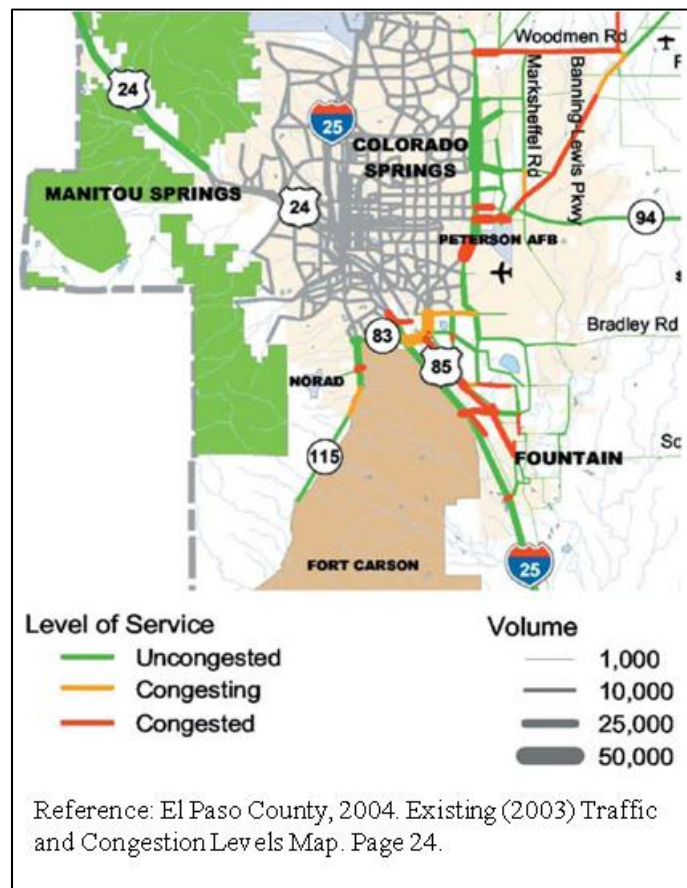


Figure 15. Existing traffic and congestion levels, El Paso County, CO

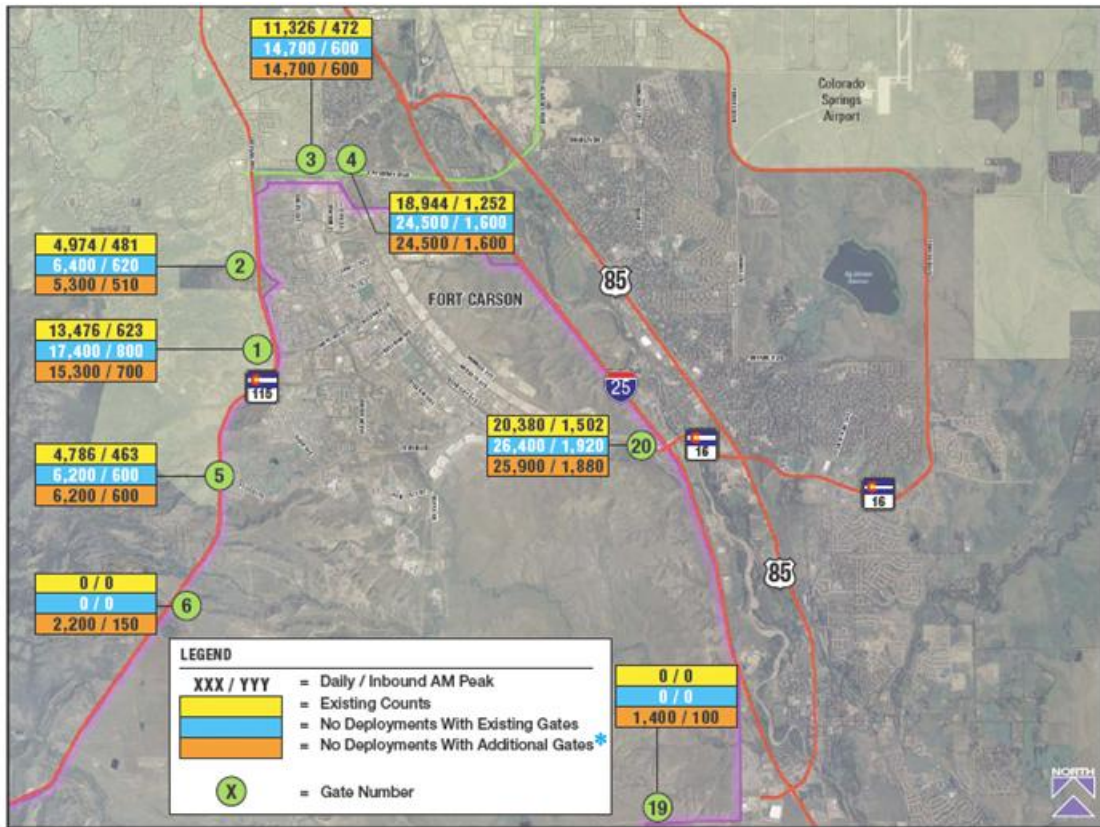
7752 19,000 will be referred to as Soldiers on-post. The high travel demand scenario has a five year planning
7753 horizon (2015) and is intended to represents a maximum transportation demand condition in which there
7754 are no Soldier deployments. It should be stated that no timetable has been established for the return of all
7755 Fort Carson Soldiers but for the purposes of the transportation analysis, it was necessary to establish a
7756 potential future condition as a basis for determining future transportation system needs. In this high travel
7757 demand scenario the number of Soldiers assigned to Fort Carson is estimated at about 26,000 (PPACG,
7758 2010a, p. 3).

7759 The high demand scenario of 26,000 Soldiers is very close to the total number Soldiers assigned to Fort
7760 Carson when the existing 2010 Soldier population of approximately 24,000 were added to the
7761 approximately 2,700 Soldiers from the proposed CAB.

7762 The high-demand scenario assumes 26,000 Soldiers assigned to Fort Carson with none of the
7763 installation's assigned units deployed. With this scenario, the total of inbound and outbound vehicle trips
7764 for the installation is estimated at over 95,000 vehicle trips per day. This estimate is about 30 percent
7765 higher than the counts from October 2009 (PPACG, 2010a, p4).

7766 Figure 16 shows the distribution of daily and inbound AM peak-hour existing and high travel demand
7767 trips to each gate. This distribution of existing counts and high travel demand estimates with the existing
7768 gates is based on current patterns shown in the count data. The distribution with Gates 6 and 19 in
7769 operation were based on pattern estimates from the Fort Carson Comprehensive Transportation Plan
7770 (Gannet-Flemming, 2008). Opening Gate 19 could lead to increased development south of Fort Carson.

7771



Reference, PPACG, 2010a, Figure 2, page 7.

7772
7773

7774 **Figure 16. Fort Carson Gate Traffic Volumes**

7775 The following is a summary of the gates used to enter/leave Fort Carson:

- 7776 • Gate 1 (Nelson Boulevard) is often called Fort Carson's Main Gate off of SH 115. It currently is a
7777 secure gate and is used as the west access to the cantonment area. This is by far the most heavily
7778 traveled gate along SH 115 today and is the only gate on SH 115 where visitors can access the
7779 installation.
- 7780 • Gate 2 is located about 0.5 mile (0.8 km) north of Gate 1 along SH 115. It is limited to
7781 government ID holders.

-
- 7782 • Gate 3 is the installation’s primary commercial traffic gate. Traffic passes a school at Chiles
7783 Avenue and Burris Street. Crossing guards are used during school hours and speed zones are
7784 enforced to ensure safety of school children in the area.

 - 7785 • Gate 4 is located on the northern boundary of the cantonment area. It can be accessed by
7786 Academy Boulevard and Westmeadow Drive.

 - 7787 • Gate 5 (Titus Boulevard) is located about 1.5 miles (2.4 km) south of Gate 1 along SH 115. It
7788 currently is a secure gate and is used as Fort Carson’s southernmost, west access to their
7789 cantonment area. It serves Fort Carson’s Evans Army Community Hospital, Cheyenne Shadows
7790 Golf Course, troop work areas, and post housing.

 - 7791 • Gate 6 (Wilderness Road) is located about 3 miles (4.8 km) south of Gate 1 along SH 115. No
7792 secured gate exists there today. It is currently used for delivery of ammunition and ordinance to
7793 the installation, and recently became the default gate for preapproved heavy truck construction
7794 traffic, used for the new infrastructure improvements on Fort Carson.

 - 7795 • Gate 19 is currently closed. It is the closest gate to BAAF. The area just outside the gate is within
7796 the city of Fountain and zoned for industrial use.

 - 7797 • Gate 20 is accessed from SH 16 and I-25.

7798 Gate 20 experiences the highest traffic volumes. Gates 4 and 20 combined account for about 55 percent of
7799 Fort Carson’s traffic. Gate 1 experiences the most traffic for gates on SH 115. Under the high-demand
7800 scenario (Soldier population of 26,000), gate counts are estimated to be 30 percent higher than 2010 data.
7801 Figure 3 shows that with the existing gate structure, Gates 4 and 20 are each projected to process about
7802 25,000 vehicles per day; Gate 1 is projected to process about 17,000 vehicles per day; and Gate 3 is
7803 projected to process just fewer than 15,000 vehicles per day. Figure 16 also shows the distribution of
7804 traffic volume through each gate if Gates 6 and 19 are opened. The distribution of trips to these gates
7805 follows the patterns developed in the *Fort Carson Comprehensive Transportation Plan* (Gannett-
7806 Flemming, 2008). However, that plan did not account for the potential assignment of the CAB at BAAF.
7807 BAAF is located near Gate 19 (behind the right half of the legend in Figure 15).

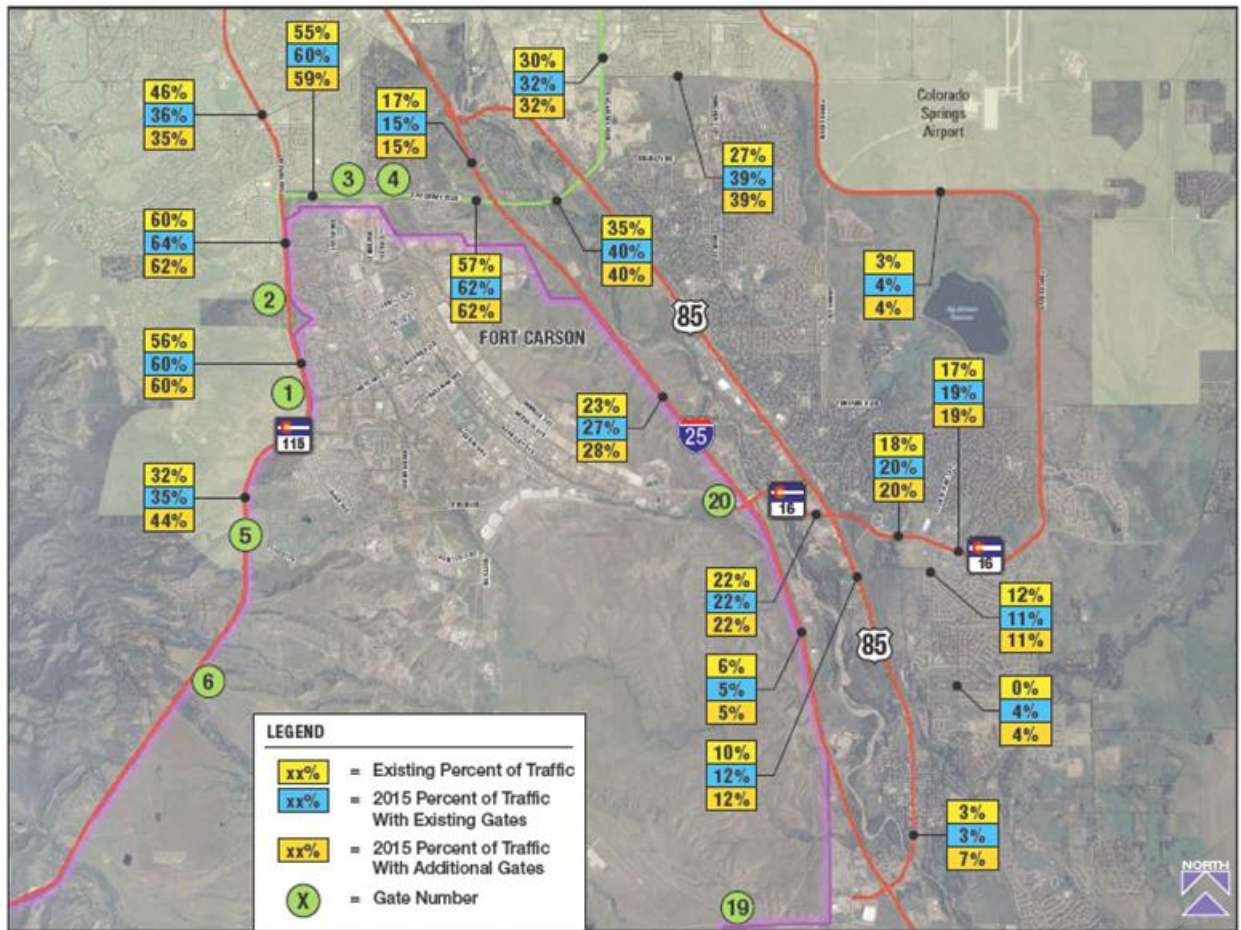
7808 Table 21 shows percentage increases over existing daily traffic volumes along area roadways for the two
 7809 high travel demand scenarios, which represent a condition with no Soldier deployments. As shown, the
 7810 change in volume with no deployments is generally the highest on South Academy Boulevard and SH
 7811 115. The addition of Gates 6 and 19 causes a higher percentage change in volume primarily on segments
 7812 just north of the new Gate 6, but has minimal impact on potential increases along South Academy
 7813 Boulevard and SH 16.

7814 **Table 21. High travel demand (2015) traffic volume increases**

Location	High Travel Demand with Existing Gates	High Travel Demand With Gates 6 and 19
South Academy Blvd	17% - 25%	17% - 25%
SH 16	6% - 7%	6% - 7%
SH 115	12% - 22%	12% - 31
I-25	7% - 16%	8% - 22%

7815 Reference: PPACG, 2010a, Table 2. p. 13.

7816 The percentage of traffic on area roadways that is generated by the installation is shown in Figure 17. On
 7817 arterial roadways adjacent to the installation, approximately 60 percent of the roadway traffic is generated
 7818 by Fort Carson.



Reference, PPAAG, 2010a, Figure 7, pg. 15.

7819
7820

7821 **Figure 17. Percent of Roadway Traffic Related to Fort Carson**

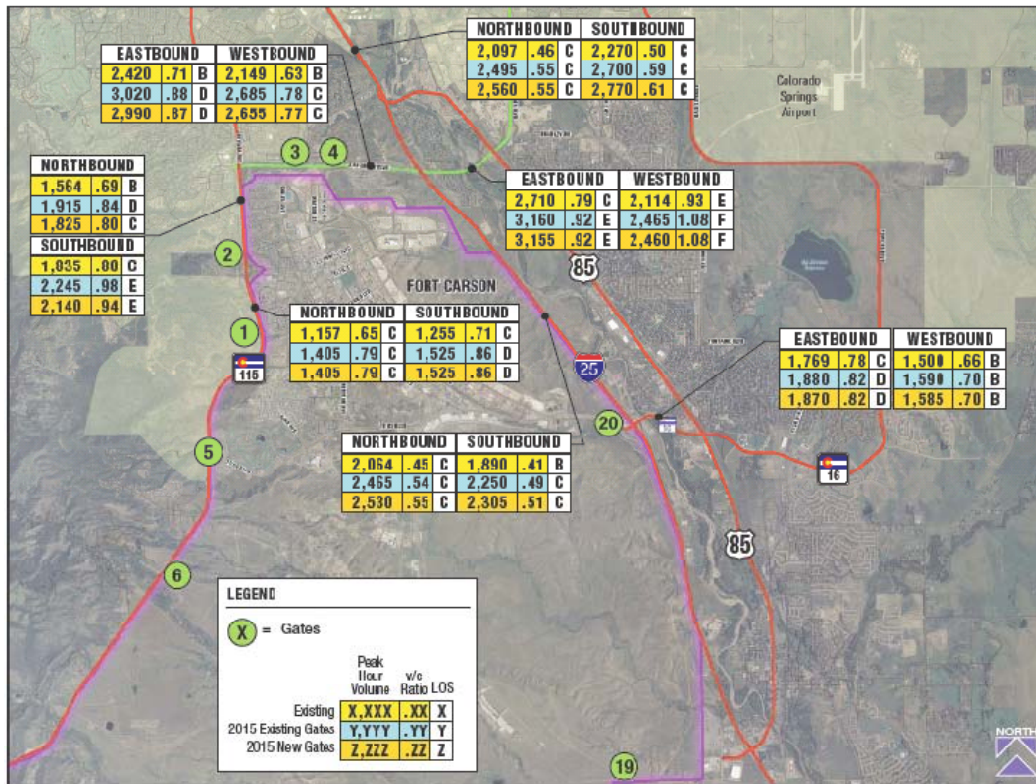
7822 Traffic operations in the study area were evaluated according to techniques documented in the *Highway*
 7823 *Capacity Manual* (Transportation Research Board, 2000). These techniques use hourly traffic volumes,
 7824 intersection control and lanes to give a LOS, which provides a qualitative measure of traffic operational
 7825 conditions based on vehicle delay. LOS is described by a letter descriptive designation ranging from A to
 7826 F, with LOS A representing free-flow travel and LOS F representing highly congested conditions. LOS
 7827 on roadways is generated by calculating the volume/capacity (V/C) ratios for the scenarios. Roadway
 7828 levels of service were determined from V/C ratios using the data in Table 22 Figure 18 shows the LOS for
 7829 primary roadways in the immediate area around Fort Carson.

7830

7831 **Table 22. Levels of Service by V/C Ratio**

LOS	Volume to Capacity Ratios for Roadway Facility Types	
	Freeway (capacity = 2,280 veh/hr/lane)	Urban Street Principal Arterials (capacity = 1,140 veh/hr/lane)
A	<0.27	-
B	0.27 – 0.46	< 0.75
C	0.46 – 0.64	0.75 – 0.82
D	0.64 – 0.84	0.82 – 0.89
E	0.84 – 1.00	0.89 – 1.00
F	> 1.00	> 1.00

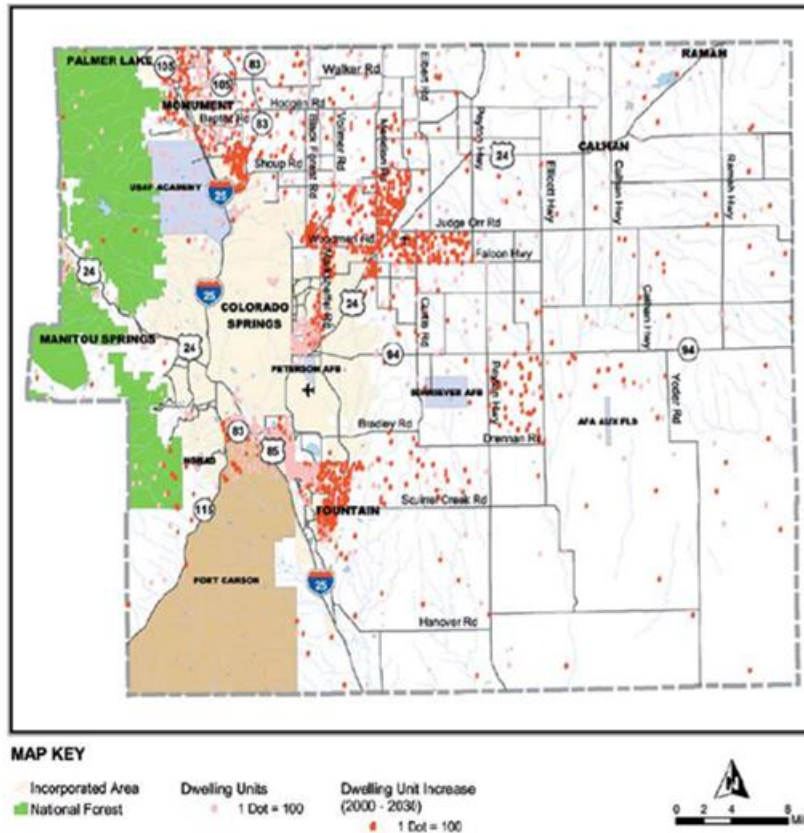
7832 Reference: TRB, 2000.



7833 Reference, PPACG, 2010a, Figure 12, page 19.

7834 **Figure 18. Arterial Peak-Hour Volumes and LOS**

7835 Two road segments in the area had an LOS lower than D. Those are Academy Boulevard east of I-25
 7836 (both directions) and southbound SH 115 between Academy Boulevard and Fort Carson Gate 1.



Reference: El Paso County, 2004, maps, page 26.

Figure 19. 2000 and 2030 Dwelling Units, El Paso County, CO

7855

7856

7857

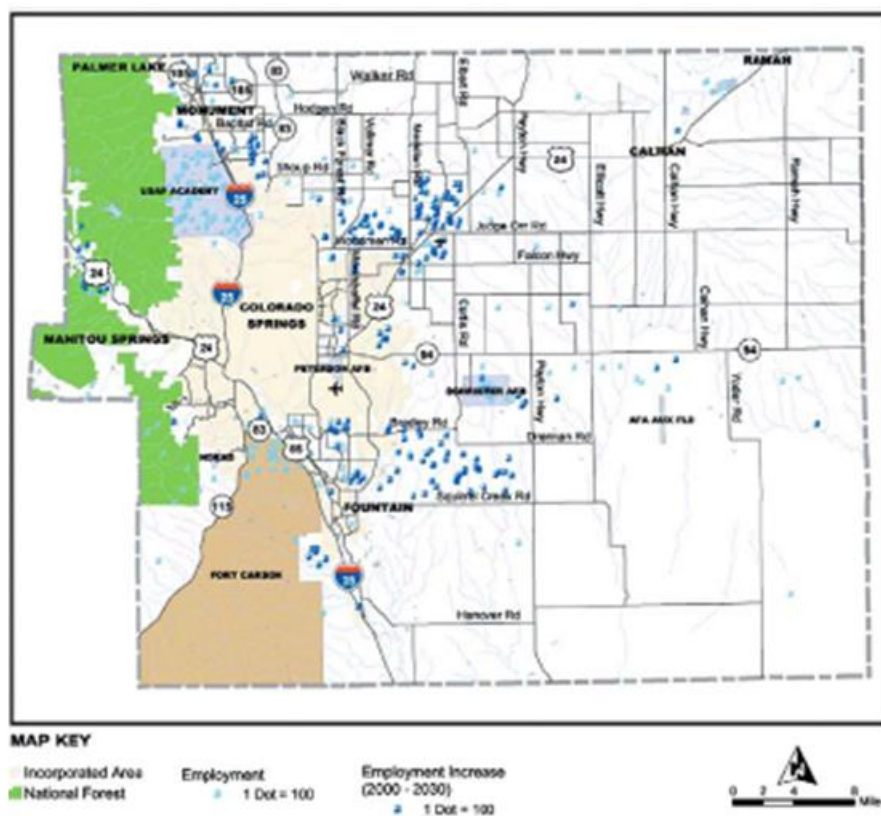
Calculations showing 2015 new gates presume that gates 6 and 19 will also be open. Opening gates 6 and 19 have virtually no effect on reducing LOS for any of the study's roadways.

The volume of traffic around Fort Carson will increase by at least 20 percent between 2005 and 2015 with the majority of these increases directly attributable to Fort Carson. The base year (2005) of the model indicates that Fort Carson contributes approximately 50,000 daily trips to the regional roadway network. By the year 2015, that is expected to increase to approximately

63,250 trips. Traffic volumes on Fort Carson will increase significantly resulting from the

7858 added Soldiers and Family members. Existing traffic data (Fort Carson, 2008) indicates that congestion
7859 exists on select installation roadways and at selected entry gates during peak periods.

7860 El Paso County is expected to grow considerably over the next several decades. Population and
7861 employment are both expected to increase by more than 50 percent between 2000 and 2030. The county's
7862 population is expected to grow from 517,000 in 2000 to approximately 800,000 by 2030. The
7863 unincorporated county is expected to increase its share of the county's population from 126,000 (24
7864 percent of the county population) in 2000 to nearly 240,000 (30 percent of the county's population) in
7865 2030 (El Paso County, 2004). The red dots in Figure 19 shows the approximate distribution of future



* Reference: El Paso County, 2004, maps, page 26.

Figure 20. 2000 and 2030 Employment, El Paso County, CO*

7886 amount of growth as it is distributed around El Paso County (El Paso County, 2004).

7887 The growth projected for El Paso County has a major impact on the transportation corridors throughout
 7888 the County. Increases in both population and employment will increase the number of new trips and the
 7889 length of these trips. The analysis shows that there are currently congestion problems at certain post
 7890 access points, particularly during peak demand periods, and traffic volumes on-post will increase
 7891 significantly with the increase in troops. Proposed new facilities (i.e., activation of Gates 6 and 19) may
 7892 change future traffic patterns; however, additional steps are needed to mitigate traffic issues related to
 7893 Fort Carson growth. Figure 19 shows the distribution of off-post housing of Fort Carson Soldiers by zip
 7894 code. The area defined by zip codes 80906, 80910, 80916, and 80911 includes almost half (48 percent) of
 7895 the Soldiers who live off-post and account for almost half (49 percent) of the daily trips those Soldiers

dwelling units. Dwelling units are a useful proxy for population and show the relative distribution of the population in the area. Dwelling units show where the trip originates.

Employment identifies the destination end of the trip. This destination might, a trip for work, shopping or education. The blue dots on the employment map (Figure 20) are generalized and do not represent specific locations or actual numbers of new houses or commercial development.

What they do show is the relative locations and

7896 and their Families make. Figure 20 shows the expected locations for new employment opportunities in El
7897 Paso County.

7898 **Existing Conditions Findings**

7899 The following discuss the findings of the gate capacity analysis and the relationship between gate
7900 capacity and field observations of gate operations (PPACG, 2010a):

- 7901 • Peak-hour volume at Gate 20 is nearly equal to the low-end gate capacity. Installation personnel
7902 have indicated that during peak times Military Police are used in order to utilize tandem
7903 processing at each lane, designed to provide the gate with sufficient capacity to accommodate
7904 the peak flow; however, field observations show queues extending through the SH 16 interchange
7905 and along the southbound off-ramp.
- 7906 • Peak-hour volumes at Gate 1 exceed the high-end gate capacity.
- 7907 • Gate 3 peak-hour demand is less than the capacity. However, queues from the gate were observed
7908 between 6 AM and 6:30 AM to extend onto the westbound Westmeadow off-ramp. It appeared
7909 that they did not extend onto South Academy Boulevard.
- 7910 • Gate 4 peak-hour demand is less than the low-end capacity. Post personnel have indicated that
7911 during peak times Military Police are used in order to establish tandem processing at each lane,
7912 which is designed to provide the gate sufficient capacity to accommodate the peak flow.
7913 However, it was observed between 5:30 AM and 6:15 AM that queues from the gate can extend
7914 onto the westbound B Street off-ramp and occasionally into Academy Boulevard.
- 7915 • The queuing observed at Gates 4 and 20 despite vehicle demand below the capacity is best
7916 explained by the traffic flow patterns in the early morning hours. Turning movement count data at
7917 the adjacent interchanges show a 15-minute count from 5:30 AM to 5:45 AM that is double any
7918 other 15-minute period during the morning commute. This “pulse” of traffic temporarily
7919 overwhelms gate capacity and a queue forms. After 5:45 AM, vehicle flow rates drop to just
7920 under the gate capacity but these vehicles must stack behind the queue formed by the earlier pulse
7921 and thus the queue continues to grow. This queue only begins to decrease when the vehicle flow

7922 rate drops below capacity, which according to counts begins around 6:00 AM. As observed in the
7923 field the queue quickly dissipates and is gone by 6:15 AM.

7924 • Peak-hour volumes at Gates 2 and 5 are less than the low-end capacity and Fort Carson personnel
7925 have not indicated that there are significant queuing issues at these gates.

7926 • The sum of gate capacity installation wide is sufficient to accommodate existing peak-hour
7927 demand, if arriving vehicles were to distribute more evenly among the gates.

7928 **Conclusions**

7929 The following are conclusions on projected traffic conditions based on an analysis of existing conditions
7930 and projected population growth for the El Paso County area (PPACG, 2010a)

7931 • Travel to and from Fort Carson has increased over the last four years. Gate counts from October
7932 2009 show about 74,000-vehicle trips to/from Fort Carson each day. This is 90 percent higher
7933 than gate counts in 2005.

7934 • The main driver of the gate counts is the number of Soldiers physically present. Within the next
7935 three years, if all Soldiers assigned to Fort Carson were not deployed and remained on-post then
7936 traffic volumes to/from Fort Carson could increase by another 30 percent to almost 96,000
7937 vehicles per day.

7938 • Existing AM inbound peak-hour volumes exceed theoretical gate capacity at Gate 20. High travel
7939 demand projected volumes will exceed gate capacities at Gate 1 and Gate 20 and approach
7940 capacity at Gate 4. However, the gate capacity in totality is adequate to accommodate both
7941 existing and high travel demand projected peak-hour inbound volumes.

7942 • Field observations show gate queues during peak inbound times extending off-post into adjacent
7943 intersections and roadways.

7944 • Recent improvements to the SH 16 and I-25 interchange have significantly upgraded capacity and
7945 storage on the approach to Gate 20. These improvements have reduced queuing onto adjacent

7946 roadways. Ongoing improvements to SH 16 between I-25 and US 85 will provide additional
7947 capacity and storage for the Gate 20 approach.

7948 • Ongoing improvements to South Academy Boulevard and programmed improvements to SH 115
7949 will adequately address capacity and safety issues on these roadways.

7950 • Recent capacity improvements to the adjacent roadway system will accommodate existing traffic
7951 volumes and high travel demand projected traffic volumes. A few locations around the
7952 installation may experience LOS E conditions but congestion will be localized to those areas.

7953 This scenario assumes all Soldiers stationed at Fort Carson are on-post and the potential for the opening
7954 of Gate 6 and 19. The following discusses the projected peak-hour volumes for the high travel demand
7955 scenario of 26,000 Soldiers assigned to Fort Carson as compared to anticipated future gate capacity.

7956 •The projected peak-hour volume at Gate 20 will exceed the high-end capacity.

7957 •The projected peak-hour volume at Gate 4 will exceed the low-end capacity but be just under the
7958 high-end capacity.

7959 •Gate 1 capacity increases due to converting a visitor inspection lane to an Automated Installation
7960 Entry (AIE) system. However, the projected peak-hour volume, without Gate 6, will be 105
7961 percent of the gate capacity. Opening Gate 6 reduces the projected demand by 12 percent to 700
7962 vehicles per hour, which is less than the anticipated capacity.

7963 •The low-end capacities at Gates 2 and 5 are anticipated to be higher than the projected pea- hour
7964 volumes at these gates.

7965 •At Gates 3, 4, and 20 capacities are anticipated to either remain the same or decrease from existing
7966 capacities due to the installations of AIE systems. Therefore, observed queuing issues at Gates 3,
7967 4 and 20 will likely continue and be exacerbated in the high-travel demand scenario, which
7968 assumes all Soldiers are on-post.

7969 •Gate 19 will need to attract about 220 vehicles from Gate 20 in the AM peak-hour to reduce Gate 20
7970 demand to a level equal to its high-end capacity. Although Gate 19 does not draw large volumes

7971 from Gate 20 it does provide several benefits to the post. Gate 19 provides direct access for units
7972 to be stationed at the new Wilderness Road development area and BAAF. This will remove traffic
7973 from the cantonment area and alleviate internal installation congestion near the Butts Road / Titus
7974 Boulevard. intersection. Furthermore, Gate 19 could have additional utility since it provides
7975 installation access for existing and future housing in the southern portion of the city of Fountain
7976 and in northern Pueblo County.

7977 •The sum of future gate capacity installation wide is sufficient to accommodate the projected high
7978 travel demand peak-hour volume, if arriving vehicles were to distribute more evenly among the
7979 gates.

7980 **D.2. Planned Roadway Improvements**

7981 The PPACG identified a number of roadway improvements that will alleviate some of the problems
7982 associated with congestion, as identified in Table 23. Additionally, the PPACG recommended that the
7983 several jurisdictions (city of Colorado Springs, city of Fountain, El Paso County, and Fort Carson)
7984 continue to cooperate and expand their nonmotorized transportation system.

7985

7986 **Table 23. Recommended Roadway Improvements near Fort Carson**

Planned Roadway Improvements Near Fort Carson	Lead Agency	Estimated Cost	Status
Continue improvements to South Academy Boulevard	El Paso County/ City of Colorado Springs	\$80 Million	Phase 4 of county portion in progress
Continue improvements to SH 16/I-25	CDOT/PPACG	\$70 Million	Undetermined
Continue planning and funding improvements to SH 125	CDOT/PPACG		Planning study for SH 115 will completed as part of Phase II Ft. Carson Impact Study. PPACG included funding in 2010 TIP.
Monitor S. Academy Blvd and intersections near Ft. Carson as installation population increases	PPACG/CDOT/El Paso County, City of Colorado Springs		
Continue to pursue funding for projects along I-25 corridor from South Academy north to the Douglas County line	CDOT/PPACG		

7987 Reference: PPACG, 2010a, Appendix F

7988 The CDOT also has a number of roadway improvements identified to alleviate congestion and improve
 7989 roadway safety. Those transportation improvement projects most relevant and affecting Fort Carson are
 7990 identified in Table 24.

7991

7992 **Table 24. CDOT Transportation Improvement Plan projects near Fort Carson**

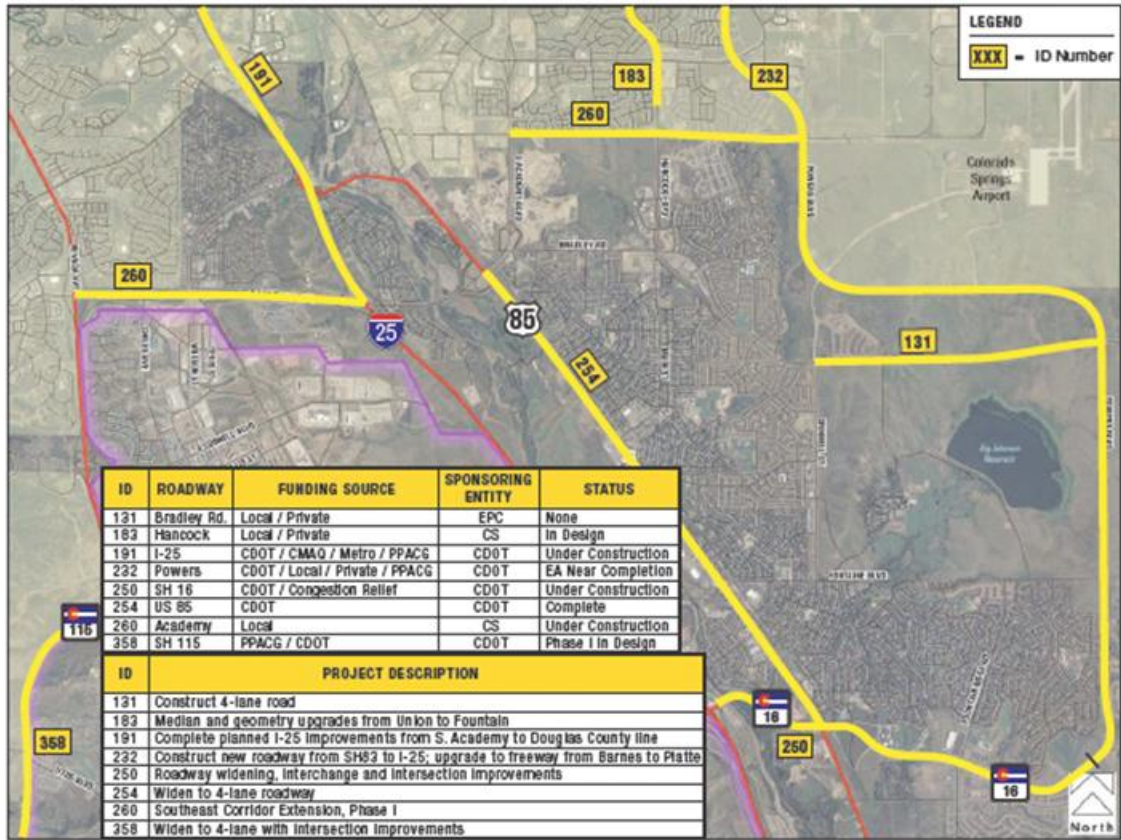
Location	Project Description	Years and Funding
SH 115, from milepost 27 to 46.	Safety Improvements. This work includes safety –improvements at intersections and curves along SH 115 from approximately South Rock Creek to the Main Gate at Ft. Carson in El Paso County. The work may include highway realignment and widening for improved sight distance, added climbing lanes, intersection upgrades for Ft. Carson and nearby neighborhoods, improved shoulders and drainage, upgraded guardrail, enhanced delineation, new signing, striping, and resurfacing.27 to milepost 46	2011: \$1,000,000 2012: \$200,000 2013: \$2,000,000
I-25. Bridge over Rock Creek.	Perform preliminary engineering of northbound bridge over Rock Creek.	2010: \$700,000 2013: 3,500,000

7993 Reference: PPACG, 2010a.

7994 Figure 21 shows the 2035 fiscally constrained roadway projects near Fort Carson. The figure provides
 7995 information on the sponsoring agency, funding source, status and a description of each project. Most of
 7996 these projects have been constructed, are being constructed, or are in the design phase. As indicated
 7997 earlier in the traffic operational analysis, the planned capacity improvements should generally
 7998 accommodate projected traffic volumes for the high travel demand scenario considered herein.

7999

8000



Reference, PPACG, 2010a, Figure 15, p. 27

8001
8002

8003 **Figure 21. 2035 Long Range Transportation Plan, Fiscally Constrained Projects.**

8004 **D.3. Nonmotorized Transportation**

8005 Nonmotorized transportation as it relates to Fort Carson is somewhat geographically limited to nearby
8006 regions around the installation. Due to limited access on the south, southeast, and west sides of the
8007 installation, opportunities for nonmotorized access to Fort Carson will generally come from Colorado
8008 Springs and El Paso County to the north or El Paso County and the Fountain / Security / Widefield areas
8009 to the east.

8010 Regionally, and compared to other metropolitan regions, the Colorado Springs area has a very respectable
8011 nonmotorized transportation system. The installation itself has infrastructure that actively supports
8012 cycling as a recognized mode of transportation and has taken steps to coordinate its bicycle infrastructure
8013 with that of adjoining jurisdictions of Colorado Springs, Fountain and El Paso County. The PPACG

8014 adopted, as a component of the larger 2035 Regional Transportation Plan (PPACG, 2008d), a Regional
8015 Nonmotorized Transportation Plan in 2008. Data gathered from a survey in 2007 indicated that 1.1
8016 percent of commuters entering Fort Carson gates were on a bicycle (PPACG, 2010a). The State of
8017 Colorado, PPACG, El Paso County and the cities of Colorado Springs and Fountain, as well as Fort
8018 Carson itself all have bicycle routes and the these jurisdictions have taken steps to coordinate and
8019 integrate their planning efforts. The cities (Colorado Springs and Fountain) and the county have identified
8020 capital improvement plans to improve their system, but the “missing links” is to improve connectivity
8021 between each jurisdiction’s bicycle network (PPACG, 2010a). Continued cooperation and development of
8022 bicycle infrastructure could lead to increased levels of cycling to Fort Carson.

8023 **D.4. Public Transportation**

8024 Public transportation services in the Pikes Peak region are currently provided by the Colorado Springs’
8025 Mountain Metropolitan Transit. The city’s severe budget deficits have caused it to discontinue funding of
8026 prior transit operations. Current operations funding is being provided through the Pikes Peak Rural
8027 Transportation Authority. This shift has resulted in the discontinuation of several routes and a decrease in
8028 the span of service - weekday evening trips were cut, as was weekend service. The short-term prospect of
8029 Mountain Metropolitan Transit playing a role in providing transportation alternatives to and from Fort
8030 Carson, or in reducing single occupant vehicles passing through the gates, is limited.

8031 Before the Mountain Metropolitan Transit service reductions, Routes 30 and 33 provided direct service to
8032 and within the cantonment area. Routes 30 and 33 provided direct service to the installation’s cantonment
8033 area from the Pikes Peak Community College transfer hub, immediately north of Fort Carson. Route 30
8034 operated from early morning to early evening on Monday through Saturday; while Route 33 only
8035 operated during peak-hours Monday through Friday. These services were discontinued in 2009, leaving
8036 Fort Carson with no on-post transit service.

8037 If transit service to Fort Carson is again implemented as a strategy to reduce single-occupancy vehicle
8038 use, that service will have to take into account the needs of the Soldiers and their Families, as well as
8039 workers and visitors (PPACG, 2010a).

8040 **D.5. Fort Carson Internal Transportation Network**

8041 The roadway system at Fort Carson forms somewhat of a grid pattern with roadways in the main
8042 cantonment area running in a general east-west or north-south direction. The primary routes in this area
8043 include O’Connell Boulevard, Chiles Avenue, Specker Avenue, Prussman Boulevard, and the one-way
8044 pair of Barkeley and MacGrath avenues. Outside of this area Butts Road provides access to the
8045 southwestern more remote areas of the post and to Wilderness Road. The roadways on Fort Carson can be
8046 classified into one of the three types according to the function they serve in moving people and freight:

8047 • Arterial Highways – Serve the movement of people and freight regionally between population
8048 and activity centers with a minimal level of access to adjacent properties.

8049 • Collector Roadways – Serve the movement of people and freight from population and activity
8050 centers and funnel them onto arterial highways with a moderate level of access to adjacent
8051 properties.

8052 • Local Roadways – Provide access to adjacent properties and move people onto collector and
8053 arterial roadways.

8054 Arterial highways are divided into principal arterial highways and minor arterial highways. Principal
8055 arterial highways serve national and regional movements.

8056 Minor arterial highways serve movements between population and activity centers within a region.

8057 Arterial roadways generally have four, five or six lane cross-sections within developed areas. Outside of
8058 developed areas, minor arterial highways may have a cross-section with two or more lanes. Traffic
8059 demand determines the number of lanes required on a roadway. Arterial highways located in less
8060 developed areas should be designed to permit safe travel at speeds greater than 45 miles per hour. At Fort
8061 Carson, Butts Road and the one-way pair of Magrath and Barkeley avenues will be classified as arterials.

8062 Collector roadways may be grouped into major collector roadways and minor collector roadways. Major
8063 collector roadways connect larger population and activity centers with arterial highways. Minor collector
8064 roadways connect smaller areas or portions of larger areas with major collector roadways or arterial
8065 highways. Collector roadways located within Fort Carson include:

-
- 8066 • O’Connell Boulevard
 - 8067 • Ellis Street
 - 8068 • Nelson Boulevard
 - 8069 • Prussman Boulevard
 - 8070 • Titus Boulevard
 - 8071 • Butts Road
 - 8072 • Specker Avenue
 - 8073 • Chiles Avenue
 - 8074 • Harr Avenue
 - 8075 • Sheridan Avenue
 - 8076 • Minick Avenue

8077 Local roadways are located in all portions of Fort Carson and serve as the direct connection to parking
 8078 lots and adjacent properties. Examples include Khe Sanh Street and Woodfill Road.

8079 **D.6. ENVIRONMENTAL CONSEQUENCES**

8080 **Alternative 2 and, Assuming CAB Stationing is at Fort Carson, Alternative 1**

8081 **Traffic and Roadways**

8082 Direct effects at Fort Carson. To estimate the total trips generated from a CAB, this analysis suggests that
 8083 the land use is comparable to ITE’s Land Use category 710, General Office Building (ITE, 2003, p.
 8084 1149). A general office building houses multiple tenants, it is a location where affairs of businesses are
 8085 conducted or commercial or industrial organizations or professional persons or firms conduct business
 8086 activities. An office building or buildings may contain a mixture of tenants including professional
 8087 services such as insurance companies, and tenant services, such as a bank, restaurant or cafeteria and
 8088 service retail facilities (ITE, 2003, pg 1149). Among the various land use categories identified by the ITE
 8089 for trip generation, the General Office building most accurately reflects the demographics and ancillary
 8090 activities (e.g., tenant services) that are part of a brigade complex.

8091 A CAB has approximately 2,700 Soldiers but, for the purposes of this analysis, a figure of 2,800 Soldiers
 8092 will be used. Army data shows that approximately 63.4 percent of Soldiers are married (HQDA, 2009).
 8093 Of the 2,700 Soldiers, approximately 1,775 will be married and live either in family housing on the
 8094 installation or live off the installation (2,800 x 0.634 = 1,775). The balance of approximately 1,025

8095 Soldiers will be unmarried. Approximately 15 percent (154) of the unmarried population will be officers
 8096 or senior noncommissioned officers who are authorized to live in quarters outside the brigade complex.
 8097 Of the approximately 2,800 CAB Soldiers, approximately 1,929 will live outside the brigade complex and
 8098 commute to work on a daily basis (1,775 + 154=1,929). This population will either live in family housing
 8099 on the installation or off the installation in rented or purchased housing. Of the 1,025 unmarried Soldiers,
 8100 871 Soldiers are lower-grade enlisted who will live in barracks within or near the brigade complex. It is
 8101 presumed these Soldiers will live within walking distance and will not add to the morning or afternoon
 8102 peak traffic volume. It is assumed that each of the 871 unmarried soldier living within the brigade
 8103 complex will make two daily trips.

8104 For calculating trip generation for morning and peak-hours this analysis will use the population of 1,860
 8105 who live outside the brigade complex. There will likely be additional trips made by visitors and vendors
 8106 during the day, and those will be included in the daily total trips. The ITE uses equation [1] to calculate
 8107 daily trips on a weekday, equation [2] for weekday AM peak-hour, and equation [3] for weekday PM
 8108 peak-hour (ITE, 2003, pages 1151-1153).

	Equation	Example
[1]	$\text{Ln}(T) = 0.84 \text{Ln}(X) + 2.23$	
[2]	$\text{Ln}(T) = 0.86 \text{Ln}(X) + 0.24$	Morning peak-hour, weekdays: 851 trips
[3]	$T = 0.37(X) + 60.08$	Afternoon peak-hour, weekdays: 778 trips

8109

8110 Using equations [2], and [3], the presence of a CAB will generate approximate morning peak and
 8111 afternoon peak trips as indicated.

8112 The formula for weekday trips (equation [1]) does not include the unmarried Soldiers living in the brigade
 8113 complex. Assuming two trips per Soldier per day, the total weekday trips from the complex will be
 8114 determined by adding the results of equation [1] with 1,742 (2 trips per Soldier x 871 unmarried Soldiers
 8115 = 1,742 trips). The total weekday trips from a brigade complex will be approximately 8,452 trips. The
 8116 calculation to determine weekday trips is:

8117
$$\text{Trips: Weekday Trips } (T) = [\text{Ln}(T) = 0.87\text{Ln}(X) + 2.23] + (2 \times 871) = 8,452.$$

8118 Statistically, every soldier will have 1.51 family members (HQDA, 2009). This means a CAB with 2,800
8119 Soldiers will generate a total increase to the local population of approximately 7,028. The current estimate
8120 of annual vehicle miles traveled per capita is 10,067 miles. This means the Soldiers and Family members
8121 of a 2,800-soldier CAB will generate approximately 70,750,880 vehicle miles per year.

8122 Indirect effects at Fort Carson. The presence of approximately 2,800 additional Soldiers and 4,228 Family
8123 members will add traffic volume to the roadways on Fort Carson. It is not possible to predict with any
8124 degree of accuracy the change in LOS on installation roadways or intersections. The additional 2,800
8125 Soldiers will likely generate increased trip generation at common on-post destinations, such as the
8126 Commissary, Post Exchange, and other on-post retail and recreation facilities. Similarly, the increase of
8127 Soldiers assigned to Fort Carson, and their Family members will also generate, though unquantifiable,
8128 increased traffic volume on public roadways near and leading to the installation.

8129 Conclusion The stationing of a CAB to Fort Carson will contribute to increased levels of traffic volume
8130 on the roadways in El Paso County. Some portion of the 2,800 Soldiers will reside in the local community
8131 and contribute to the morning and evening peak traffic volumes on the roadways near and leading to Fort
8132 Carson. Those residing on the installation will also travel off the installation for a host of reasons, such as
8133 shopping, entertainment and many others. Collectively, the 2,800 Soldiers and their Family members will
8134 contribute to traffic volume in El Paso County and surrounding areas.

8135 As determined above, the presence of an additional 2,800 Soldiers will generate approximately
8136 70,750,880 vehicle miles traveled on the installation and surrounding area. This increase in vehicles miles
8137 traveled will likely cause an increase in vehicle crashes and injuries and fatalities from those crashes.
8138 Data from the Bureau of Transportation Statistics (2009) determined there will be 199 vehicle crashes
8139 annually for every 100 million vehicle miles traveled, and from those crashes, there will be 82 injuries 1.4
8140 fatalities. Statistically, based on the known population increase and projected vehicle miles traveled, there
8141 will be 141 vehicle crashes, resulting in 58 injuries and one fatality.

8142 **D.7. Cumulative Effects**

8143 Cumulative effects are the result of the incremental impact of the proposed action when added to other
8144 past, present, and reasonably foreseeable future actions. For a traffic analysis, reasonably foreseeable

8145 future events will include future commercial, retail or residential development both on the installation and
8146 in the adjoining local community that have potential for increasing traffic volume.

8147 El Paso County is expected to see considerable population growth in the future. The population in El Paso
8148 County is expected to grow from approximately 517,000 in 2000 to approximately 800,000 in 2030; a 54
8149 percent increase (El Paso County, 2004).

8150 The region, encompassing El Paso County, the cities of Colorado Springs and Fountain will undoubtedly
8151 see an increase in population in the foreseeable future. This will bring additional housing and businesses
8152 to the region, and combined with the projected population growth at Fort Carson, have an effect on the
8153 region's transportation system. However, the PPACG, the authorized Metropolitan Planning Organization
8154 for the region, has recognized not only the inevitable growth in the region, but also that of Fort Carson.
8155 PPACG has evaluated the potential effects and identified potential problem area and had identified a
8156 number of capital improvement projects to address the expected increase in traffic volume. PPACG, in
8157 cooperation with other local jurisdictions and Fort Carson, is working to further expand non-motorized
8158 transportation in the region.

8159 **D.8. SUMMARY OF ANALYSIS RESULTS**

8160 Evaluation of the regional transportation system confirmed that the El Paso County region will see
8161 continued population growth. The regional study of the potential effects of growth at Fort Carson also
8162 studied the potential impacts on the region's transportation system, to include automobile, nonmotorized
8163 transportation and public transit.

8164 The projected growth to 26,000 Soldiers on Fort Carson will impact traffic congestion in the region. The
8165 region has identified the potential effects and is prepared to meet those effects to ensure the continued
8166 quality of the transportation system to meet local and regional demands and ensure the quality and safety
8167 of the transportation system. The region has identified capital improvement projects to address population
8168 growth and projected transportation demands, to include roadways and nonmotorized infrastructure that
8169 can potentially decrease auto demand in the future. Public transit had been used at Fort Carson, but was
8170 ceased due to lack of demand.

8171 The Fort Carson Comprehensive Transportation Study (Gannet-Flemming, 2008) identified a number of
8172 recommendations to improve vehicle safety and traffic flow through infrastructure changes. Implementing
8173 these changes to intersection and roadway infrastructure will improve traffic flow and vehicle safety.

8174 Adding a CAB to BAAF and Fort Carson will have direct, indirect and cumulative effects on the local
8175 and regional transportation system, but those effects will not be significant.

8176 (For references, see Section 9 of the CAB PEIS.)

8177 (For acronyms, see Section 7 of the CAB PEIS.)

8178 (For further explanations related to Transportation, see Appendix A of the CAB PEIS.)

8179 .

8180 **Appendix E. JBLM Transportation Analysis for CAB PEIS**

8181 This analysis focuses exclusively on the potential of adding a CAB at JBLM. This analysis extracted data
8182 from existing traffic and transportation related document cited here, as well as the transportation impact
8183 analysis in the JBLM *Grow the Army* FEIS (Fort Lewis, 2010a). That analysis reviewed the potential
8184 effects of several alternatives reflecting potential increases in Solder stationing at Fort Lewis. This
8185 analysis extracts data from that document to evaluate the potential effects of only stationing the CAB at
8186 JBLM.

8187 JBLM is located in western in Pierce and Thurston counties, and is within the area defined by the Puget
8188 Sound Regional Council (PPRC). The PPRC (www.psrc.org) is the recognized Metropolitan Planning
8189 Organization (MPO) for the greater Seattle-Tacoma area, which also includes JBLM. Federal law requires
8190 establishment of MPOs in urbanized regions with a population of greater than 50,000 to conduct
8191 integrated coordinated regional transportation planning.

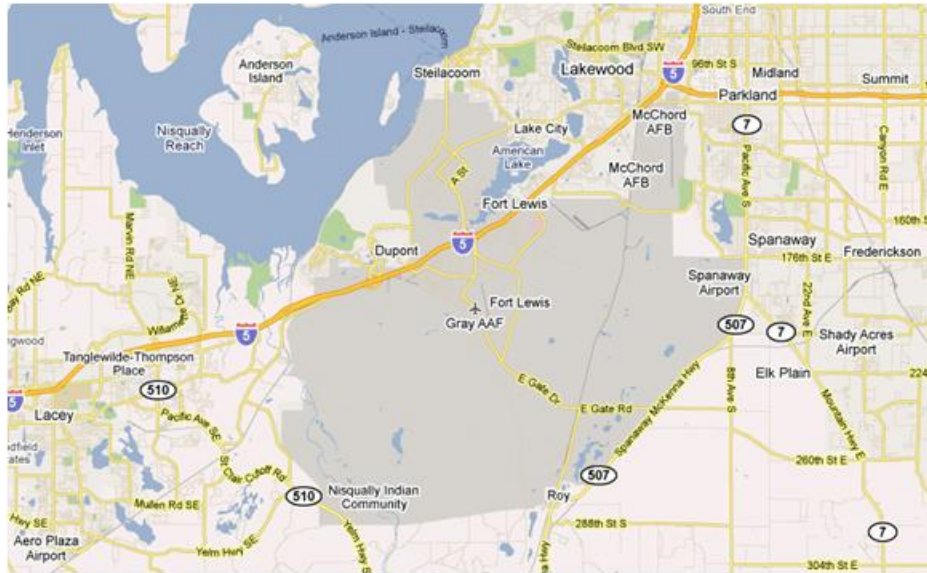
8192 **E.1. Traffic and Roadways**

8193 Interstate (I-) 5 separates the installation’s cantonment area, creating a Main Post and North Post from the
8194 former Fort Lewis. I-5 is classified as a T1 freight route, meaning that it carries more than 10 million tons
8195 of freight per year. Trucks make up 10 to 13 percent of the total daily volume of traffic on I-5 within
8196 portion adjacent to JBLM, which equates to almost 15,000 trucks per day (WSDOT, 2010). This portion
8197 of I-5 separates the Fort Lewis portion of JBLM between the Main Post and North Post (see Figure 22).

8198 A study prepared by the WSDOT and Transgroup evaluated I-5 for an 11-mile segment between Mounts
8199 Road to State Route (SR) 512 (see Figure 22). The following is a summary of that report.

8200 I-5 is designated as a National Highway System (NHS) route and supports the U.S. strategic defense
8201 policy by providing access to JBLM and Camp Murray (home of the Washington National Guard,
8202 Washington Military Department, and the Washington State Emergency Management Center). I-5 also
8203 provides access to intermodal transportation facilities and accommodates interstate and interregional
8204 travel and is designated by the State Legislature as a Highway of Statewide Significance (HSS). The
8205 minimum criteria for HSS designation, as prescribed in state of Washington law is: “This statewide
8206 system shall include at a minimum I-s and other statewide principal arterials that are needed to connect

8207 major communities across the State and support the State’s economy.” Complicating the importance of
8208 this link is the lack of alternative north-south routes to facilitate regional and local travel. The topography
8209 of the area, combined with the presence of JBLM and Camp Murray make local travel difficult; with I-5
8210 often serving as the only local connection (see Figure 22).



8211

8212

Reference: www.maps.google.com

8213 **Figure 22. JBLM and surrounding road network**

8214 Since 2003, Army restationing decisions have added more than 36,000 Soldiers, Family members and
8215 civilian employees to the population associated with JBLM. A majority of these new personnel reside in
8216 the local communities and daily commutes to/from the installation, along with local travel by this
8217 expanded population, have added pressure to an already congested I-5 corridor and the interchanges that
8218 service JBLM and nearby communities. Increased travel demand through this section on of I-5, from
8219 significant growth in Thurston and Pierce counties, has put severe strain on I-5 in this study corridor.
8220 Compounding the already congested corridor is the fact that the military-related growth exceeded the
8221 population projections developed by local jurisdictions (WSDOT, 2010).

8222 Figure 23 shows the current LOS (left side) and the projected
 8223 LOS (right side) for the year 2030 for the portion of I-5 adjacent
 8224 to JBLM. The WSDOT study made the following observations
 8225 about the segment of I-5 that passes next to JBLM:

- 8226 • I-5 is an important regional freight corridor where
 8227 freight represents up to 15 percent of traffic in this
 8228 section and is backbone of connectivity to the Port of
 8229 Tacoma and Port of Seattle with global and local
 8230 economic implications associated with increased freight
 8231 delay.
- 8232 • This section of I-5 serves as a key commuter corridor
 8233 linking two of the fastest growing counties in the state
 8234 of Washington and providing access to key employment
 8235 centers.
- 8236 • Traffic congestion on this section of I-5 occurs many
 8237 hours of the day and is not just a weekday AM and PM
 8238 peak-hour phenomenon, and regional travel demands
 8239 are increasing over the next 20 years.
- 8240 • JBLM’s primary mission is threatened by increasing
 8241 congestion and safety issues on I-5.
- 8242 • JBLM has seen significant growth in troop levels and
 8243 activity and base activity is anticipated to grow further
 8244 as JBLM also serves Veterans and other military
 8245 personnel living throughout the Thurston and Pierce Coun
- 8246 • There is very little transit and high occupancy vehicle use
 8247 JBLM.



Reference: Washington DOT, 2010, p. 4

Figure 23. Current and expected Level of Service on I-5

-
- 8248 • Close intersection spacing and at-grade rail line crossings at the I-5 ramp interchanges at
8249 Bridgeport Way, Thorne Lane, Berkeley Street, 41st Division Drive, and DuPont-Steilacoom
8250 Road.
 - 8251 • Additional safety and operational delays from the Point Defiance Bypass project that will reroute
8252 passenger rail service to the rail line that parallels I-5.
 - 8253 • Significant mainline congestion during PM peak-hour periods at the Thorne Lane interchange due
8254 to the choke point on I-5 from four lanes to three lanes.
 - 8255 • Poor circulation and frequent congestion in the Tillicum neighborhood due to the close proximity
8256 to the Berkeley Street interchange.
 - 8257 • Three of the four interchange structures serving as primary access to JBLM are considered
8258 Structurally Deficient or Functionally Obsolete.
 - 8259 • PM peak-hour I-5 mainline and ramp congestion at the SR 512 interchange, northbound Gravelly
8260 Lake Drive off-ramp, and between the Berkeley Street northbound on-ramp and Thorne Lane off-
8261 ramp.
 - 8262 • AM peak-hour congestion at the southbound I-5 off-ramp at Berkeley Street resulting from the
8263 general capacity of the interchange and access control at JBLM.
 - 8264 • Poor out-bound JBLM operations at Berkeley Street (to northbound I-5), DuPont gate/DuPont-
8265 Steilacoom Road (to southbound I-5), and Center Drive (to DuPont and southbound I-5).

8266 In addition to regional background demands on I-5, traffic to and from JBLM is a significant contribution
8267 to traffic volumes along the I-5 corridor where JBLM adjoins I-5. Variations of these impacts can
8268 sometimes be felt on a day-to-day basis and are dependent upon military operations. These operations can
8269 change depending on troop deployments, varying security levels, or holiday leave. In addition to the
8270 short-term changes, longer-term impacts also occur. Over the past several years the overall number of
8271 troops based at JBLM has increased and is anticipated to continue to increase during the next several
8272 years. Because of variable short-term military operations, a look at broad and long-term military travel

8273 patterns and trends is necessary to better understand how to best address any identified impacts (WSDOT,
8274 2010).

8275 The travel patterns and distribution of traffic from the military bases throughout the regional roadway
8276 network are important considerations when evaluating likely impacts to the I-5 corridor. Impacts from
8277 military travel demand are more noticeable at interchange ramps located near access gates (Access
8278 Control Points). For purposes of this discussion, traffic patterns associated with the former McChord AFB
8279 and the former Fort Lewis (now combined under JBLM) are described separately. Based on provided data
8280 (WSDOT, 2010, p. 39-40):

- 8281 • Fifty percent of Fort Lewis area and 60 percent of McChord AFB area personnel and their Families
8282 reside and access JBLM from the north (i.e. Lakewood, Tacoma, Kitsap and King Counties).

- 8283 • Thirty percent of Fort Lewis area and 15 percent of McChord AFB area personnel reside and access
8284 the installation from the south (i.e. Lacey, Olympia, Thurston County).

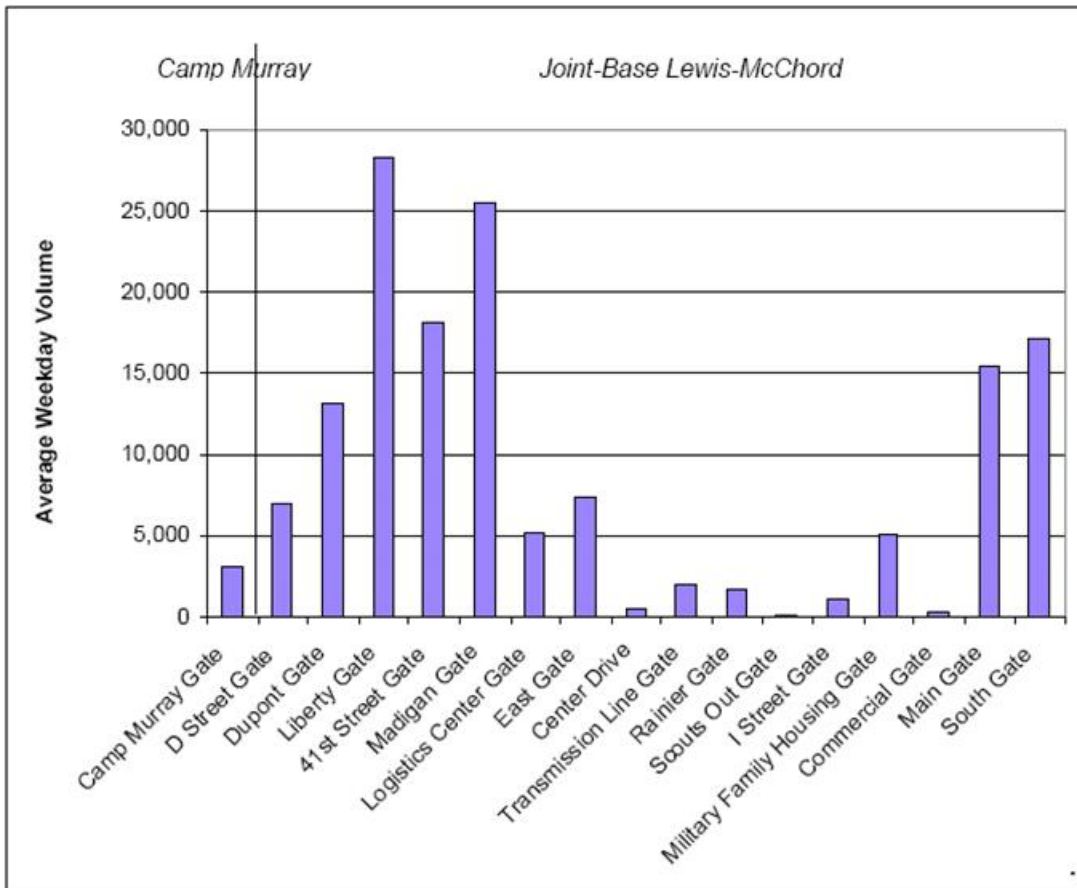
- 8285 • Ten percent of Fort Lewis area and five percent of McChord AFB area personnel reside and access
8286 the installations from the east (i.e. Yelm, Spanaway, Pierce County).

- 8287 • Ten percent of Fort Lewis area and 15 percent of McChord AFB area personnel reside and access
8288 the installations from the west (i.e. DuPont and Steilacoom).

8289 The significant distribution of traffic to the north and south of JBLM (80 percent of Fort Lewis area, 75
8290 percent of McChord AFB area) results in the majority of military traffic utilizing the I-5 corridor to access
8291 the installations via the gates along I-5.

8292 **E.2. Gate Access to JBLM.**

8293 There are multiple access points for the military installations along the I-5 corridor. Figure 24 shows the
8294 average weekday traffic volume through the gates.



8295

8296

Reference: WSDOT, 2010, Figure 11, p. 40

8297 **Figure 24. Traffic Volume through JBLM gates – 2009**

8298 As Figure 24 shows, the majority of traffic from JBLM accesses via DuPont, Liberty, 41st Division,
 8299 Madigan, Main, and South gates. As Figure 25 shows, all five of the high volume JBLM gates are located
 8300 in close proximity to the I-5 corridor (DuPont, Liberty, 41st Street, Madigan, and Main). In particular the
 8301 DuPont, Liberty, and Madigan gates are located immediately adjacent to, or are accessed directly, via
 8302 adjacent I-5 interchanges. Because of the high volumes and close proximity to I-5, operations at these
 8303 three gates immediately adjacent to I-5 are likely to have the greatest impact to mainline and ramp
 8304 operations.



8305
8306

Reference, Washington State DOT, Figure 12, p. 41

8307 **Figure 25. Location of Access Points, JBLM**

8308 The CAB will be located adjacent to GAAF in the south-central portion of the installation (Figure 25).
 8309 The facilities to support the CAB, such as administrative buildings, and housing for unmarried Soldiers
 8310 will be located on the east side of the airfield. Presuming the additional Soldiers commuting to the airfield
 8311 distribute their trips consistent with existing distribution of gate volume (Figure 25), a large majority of
 8312 new trips from CAB Soldiers will use access control points along I-5.

8313 Based on data in the JBLM *Grow the Army* FEIS (Fort Lewis, 2010a), it can be expected that stationing a
 8314 CAB will generate 770 additional inbound and 620 additional outbound trips through the installation's
 8315 access control points. This represents an estimated 12 percent increase over the traffic volume that moves
 8316 through the installation's access control points if all other stationing actions outlined in the JBLM *Grow*
 8317 *the Army* FEIS occurred (Fort Lewis, 2010, Sections 4.10.5 and 4.10.6). It is likely that a majority of

8318 these additional trips will enter and leave JBLM through the access control points along I-5, adding to the
8319 existing congestion during peak-hours (WSDOT, 2010).

8320 **E.3. JBLM Transportation Improvements.**

8321 Several transportation facilities are planned for construction on the Fort Lewis portion of JBLM, as
8322 identified below (JBLM, 2010a, p. 4-105).

- 8323 • Upgrading the Madigan Gate with road revisions;
- 8324 • Adding a DuPont Gate connection to Pendleton Avenue and upgrading Pendleton Avenue to four
8325 lanes from DuPont Gate to 8th Street;
- 8326 • Upgrading 41st Division Drive to a parkway boulevard from A Street to I Street.

8327 Additionally, JBLM recently developed an installation-wide master plan for the former Fort Lewis area.
8328 The Transportation Plan, as described in the Master Plan Digest, discusses the possible closure of the
8329 Main Gate and distributed traffic to improved gates at DuPont and Madigan. If the Main Gate closes, then
8330 the installation could have movement between the Main Post and North Post underneath I-5. Since most
8331 traffic arrives on I-5 from points north of the Madigan Gate or from south of the DuPont Gate, the new
8332 system can offer improved efficiencies and improved safety along the I-5 corridor (The Urban
8333 Collaborative, 2009, p. 32).

8334 **E.4. ENVIRONMENTAL CONSEQUENCES**

8335 **Alternative 2 and, Assuming CAB Stationing is at JBLM, Alternative 1**

8336 **Traffic and Roadways**

8337 Direct effects at JBLM. To estimate the total trips generated from a CAB, this analysis suggests that the
8338 land use is comparable to ITE's Land Use category 710, General Office Building (ITE, 2003, p. 1149). A
8339 general office building houses multiple tenants, it is a location where affairs of businesses, commercial or
8340 industrial organizations, or professional persons or firms are conducted. An office building or buildings
8341 may contain a mixture of tenants including professional services; insurance companies, and tenant
8342 services, such as a bank, restaurant, or cafeteria and service retail facilities (ITE, 2003, pg 1149). Among

8343 the various land use categories identified by the ITE for trip generation, the General Office building most
 8344 accurately reflects the demographics and ancillary activities (e.g., tenant services) that are part of a
 8345 brigade complex.

8346 A CAB has approximately 2,700 Soldiers but, for the purposes of this analysis, a figure of 2,800 Soldiers
 8347 will be used. Army data shows that approximately 63.4 percent of Soldiers are married (HQDA, 2009).
 8348 Of 2,800 Soldiers, approximately 1,775 will be married and live either in family housing on the
 8349 installation or live off the installation ($2,800 \times 0.634 = 1,775$). The balance of approximately 1,025
 8350 Soldiers will be unmarried. Approximately 15 percent (154) the unmarried population will be officers or
 8351 senior noncommissioned officers who are authorized to live in quarters outside the brigade complex. Of a
 8352 2,800 CAB, approximately 1,929 will live outside the brigade complex and commute to work on a daily
 8353 basis ($1,775 + 154 = 1,929$). This population will either live in family housing on the installation or off
 8354 the installation. Of the estimated 1,025 unmarried Soldiers, approximately 871 Soldiers are lower-grade
 8355 enlisted who will live in barracks within or near the brigade complex. It is presumed these Soldiers will
 8356 live within walking distance and will not add to the morning or afternoon peak traffic volume. It is
 8357 assumed that each of the 871 unmarried Soldiers living within the brigade complex will make two daily
 8358 weekday trips.

8359 For calculating trip generation for morning and peak-hours this analysis will use the population of 1,929
 8360 who live outside the brigade complex. There will likely be additional trips made by visitors and vendors
 8361 during the day, and those will be included in the daily total trips. The ITE uses equation [1] to calculate
 8362 daily trips on a weekday, equation [2] for weekday AM peak-hour, and equation [3] for weekday PM
 8363 peak-hour (ITE, 2003, pages 1151-1153).

	Equation	Example
[1]	$\text{Ln}(T) = 0.84 \text{Ln}(X) + 2.2$	
[2]	$\text{Ln}(T) = 0.86 \text{Ln}(X) + 0.24$	Morning peak-hour, weekdays: 851 trips
[3]	$T = 0.37(X) + 60.08$	Afternoon peak-hour, weekdays: 778 trips

8364 Using equations [2], and [3], the presence of a CAB will generate approximate morning peak and
 8365 afternoon peak trips as indicated.

8366 The formula for weekday trips (equation [1]) does not include the unmarried Soldiers living in the brigade
 8367 complex. Assuming two trips per Soldier per day, the total weekday trips from the complex will be
 8368 determined by adding the results of equation [1] with 1,742 (2 trips per Soldier x 871 unmarried Soldiers

8369 = 1,742 trips). The total weekday trips from a brigade complex will be approximately 8,452 trips. The
8370 calculations to determine weekday trips is provided below:

8371 Trips: Weekday Trips (T) = $[\ln(T) = 0.87\ln(X) + 2.23] + (2 \times 871) = 8,452$

8372 Statistically, every Soldier has 1.51 Family members (HQDA, 2009). This means a CAB with 2,800
8373 Soldiers will generate a total increase to the local population of approximately 7,028. The current estimate
8374 of annual vehicle miles traveled per capita is 10,067 miles. This means the Soldiers and Family members
8375 of a 2,800-soldier CAB will generate approximately 70,750,880 vehicle miles per year.

8376 The JBLM *Grow the Army* FEIS (JBLM, 2010a) evaluated the potential effects of incremental additions
8377 of stationing Soldiers at the installation. The purpose of this document is to evaluate the potential effects
8378 of stationing only the CAB at the installation. Toward that end, this document presumes that the other
8379 stationing alternatives in the JBLM *Grow the Army* FEIS occurred, and evaluates only the effects of an
8380 additional 2,800 Soldiers of the CAB. Table 25 is a combination of data that evaluated the incremental
8381 increases in Soldiers assigned to JBLM. The LOS data for Alternative 3 is the expected delay at key
8382 intersections if all unit stationing occurred at the installation – except the CAB. The data under
8383 Alternative 4 indicates the LOS at the same key intersections if the unit stationing included the CAB.
8384 Table 25 therefore represents the relative effect on installation traffic congestion if the CAB was stationed
8385 at JBLM.

8386 **Table 25. Projected Level of Service at Selected Intersections**

Intersection		Traffic Control*	2015AM Peak-Hour		2015 PM Peak-Hour	
			Alternative 3 LOS (delay)	Alternative 4 LOS (Delay)	Alternative 3 LOS (delay)	Alternative 4 LOS (Delay)
1	41 st Division Drive/Nevada Ave/Tacoma Ave	Signal	B (18)	C (22)	D (52)	F (>80)
2	41 st Division Drive/Pendleton Ave	Signal	C (32)	D (35)	D (36)	D (51)
3	I-5 NB Ramps/Barksdale Ave/Clark Road	Signal	C (24)	C (31)	D (49)	E (78)
4	I-5 SB Ramps/Barksdale Ave/Clark Road	Signal	B (14)	B (15)	D (53)	F (>80)
5	DuPont-Steilacoom Rd/Barksdale Ave/Wilmington Drive	Signal	C (30)	C (31)	C (29)	C (29)
6	DuPont-Steilacoom Rd/East Dr.	SSSC	C (22) NB-F (>50)	C (23) NB-F (>50)	F (>50) NB-F (>50)	F (>50) NB-F (>50)
7	North Gate Road/East Drive	AWSC	B (13)	B (13)	E (44)	F (>50)
8	41 st Division Drive/A Street	Signal	C (34)	D (40)	D (36)	D (46)

8387 Reference: Fort Lewis, 2010, Table 4-30, p. 4-116 and Table 4-31, p. 4-120.

8388 * signal=signalized; SSSC= side-street stop-controlled; AWSC = all-way stop-controlled

8389 The data shows a reduction in LOS for intersections 1, 3, 4, and 7. For two intersections (2, 8) there is no
 8390 change of LOS, but the delay (measured in seconds) increases. There is no change in either LOS or delay
 8391 at intersection 5. There is no change in LOS at intersection 6 with the LOS at its lowest level, F, where
 8392 delay measures longer than 50 seconds for both alternatives.

8393 Indirect effects at JBLM. As determined above, the presence of an additional 2,800 Soldiers will generate
 8394 approximately 70,750,880 vehicle miles traveled on the installation and surrounding area. This increase in
 8395 vehicles miles traveled will likely cause an increase in vehicle crashes, and injuries and fatalities from
 8396 those crashes. Data from the Bureau of Transportation Statistics (2009) determined there will be 199

8397 vehicle crashes annually for every 100 million vehicle miles traveled, and from those crashes, there will
8398 be 82 injuries and 1.4 fatalities. Statistically, based on the known population increase and projected VMT,
8399 there will be 141 vehicle crashes, resulting in 58 injuries and one fatality.

8400 **SUMMARY OF ANALYSIS RESULTS.**

8401 The stationing of a CAB at JBLM will cause traffic volume on the installation to increase, and the LOS
8402 will decrease at four of eight key intersections studied. LOS at four of the eight intersections will be at
8403 LOS-F. Increased traffic volume from stationing the CAB at JBLM will also contribute to increased
8404 traffic congestion on I-5 near and leading to JBLM. These potential effects on traffic on roads on, and
8405 leading to JBLM are significant and warrant further investigation and identification of long-term
8406 mitigation actions.

8407 (For references, see Section 9 of the CAB PEIS.)

8408 (For acronyms, see Section 7 of the CAB PEIS.)

8409 (For further explanations related to Transportation, see Appendix A of the CAB PEIS.)

8410

8411

Appendix F. Public Scoping Comments

8412 This appendix provides the public comments received by the Army during the public scoping period for
8413 this PEIS.

8414

8415

8416

Item	Agency (Commenter Name)	Type	Comment
1.	Individual (Sam Johnson)	Aviation (general)	<p>Via e-mail on 9/22/2010:</p> <p>I have heard that the army is not holding a public hearing about the planned expansion of operations at and near Fort Carson. I am hoping this is an error. Surely, when people's life styles are in the direct path of planned military training activity, they would have a chance to voice opinions in a public venue. I will look forward to a public hearing. Thank you for your time.</p>
2.	Individual (Sam Johnson)	Aviation (general)	<p>Via e-mail on 9/23/2010:</p> <p>Thank you for your response. I knew about those meetings and attended a couple of them.</p> <p>What I am referring to now are the proposed flight training activities that will use large numbers of helicopters and C130s over large parts of southwestern Colorado and parts of Arizona and Utah. Some people under those air spaces will be heavily affected (planes at 200 ft.??), and I have heard that the Army is not going to grant them any public hearings. I don't believe that. I think that the Army always holds public hearings if the impacts of training are significant. Am I wrong? Where and when will such hearings take place?</p>
3.	Individual (Bill Sulzman)	Aviation (general)	<p>Via e-mail on 9/27/2010:</p> <p>I have another question from the document referred to in my earlier request. Here we have a description of an area of off reservation low-level training with no detail of the area other than this mysterious set of bridges and intersections. Also as with the mountain training there are no specifics as to how often this training occurs. Hard to comment on this without more detail.</p> <p>2-14. Off-military reservation low-level training route.</p> <p>a. Low-level training route (Hawk) is established for the purpose of training low-level navigation for day, night, and NVG operations. Use of the route is reserved through BAAF Base Operations to deconflict traffic.</p> <p>b. See Chapter 4 for operating procedures. Route Hawk is defined by the following check points:</p> <ol style="list-style-type: none"> (1) SP Hawk, River Bridge vicinity EC 15365388. (2) H-1, Highway Bridge vicinity EC 14544527. (3) H-2, Railroad Bridge vicinity EC 09734105. (4) H-3, Highway Bridge vicinity EC 16833383.

			<p>(5) H-4, Highway Bridge vicinity EC 14672121. (6) H-5, 1-25 Bridge vicinity EC 23040836. (7) H-6, Highway T-Intersection vicinity EB 44167713. (8) H-7, Railroad Bridge vicinity EB 75765310. (9) H-8, Railroad Bridge vicinity EB 83205877. (10) H-9, Highway T-Intersection vicinity EB 84299465. (11) H-10, Road Triangle vicinity EC 71343870. (12) H-11, Building on Railroad vicinity EC 62745833. (13) (13) RP, Railroad Bridge vicinity EC 31626513.</p> <p>2-15. UAS Restricted Operating Zone (ROZ).</p> <p>a. All UAS's currently operate in R-2601 and require a ROZ to be established through Range Control prior to their flight. Publication of a local NOTAM will be accomplished by BAAF Operations and Range Control will execute the activation of the ROZ.</p> <p>FC REG 95-1 * 1 FEBRUARY 2010</p>
4.	Individual (Bill Sulzman)	Aviation (general)	<p>Via e-mail on 9/27/2010:</p> <p>In doing research for my comment letter on the CAB at Fort Carson I came across a copy of this Fort Carson document setting out some of the details of already existing Fort Carson helicopter training. I would like a copy of the USFS agreement in question complete with a map of the 3 training areas and 16 landing zones in the mountains.</p> <p>DEPARTMENT OF THE ARMY HEADQUARTERS, FORT CARSON Fort Carson, Colorado 80913-4145 01 February 2010 *FC Reg 95*1</p> <p>Aviation Local Flying Rules and Procedures</p> <p>Three mountain training areas with Sixteen LZ's are established for the purpose of conducting mountain/high altitude helicopter training and qualification. The Fort Carson Mountain-High Altitude Program of Instruction establishes procedures for training, qualification and utilization of the areas.</p> <p>(1) The use of training areas and specific landing areas is coordinated annually by the G3 Aviation/MSE G3 AIR through the USFS Regional Office, Wild Life Service, and the City of Colorado Springs. These training areas are not owned by Fort Carson, but are authorized for use through a USFS approved agreement with Fort Carson.</p>

5.	National Park Service – Intermountain Regional Office Denver, CO (Julie Sharp)	Land Use (national parks)	Via e-mail on 10/07/2010: The National Park Service has reviewed this project, and determined that no parks will be affected: therefore, we have no comments. Thank you!
6.	Individual Comment (Doug Holdread)	Socioeconomics (Wind energy development)	Via e-mail on 10/08/2010: The analysis of the proposed addition of a CAB at Fort Carson should include an assessment of the proposals impact upon current and future wind generation within the areas where training will occur. Southeast Colorado has great potential for the generation of much-needed wind-generated electricity and has been designation by the State of Colorado as one of eight Renewable Resource Generation Development Areas. Wind energy development is important to the economic viability of our region. Southeastern Colorado is currently experiencing the adverse affect of 235, 000 acres having been federalized and removed from our tax-roles with the creation of the PCMS. We have suffered additional economic harm because wind energy development projects have be cancelled and postponed due to the threat that the Army plans to significantly expand the current site. In addition, wind power development is already seriously curtailed by existing MOA and Military Training Routes. Since the issue of wind generation and the potential impact upon its current development posed by the proposed CAB was not adequately addressed in either the PEIS or the Grow the Army EIS, a site specific EIS should undertaken which examines and explain how CAB training would interface with wind energy development. The magnitude of environmental impact of the proposed CAB is such that a full, site-specific EIS should be undertaken. Please advise me as to the NEPA process going forward. If Fort Carson is chosen as the location of a CAB will is a site specific EIS be done? Or would the ROD for the Grow the Army EIS simply be revised?
7.	WSDOT – Urban Planning Office (Stacy Trussler)	Transportation	Via letter dated: 10/07/2010 To Whom It May Concern, Thank you for the invitation to identify environmental issues and concerns to be analyzed in the PEIS. The WSDOT has recently supplied comments to the Army on a Draft Environmental Impact Statement (DEIS) and FEIS covering the expansion of JBLM in Pierce County, Washington. Since one of the possible sites to be considered for the CAB is JBLM, WSDOT would like to ensure the transportation issues reviewed for your PEIS are consistent with the transportation issues that WSDOT recommended be analyzed in the Army’s “Grow the Base” DEIS and FEIS.

		<p>The following are specific areas that should be analyzed in the CAB PEIS:</p> <p>Traffic Analysis – All affected access points to JBLM should be analyzed. The traffic impact analysis should include both AM and PM peak periods for 1-5 mainline operations and interchanges from SR 512 (Exit 127) to Mounts Road (Exit 116). This analysis should include the ramp operations, the intersections at the ramp termini, and rail crossings for the base (current) year and horizon year with and without the planned CAB addition and relocation. Analysis of the SR 507 and SR 7 intersections that serve traffic accessing gates on the east side of the base should also be included. Appropriate mitigations should be specified if significant impacts are determined.</p> <p>Traffic Modeling: The analysis should have a 20 year horizon (2030). All traffic volumes and growth used in any analysis should include troops, family members, and CAB support resulting from the possible expansion.</p> <p>Lakewood/JBLM/I-5 Study: We have recently completed a study of this area with funding provided by the Office of Economic Adjustment (OEA) at the DoD. The “Traffic Operations Model and Alternative Analysis – I-5 from SR 512 to Mounts Road” study assessed 20 year transportation improvement needs in the I-5 corridor taking into consideration the planned base expansion as well as anticipated general population and employment growth in the study area. We would like to see that the traffic model used in that study be used to generate traffic forecasts in this PEIS. The final report can be downloaded at http://www.wsdot.wa.gov/Projects/I5/FtLewisMcChordTransportation/. Please consider this study’s findings as you conduct the CAB PEIS.</p> <p>JBLM Growth Coordination Plan: The preliminary findings from this study should also be considered in the CAB’s PEIS. This study was recently completed by JBLM and the city of Lakewood with funding from OEA. An Executive Summary, the Draft Plan, and supporting Appendices are now available on the public website for your review. The website is http://www.jblm-growth.com/.</p> <p>Thanks you for your consideration. If you have any questions please give me a call. Please send all related materials to:</p> <p>Tom Washington Urban Planning Office, WSDOT 401 Second Ave. So., Suite 300</p>
--	--	---

			Seattle, WA 98104-2887 Phone 206-464-1280 e-mail washint@wsdot.wa.gov
8.	Individual Comment (Terry Schooler)	Aviation (general)	Via e-mail on: 09/16/2010 Public Affairs Officer, I strongly support the proposed location of the full CAB to Ft. Carson Colorado. This placement of CAB to area will benefit both the Army and our community. I am a 55 year resident of Colorado Springs. Over the years I have observed the many occasions that Army helicopters have served the area in many emergency operations including air rescue in our high mountains. Of course this saves lives and saves heartache for our residents. It also provides valuable training to Army pilots. Because of the high elevation, 6000 plus feet, of our area and the close proximity even higher altitude mountains this provides for ongoing experience for the Army pilots for their missions in other parts of the world such as Afghanistan. Ft. Carson has the land and the terrain to house this brigade. Make it happen Colorado.
9.	Individual Comment (Kathy Johnson)	Soils/Biological (general)	Via letter dated: 09/27/2010 This is concerning the CAB at PCMS and Fort Carson. I can't see where the CAB would cause any kind of problems. As far as the soil and damage to it, after living here for quite some time, I have been impressed with the ability of the grasses to rebound from damage with no assistance from humans. Left to itself it will re-seed and spread to cover any damaged areas, and I know the care PCMS will take to be sure to care for any problems that develop and take action to remedy any soil problems as they have done and continue to do at PCMS. Due to the scarce population see that dust would create a problem for anyone in the area. Most of the land in the area of PCMS is not populated with cattle or horses on a regular basis - I know stories were told of thousands of cattle, but this was greatly exaggerated - I don't believe you could find more than a few thousand and that would be looking a long way from PCMS. As far as the livestock and wildlife reacting to low flying aircraft, I have seen no reaction by any animals when previous plane and helicopters flew over, not even from a very low flying private plane. So no I don't expect to any livestock or wildfires. As for us, we would love to see a new brigade at PCMS and Fort Carson. We so enjoy it when the planes and helicopters fly over and when troops come to train at PCMS. Most people around here support anything the military does or wants to do. But, I don't imagine they

			take the time to tell you that. Some people here are opposed to anything and everything the Army does-most of them don't even live here and should have no say so. But remember most people support our troops and the Army at PCMS and Fort Carson. Don't listen to the minorities as the crow flies, so I know what's real and what's not. Hope all goes well.
10.	Individual Comment (Macy McKelvey)	Socioeconomics and Land Use	<p>Via letter dated: 09/16/2010</p> <p>Dear Mr. Secretary,</p> <p>It has announced that Fort Carson, located here in Colorado Springs, has been selected as one of the two finalists to house a 2,700 Army soldier aviation brigade. I believe that the further expansion of Fort Carson with this brigade is both inefficient and a waste of tax payers money. The citizens of Colorado have spoken very clearly that they are adamantly opposed to the expansion of the Pinon Canyon site. Additionally, the logistics of locating an aviation unit at Fort Carson does not make economic sense. As demonstrated with the Fort Carson call ups, it requires a major effort that materially increases the costs involved to relocate the personnel and equipment from here to a major port. A better solution is to locate this facility at locations that have ready access to both shipping and major air transportation closer to the theaters of conflict. Additionally, the location of a major aviation training program at Fort Carson would pose a serious impact on the environment in this area. Flying military helicopters over the numerous wilderness areas, State parks, and other national forest areas near Fort Carson on a frequent basis should not take place.</p>
11.	City of Lakewood (Dan Penrose)	Cumulative Impacts, Transportation, Air Quality, Aviation, Socioeconomics,	<p>Via letter dated: 10/08/2010</p> <p>Dear Ms. Kropp:</p> <p>This letter is in response to the PEIS scoping notice for the CAB stationing action. We offer the following specific scoping comments in response to the PEIS:</p> <p><u>Cumulative Impacts</u> The PEIS should analyze cumulative impacts following the process recommended by the Council on Environmental Quality (Considering Cumulative Effects Under the NEPA). The cumulative impacts of the CAB stationing PEIS include growth contemplated in Alternative 3 under the FEIS for Army Growth at Fort Lewis and the YTC, WA.</p> <p><u>Transportation and Traffic</u> The main access control points at JBLM are:</p> <ul style="list-style-type: none"> Steilacoom DuPont Road exit (#119) provides access to the Main Post via the DuPont Gate and Clark Road.

		<ul style="list-style-type: none"> • The Fort Lewis/North Fort Lewis exit (#120) provides access to the Main Post via the Liberty (Main) Gate and the North fort via the 41st Street Gate. • The Madigan Hospital/Camp Murray exit (#122) provides access to Madigan Hospital and Camp Murray (the adjacent National Guard center located on the north side of I-5). • The Thorne Lane/Tillicum/Lakewood exit (#123) provides access to the Logistics Center gate, via Murray Road. <p>A detailed analysis of the local traffic impacts and detailed description of the regional traffic impacts is critical to understanding the environmental impacts resulting from the stationing action. The traffic analysis should include the traffic impact at each of the stationing action. The traffic analysis should include the traffic impacts at each of the above referenced interchanges along Interstate 5, as well as the impacts on SR 507 at East Gate Road and Steilacoom/DuPont Road at East Drive (D Street). The analysis should determine the number and distribution of additional vehicle trips that would occur as a result of the stationing of the CAB. Further, the impacts on adjacent roadways should be measured by the effect of the proposal on traffic operations at the above referenced interchanges and roads during the AM (0700 to 0900) and PLM (1600 to 1800) peak periods. Finally, the PEIS should describe all other impacts to transportation facilities resulting from the increased traffic on roadways, including Level-Of-Service impacts to the mainline of Interstate 5, SR 507 and arterials within 1 mile of JBLM.</p> <p><u>Air Quality</u> The environmental review should evaluate the air quality impacts that would occur outside of the installation boundary.</p> <p><u>Associated Air Operations</u> The FEIS for Army Growth at Fort Lewis and the YTC, WA discusses a potential 344 percent peak increase in the number of GAFF takeoffs and landings associated with stationing actions under the various alternatives. Please analyze the impacts of the increased helicopter noise, vibration, and inconvenience on the residents outside the installation resulting from the PEIS action.</p> <p><u>Environmental Justice</u> Please evaluate whether there exists “disproportionately high and adverse human health or environmental effects on minority populations, low income populations, or Indian tribes.” Give the proximity of several low-income neighborhoods and the Nisqually Indian Reservation adjacent to Ft. Lewis and the potential for unmitigated traffic, access, overflight, artillery, and other training</p>
--	--	---

			<p>noise and vibration/reverberation, this analysis needs to be included in the stationing PEIS.</p> <p><u>Schools</u> In order to properly plan for school staffing and facility needs, it is important that the PEIS forecast the total number of new personnel, the number and age of school-aged children, and the number of students projected to utilize schools on JBLM.</p> <p>This completes the City’s scoping comments. Thank you for considering these comments as part of your Project. Please place me on the mailing list for any subsequent notices related to this Project.</p>
12.	Comanche Nation THPO (Jimmy Arterberry)	Cultural Resources	<p>Via letter dated: 09/30/2010</p> <p>Dear Sir:</p> <p>In response to the above referenced Notice, the proposal has potential to adversely affect and irreparably harm a host of known cultural resources at PCMS, which includes a variety of prehistoric and historic archaeological materials that are currently afforded protection under the NHPA and other applicable laws. The proposed action of consolidating/reorganizing existing aviation units, and the establishment of one or more CABs at Fort Carson for utilization of PCMS for increased training purposes, only furthers the potential. In light of the recent damage to historic properties (that were eligible for inclusion to the NRHP at PCMS during a training exercise (July 16 to August 13, 2010), it is respectfully requested that an alternative area be sought to fulfill the needs of current and future national security requirements, and for the organization of existing aviation assets for more efficient training.</p> <p>If I may be of assistance on this matter, please contact me at (580) 595-9960 or 9618.</p>
13.	Individual Comment (John Barth, Not 1 More Acre!)		<p>Via letter dated: 10/10/2010</p> <p>To Whom it May Concern:</p> <p>On behalf of Not 1 More Acre!, P.O. Box 773, Trinidad, Colorado 81082, I am submitting this NEPA scoping comment letter regarding the Depart of Army’s proposal to add a CAB at Fort Carson, Colorado. The NOI appears to propose adding either one existing CAB and/or one new CAB at Fort Carson.</p> <p>Although the NOI is vague on the number of soldiers and family members that would be relocated to Fort Carson, a related Notice of Availability (“NOA”) issued on September 10, 2010 contains more</p>

		<p>specificity (see, 75 Fed. Reg. 55313, <i>Final Environmental Impact Statement for Grow the Army Actions at Fort Lewis and the Yakima Training Center</i>). According to this Notice of Availability (“NOA”), a medium CAB consists of “approximately 2,800 soldiers.” See NOA. This fact is confirmed in the Army’s May 7, 2008 NOI for the Grow the Army Actions at Fort Carson. See. 73 Fed. Reg. 25686. The NOI also acknowledges that the new CABs would conduct training at a separate military installation, PCMS, Colorado.</p> <p>The CAB to be located at Fort Carson is believed to be Heavy CAB. Based on information and belief, CABs are to utilize approximately 120 helicopters—including, 48 AH-64 Apache helicopters, UH-60 Black Hawk helicopters, 12 CH-47 Chinook helicopters and 12 HH-60M Black Hawk helicopters. It is also believed that each CAB utilizes approximately 300 ground vehicles.</p> <p>As required by NEPA, the Army must analyze the direct, indirect, and cumulative environmental impacts of stationing an additional CAB at Fort Carson. The Army must specifically analyze potential impacts to air quality, soils, vegetation, airspace, archaeological resources, cultural resources, threatened and endangered species, other fish and wildlife species, water quality and quantity, noise, traffic, on-base construction and renovation, off-base growth and development, schools, police, and social services, and socioeconomic impacts to both Fort Carson and the Army base losing the CAB. The Army must also evaluate the impacts to PCMS resulting from the new CAB conducting training at that separate military installation of the Department of Army.</p> <p>For the reasons stated below, Not 1 More Acre! Opposed relocating or adding any new or existing CAB or Army personnel to be stations, trained or housed at PCMS, Colorado.</p> <p><u>Illegal Segmentation</u></p> <p>Not 1 More Acre! has previously informed the Army that it is illegally segmenting major Federal actions at PCMS and vicinity. More specifically, Not 1 More Acre! submitted a scoping comment letter to the Army on May 20, 2008 regarding the Grow the Army EIS raising illegal segmentation issues and failure to analyze cumulative impacts of it actions. See. Attachment 1 hereto. On October 8, 2007, Not 1 More Acre! also submitted a comment letter on a Draft EIS for the Army Growth and Force Structure Realignment raising the illegal segmentation issues and the Army’s failure to consider cumulative impacts. See. Attachment 2 hereto. p. 3. All issues raised in the October 8, 2007 and May 20, 2008</p>
--	--	---

		<p>comment letters are incorporated herein by reference. The DoD recently announced that it is also taking comments on proposed LATN to conduct low altitude navigation using C-130 air planes and CV-22 Ospreys in the airshed over PCMS, and vicinity. <i>See</i>. Attachment 3 hereto. We continue to ask that all Federal actions proposed by the military for PCMS and vicinity be incorporated into a single EIS so that the combined and cumulative impacts of these actions can be fully assessed in a single document, rather than segmented among numerous separate EISs and EAs.</p> <p><u>Archaeological/cultural resources</u></p> <p>The Army must fully catalog all archaeological/cultural resources at PCMS. The Army must also identify mitigation resources for preventing any damage to these resources from its proposed action. The archaeological and cultural resources at PCMS may require imposition of training restrictions and increased operational delays, as well as associated costs.</p> <p>Tribal consultation is also required for implementation of the proposed action and any additional training, housing or stationing activity at PCMS.</p> <p>In addition, we also incorporate by reference all archaeological, cultural and paleontological issues raised in our October 8, 2007 comment letter. <i>See</i>. Attachment 2 hereto, pp. 7-10.</p> <p><u>Noise</u></p> <p>Further analysis would be required to determine the extent of new noise impacts at and PCMS resulting from the proposed action. This noise would be generated from construction activity at PCMS , noise from addition troops and personnel, and noise from at least 120 additional helicopters and 300 additional ground vehicles, training, live fire, and other additional activities. This additional noise at PCMS should be evaluated.</p> <p>Finally, the DOD recently announced it was accepting scoping comments on a proposal to conduct additional LATN flights in the PCMS air space. The cumulative impacts of these proposed DOD actions must be assessed on the EIS.</p> <p>In addition, we also incorporate by reference all noise issues raised in our October 8, 2007 comment letter. <i>See</i>. Attachment 2 hereto, pp. 10-11.</p>
--	--	--

		<p><u>Threatened and Endangered Species</u></p> <p>Additional soldiers and development at Fort Carson might impact threatened and endangered species at PCMS. Mexican spotted owl (federally listed as threatened) habitat, burrowing owl, mountain plover, ferruginous hawk and swift fox are present PCMS. A full inventory of threatened and endangered species must be performed prior to implementation of the proposed action. Moreover, the Army must prevent any “taking” of a threatened or endangered species at PCMS by developing mitigation that precludes any killing of such species or adverse impacts to their habitat.</p> <p>In addition, we also incorporate by reference all threatened and endangered species issues raised in our October 8, 2007 comment letter. <i>See</i>. Attachment 2 hereto, pp. 11-12.</p> <p><u>Bald and Golden Eagle Protection Act</u></p> <p>Bald and golden eagle nests and habitat exist at Pinon Canyon Manuver Site. The Army must comply with 16 U.S.C. 668-668c.</p> <p>Wildlife and fish</p> <p>Migratory birds and other wildlife exist on PCMS. The Army must inventory all wildlife species and prepare mitigation measures to protect wildlife and the habitat they depend upon.</p> <p>In addition, we also incorporate by reference all wildlife and migratory bird issues raised in our October 8, 2007 comment letter. <i>See</i>. Attachment 2 hereto, pp. 12-13.</p> <p><u>Water quality and quantity</u></p> <p>Also, the Nationwide Rivers Inventory has identified 117 miles of the Purgatorie River, part of which runs through PCMS, as having outstanding scenic, geological, fish, wildlife and cultural values and as eligible for special protection. The PEIS must catalog these special features of the Purgatorie River and develop mitigation measures to prevent any adverse impacts that would prevent designation as a wild and scenic river.</p> <p>Portions of Fort Carson are in the Fountain Creek watershed. Fountain Creek is currently impaired for e coil, Se, and other pollutants. Accordingly, the Army may not take any action that will further exacerbate these water quality impairment. The Army must research all water quality impairments in the Fort Carson and PCMS</p>
--	--	---

		<p>watersheds and determine whether the proposed action may exacerbate these impairments or otherwise adversely impact water quality.</p> <p>It has been reported that significant mitigation measures will be needed to reduce impacts to water quality and achieve US EPA water quality standards resulting from the proposed action. It has been reported that these water quality environmental costs may exceed \$1 million.</p> <p>In addition, we also incorporate by reference all water quantity and quality issues raised in our October 8, 2007 comment letter. <i>See</i>. Attachment 2 hereto, pp. 14-15.</p> <p><u>Air Quality</u></p> <p>The Army must evaluate air pollution impacts resulting from the proposed action. These include air pollution resulting from growth and development, increased traffic, the addition of 120 more helicopters, the addition of 300 more ground vehicles, and dust emissions from increased training at both Fort Carson and PCMS. In addition, the cumulative impacts of DOD’s proposed LATN must also be analyzed.</p> <p>In addition, we also incorporate by reference all air quality issues raised in our October 8, 2007 comment letter. <i>See</i>. Attachment 2 hereto, pp. 6-7.</p> <p><u>Soils</u></p> <p>Additional training at PCMS will result in additional disturbance of soils. Loss of topsoil, erosion, sedimentation, and other soil issues must be analyzed in the PEIS.</p> <p>In addition, we also incorporate by reference all soil issues raised in our October 8, 2007 comment letter. <i>See</i>. Attachment 2 hereto, p. 11.</p> <p><u>Vegetation</u></p> <p>Impacts to vegetation will occur as a result of the proposed activity. The PEIS must evaluate the adverse impacts to vegetation resulting from construction activity at Pinon Canyon Manuever Site and increased training, housing and other activities at PCMS.</p> <p>The Army must catalogue all threatened and endangered plant species at PCMS. Moreover, the Army must prevent any “taking” of a</p>
--	--	---

		<p>threatened or endangered species at PCMS by developing mitigation that precludes any killing of such a species or adverse impacts to their habitat.</p> <p>Helicopters can also have impacts on short grass prairie. It takes less than 1/8" of dust to kill shortgrass. PCMS abuts the Comanche National Grasslands, which is a recovery unit from the Dust Bowl era. Also, surrounding ranchlands are potentially economically impacted by dust created by destruction of soils on the PCMS. These adverse impacts must be analyzed in the PEIS.</p> <p>In addition, we also incorporate by reference all vegetation issues raised in our October 8, 2007 comment letter. <i>See</i>. Attachment 2 hereto, pp. 13-14 and all issues related to Comanche National Grasslands on pp. 16-17.</p> <p><u>Airspace</u></p> <p>The Army must analyze the impacts to airspace resulting from its proposed action. The cumulative impact of the proposed action must also be analyzed in conjunction with the Army's LATN proposal.</p> <p><u>Traffic</u></p> <p>The increase in traffic must be analyzed in the Pinon Canyon area resulting from the sudden addition of up to 2,800 new soldiers. Traffic infrastructure near PCMS must be studied and any deficiencies remedied prior to relocation of a CAB at Fort Carson.</p> <p><u>Socioeconomic</u></p> <p>The CAB is temporarily being housed at Fort Hood. Realignment of the CAB from Fort Hood would result in a loss of personnel due to the relocation of approximately 4,100 soldiers based on 2005 data. The local Fort Hood community has embraced the CAB and did not consider this unit as temporarily stationed at Fort Hood. Soldiers have already purchased homes and integrated into the community at Fort Hood. The Fort Hood community fears housing prices will drop and soldiers forced to sell their homes will experience significant financial losses. Also, the Fort Hood community responded to the so-called temporary increase in soldiers with increased housing, police, fire and municipal services. They argued that realigning Fort Hood, leaving only five BCTs permanently stationed there, would forego important existing training facilities and create 15 percent excess capacity. Fort Hood has requested retention of 6 BCTs at Fort Hood, believing the base has the capacity to train and support up to 50,000</p>
--	--	--

			<p>soldiers and their families.</p> <p>Finally, we also incorporate by reference all socioeconomic issues raised in our October 8, 2007 comment letter. <i>See</i>. Attachment 2 hereto, p. 17.</p> <p><u>Hazardous materials</u></p> <p>The risks posed by the additional use of hazardous materials at PCMS must be analyzed in the PEIS. This includes the additional fuel needed for 120 helicopters and ground vehicles, hazardous material used to maintain these vehicles, and addition weaponry, ordinances, and other hazardous materials in training exercises at Fort Carson and PCMS.</p> <p>Finally, we also incorporate by reference all hazardous materials issues raised in our October 8, 2007 comment letter. <i>See</i>. Attachment 2 hereto, p. 15.</p> <p><u>Baseline conditions</u></p> <p>Baseline conditions at PCMS must be fully evaluate in order to assess potential future damage that may result from implementation of the Army’s proposal.</p> <p>Finally, we also incorporate by reference all baseine issues raised in our October 8, 2007 comment letter. <i>See</i>. Attachment 2 hereto, pp. 5-6.</p> <p><u>GHG Emissions and Climate</u></p> <p>The Army’s proposed action will result in an increase of emission of GHG. The source of electrical power to serve an addition 2,800 soldiers and the corresponding GHG emissions must be analyzed. In addition, the emission of GHG from 120 additional helicopters and 300 additional ground vehicles must be analyzed. The emissions from new construction at PCMS must be analyzed.</p> <p>Thank you for the opportunity to submit scoping comments on the proposed Fort Carson CAB realignment. If you have any questions, don’t hesitate to contact me.</p>
14.	U.S. EPA, Region 8 (Larry Svoboda)	Purpose & Need, Air Quality, Water Quantity/Q	<p>Via letter dated: 10/12/2010</p> <p>Dear Ms. Kropp:</p> <p>This letter is written in response to the U.S. DA request for scoping</p>

		<p>uality, Wildlife, Wetlands, Noise, Socioeconomic, Cultural Resources, Cumulative Impacts</p>	<p>comments for the Preparation of a PEIS for the Growth, Realignment, and Stationing of Army Aviation Assets in a NOI published in the FR on September 10, 2010. The U.S. EPA Regions 8 and 10 (EPA) will review this project IAW EPA's responsibilities under the NEPA and EPA's authority under Section 309 of the Clean Air Act. Regions 8 and 10 have jointly developed this letter.</p> <p>The Army is preparing a PEIS IAW NEPA. The scoping notice identified three alternatives: 1) Realignment and consolidation of the existing aviation elements of up to a full CAB at Fort Carson, CO or JBLM, WA; 2) Implementation of alternative 1 and establishment of one new CAB and station at Fort Carson or JBLM; and 3) a no-action alternative which would retain Army aviation force structure at its current levels, locations, and configuration. The FR notice indicates that a CAB is comprised of approximately 120 helicopters, 600 wheeled vehicles, and 2,700 Soldiers. Establishment of a CAB at either base will require construction of additional facilities. If a CAB, or a portion of one, is established at Fort Carson, the aviation units will train at the PCMS. If a CAB, or a portion of one, is established at JBLM, the aviation units will train at the YTC. In its scoping notice, the Army identified focus areas for analysis. EPA agrees that analysis should include those areas identified and offers the following comments for consideration in development of the Draft PEIS.</p> <p>Purpose and Scope Typically, programmatic EISs are prepared for a broad Federal action such as the adoption of a regulation, policy, plan, or program. The rationale for pursuing a programmatic EIS for the current project is not clear. The alternatives presented in the scoping notice appear to be fairly project-specific and entail increased utilization of specific resources and construction in specific locations. Regardless, the requirements for a programmatic or project-specific EIS are the same. EPA encourages discussion of why a programmatic EIS is being developed and how this project fits into or overlaps with any larger program, series of projects, or previously developed EISs such as the 2007 Grow the Army Final EIS/ROD and the July 2010 Final EIS for Army Growth at Fort Lewis and the YTC. This discussion would also be relevant to cumulative impacts analysis.</p> <p>Alternatives Analysis EPA encourages detailed description of each alternative including what construction activities will take place at each affected location, an estimate of the increase in activity at the PCMS and YTC, the levels of growth expected in each affected area, and the impacts expected at each affected location. EPA also encourages consideration of long-term cumulative impacts associated with</p>
--	--	---	--

		<p>growth at either base in evaluation of alternatives.</p> <p>Baseline Condition The Draft EIS should identify a baseline condition which will be used to develop and assess the effectiveness of mitigation measures. If impacts from reasonably foreseeable future actions (RFFAs) are expected, the current condition may not be the baseline condition best suited to capture the incremental effect of the project. A no-action alternative may be more appropriate. If a baseline other than current conditions will be used, the Draft EIS should clearly explain and support its basis. Regardless of what condition the baseline represents, we encourage the use of quantified resource-specific characterizations when possible.</p> <p>Air Quality The project has the potential to impact air quality through emissions from the CABs operations, increased vehicle traffic, and growth. According to the Final EIS for Army Growth at Fort Lewis, emissions associated with CAB wheeled vehicle training and helicopter training would increase carbon monoxide emissions by 170.93 tpy. Fort Carson is located south of Colorado Springs, CO in a maintenance area for carbon monoxide. The Draft PEIS should assess any impacts to air quality and include a general conformity analysis with Colorado's SIP.</p> <p>The Fort Lewis Final EIS also indicates that a Medium CAB would log 29,000 hours of total annual flight time and 55,100 total takeoffs and landings. Potential impacts associated with the increase in helicopter traffic at PCMS and YTC should be considered within the Draft PEIS. Dust may be a key consideration at PCMS. The Draft PEIS should also include mitigation measures to address the identified air impacts.</p> <p>Water Quality The proposed project should be evaluated for its potential to alter stream discharge and degrade riparian and water quality. The introduction of sediments to stream systems can alter thermal processes, consequently degrading water quality, and impacting fish and their habitat. Section 303(d) of the CWA requires the States of Washington and Colorado to identify those waterbodies that are not meeting or not likely to meet State water quality standards. Project planning should evaluate which waterbodies that are listed on the State's current 303(d) list that could potentially be affected by the project and whether a water quality restoration plan (Total Maximum Daily Load) has been developed for the waterbodies and the pollutants of concern. If a Total Maximum Daily Load (TMDL) has</p>
--	--	---

		<p>not been established for those waterbodies on the 303(d) list, then in the interim until one is established, the project should demonstrate that there will be no net degradation of water quality to these listed waters.</p> <p>In Colorado, the section of the Purgatoire River from I-25 to its confluence with the Arkansas River is identified on the 303(d) list of impaired waters for Se. This same segment is also identified on Colorado’s Monitoring and Evaluation List for sediment. Se is naturally occurring within sediments of this region of Colorado. Activities which disturb the soil in the PCMS have the potential to contribute both Se and sediment to the Purgatoire River. EPA recommends that the Draft PEIS specifically address potential impacts to the Purgatoire River, as well as mitigation for those impacts.</p> <p>Additionally, construction may lead to water quality impacts. The fort Lewis Final EIS estimates that cantonment facilities associated with standard medium CAB would require an areal extent of 4,695,713 SF. We recommend that the Draft PEIS specifically describe how storm water controls will be implemented to protect water quality during construction and how the project will comply with applicable MS4 permits.</p> <p>Water Quantity The projected increase in the number of soldiers and family members would result in an increase in the demand for potable water. As reported in the Fort Lewis Final EIS (page 4-11), the average per capita water use is approximately 81 gallons per person per day (g/p/d), and the maximum water use is approximately 120 g/p/d. Assuming a total of 7,060 soldiers and family members, this translates to an average daily water use increase of about 571,860 gallons. The Draft PEIS should analyze the capacity of the water systems at JBLM and Fort Carson to meet needs associated with the proposed CAB placement, as well as any impacts to groundwater levels. The Draft PEIS should furthermore analyze the capacity of the existing waste water treatment facilities to meet limits for effluent discharges given the additional waste load.</p> <p>Impacts and Mitigation for Aquatic and Terrestrial Resources The Draft PEIS should describe the current quality and potential capacity of habitat, its use by fish, marine mammal, and terrestrial wildlife on and near the proposed project areas, and identify known corridors, migration routes, and areas of seasonal congregation. Habitat descriptions should include habitat type, aquatic and terrestrial species, functional values, and integrity.</p>
--	--	--

		<p>These resources may experience varying degrees of impacts and alteration of their habitat and hydrologic functions, and project encroachment may degrade habitat for fish, other aquatic biota, and other wildlife (e.g., birds). The Draft PEIS should evaluate effects on these species and populations from habitat removal and alteration, habitat fragmentation caused by infrastructure, land use, and management activities, and human activity. Effects on plant species and populations should be included. Impacts to resources should be evaluated in terms of the acreage to be impacted and by the functions they perform.</p> <p>For any impacts that cannot be avoided through siting and design, the EIS document should, at a minimum, describe the types, location, and estimated effectiveness of best management practices applied to minimize and mitigate impacts to aquatic resources.</p> <p>Wetlands Based upon review of the National Wetlands Inventory, areas within and adjacent to Fort Carson and JBLM contain wetlands. Discharge of dredged or fill material into waters of the U.S., including wetlands, are regulated under Section 404 of the CWA. This permit program is administered jointly by the USACE and EPA. Please consult with the Corps to determine the applicability of CWA Section 404 permit requirements to this project. Additionally, EO 11990 directs Federal Agencies to “take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency’s responsibilities.” The Draft EIS should describe how the project will address the wetland protection goals in EO 11990, if applicable. EPA suggests a mitigation commitment that indirect draining of, or direct disturbance of, wetland areas will be avoided if at all possible.</p> <p>Chemicals and Petroleum Products Each alternative should include an inventory of chemicals and petroleum products that will be used in support of the aircraft, support vehicles, facilities and infrastructure. There should be a description of engineering controls and mitigation measures planned to minimize environmental and human health impacts, consistent with existing SPCCP at each Army Installation.</p> <p>Because the Fort Lewis Army facility contains National Priorities List (NPL) sites regulated under the CERCLA, there are RODs and Federal Facility Agreements (FFAs) in place directing actions involving the discovery and remediation of Hazardous Substances. During construction activities, existing Institutional Controls must be</p>
--	--	--

		<p>enforced to assure timely identification, control and removal of any hazardous substance that may be discovered. Also, planned construction activities must not undermine current protective remediation measures undertaken as a requirement of an existing ROD.</p> <p>Noise Impacts The Draft PEIS should describe the impacts of noise to human and wildlife health and behavior, as well as measures that will be employed to mitigate those impacts, such as physical controls, operations plans, and flight corridors. Noise analysis methodologies should be explained and the single-event and cumulative noise metrics utilized in the analysis should be defined.</p> <p>Invasive Species Invasive species can aggressively spread into areas altered by road construction and other activities. Nationally, as well as in Washington and Colorado, the establishment of invasive nuisance species has rapidly become an issue of environmental and economic significance. EPA strongly supports the development of integrated strategies that will control and manage weeds during and after project activities. The Draft PEIS should provide a discussion to comply with EO 13112 on invasive species.</p> <p>Coordination with Tribal Governments The Draft PEIS should describe the process and outcomes of government-to-government consultation between the DoD and each of the tribal governments that would be affected by the project, issues that were raised, if any, and how those issues were addressed.</p> <p>EO 13175, Consultation and Coordination with Indian Tribal Governments (November 6, 2000), was issued in order to establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, and to strengthen the U.S. government-to-government relationships with Indian tribes.</p> <p>Environmental Justice Since the proposed action is in an area that has potential Environmental Justice (EJ) populations, the Draft PEIS should determine whether any EJ communities are present within the area and, if so, analyze the impacts this action will have on these communities. According to the Council on Environmental Quality NEPA/Environmental Justice Guidance,</p> <p>Federal agencies are to make the achievement of environmental</p>
--	--	--

		<p>justice part of their mission by identifying and addressing as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations, and allowing all portions of the population a meaningful opportunity to participate in the development of, compliance with, enforcement of Federal laws, regulations, and policies affecting human health or the environment regardless of race, color, national origin or income.</p> <p>In the memorandum to heads of departments and agencies that accompanied EO 12898, the President specifically recognized the importance of procedures under NEPA for identifying and addressing environmental justice concerns. The memorandum states “each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by NEPA.”</p> <p>Cumulative Impacts In order to assess cumulative impacts, the Draft PEIS should characterize the current and post-project conditions, including RFFAs, and identify a baseline. EPA recommends the Draft PEIS analyze effects on air impacts, water quality, wetlands with quantitative measures when possible and qualitative measures otherwise.</p> <p>Adaptive Management and Mitigation The Draft PEIS should identify the features of an effective adaptive management plan, including:</p> <ul style="list-style-type: none"> • A decision tree with clear objectives to guide future decisions; • Specific decision thresholds with identified indicators for each impacted resource; • Targets that specify a desired future condition • Trends specifying a desired change relative to the baseline condition; • A monitoring plan with protocols to assess whether thresholds are being met; and • Firm commitment to use monitoring results to modify management actions if necessary. <p>The Draft PEIS should describe how and with what resources the Army will conduct monitoring necessary under an adaptive management plan to ensure the project is meeting objectives and mitigating impacts as predicted.</p>
--	--	---



			EPA appreciates the opportunity to provide detailed scoping comments at this early state of the EIS process. Our review and participation in this project will be coordinated by Maggie Pierce, Region 8, and Teresa Kubo, Region 10. If we may provide further explanation of our comments during this phase of your planning process, please contact Ms. Pierce at 303-312-6550, Ms. Kubo at 503-326-2859, or me at 303-312-6004.
--	--	--	---

8417
8418

ITEM 1.	AGENCY (COMMENTS NAME): Individual (M. Carmichall)	LOCATION: Fort Carson, Colorado	TYPE: Noise and Aviation
<p>Comments</p> <p>Via e-mail on 11/11/2010: I tried to access the appropriate e-mail address given for comments on the proposed Aviation Brigade at Fort Carson, but for some reason, I was unable to open that address.</p> <p>So, we would like to add our 2 cents worth on this proposed addition, and the impact it will have on us personally. We live in the foothills above Fort Carson. We moved here from another State and were not familiar with the area. Shortly after moving in, we were rudely awakened around 1:00 a.m. with what was not only a huge explosion that we heard, but that we felt, because it violently shook our house to its very foundation. We thought it was a gas explosion, but you guessed it...it was training at Ft. Carson! Since that time there are some days and nights where bombing training will go on for hours. On those days when we have helicopters fly over, they are so loud and low-flying that they cause our house to shake. They often pass directly over a large skylight that we have over our bathroom. Since we can see them, surely they can see us as well. Talk about invasion of privacy! I guess we can forget about ever being able to sell our house!</p> <p>With all the Military bases we already have in Colorado Springs, is it really necessary or fair to add yet another Brigade that will not only cause additional noise pollution, but negatively affect the ranchers in this area, their livestock, and wildlife as well? In all of the United States is there not one other area of open space that would less severely impact the population at large? We also have severe, unexpected winds and downdrafts (one that recently caused a television helicopter to crash) that causes us great fear since the helicopters already at Ft. Carson fly right over our house; not to mention the extreme lightning and hail. We are so close to the Post, we can hear the loudspeaker warning of incoming storms.</p> <p>I don't believe that the Army really cares about our plight; and I don't believe that there was not a single Post other than Ft. Carson where this Brigade could be added, that would have less negative impact than there will be here in Colorado Springs.</p> <p>Please forward this to the appropriate Agency. I'm certain the decision has already been made. I think it was already a done deal long before the Army asked for comments from the public.</p>		<p>Response</p> <p>Thank you for your comments. As stated in Section 1.3 of the PEIS, the Army's need for the proposed action is generated by the imbalance between current mission requirements and available aviation forces. In essence, our aviation unit Soldiers are deployed too often, reducing their time at home station. Reduced time at home station directly impacts the quality of life for these Soldiers and their Families, and affects the quality and quantity of the critical training these Soldiers need to prepare for combat. The screening criteria in Section 3.2 focused the Army's analysis of alternatives to those installations where aviation growth and realignment will be viable and support the Army's need. After applying the last screening criteria in Section 3.3, it was determined that only JBLM and Fort Carson were viable stationing locations capable of providing the necessary air-ground integration training. This type of training is a key aspect of the stationing decision and is one of the reasons why Fort Carson is evaluated in this PEIS</p> <p>We acknowledge your concern about safety, and assure you that the Army is fully committed to aviation safety. Aviation accident prevention is an integral part of the Fort Carson Safety Program and applies to all aviation units assigned to or operation on Fort Carson. It includes certain mandatory weather-related restrictions and requirements. With safety policies contained in Fort Carson Regulation 95-1, contractors engaged in maintenance, industrial, ground and flight operations on Fort Carson are also part of the team ensuring safety standards are implemented. The Safety Program applies to not only military personnel, contractors, and military equipment, but also applies to ensuring the public is kept safe. The Army continuously works to identify hazards, assess the hazards, develop controls and countermeasures, implement the controls and most importantly provide supervision on all aviation missions.</p> <p>As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible.</p>	
ITEM 2.	AGENCY (COMMENTS NAME): Individual (Terry Shippy)	LOCATION: Fort Carson, Colorado	TYPE: Noise
<p>Comments</p> <p>Via e-mail on 11/16/2010: This relates to the Ft Carson CAB. I live in Pueblo West which is directly south of Ft Carson. I am concerned about the noise impact of the helicopters flying over Pueblo West. I saw Fig #6 showing the route of the HAWK. Part of the route is over the western portion of Pueblo West south of US Highway 50 near where I live. There are many homes in this area. If these are low flying helicopters, I request the route to be modified further west.</p>		<p>Response</p> <p>Thank you for your comments. If Fort Carson is selected for a CAB stationing under this PEIS, new aviation assets would continue to follow existing routes and procedures currently used by existing aviation units, though the frequency of such flights would increase. We acknowledge your concerns about noise. As stated in the PEIS, Appendix B, page B-38, Fort Carson has a noise abatement policy for the existing Route Hawk that aircraft avoid all houses, buildings, people, livestock, and moving vehicles by a minimum slant range of 1/2 nautical miles (0.43 statute miles).</p> <p>If Fort Carson is selected for the CAB, additional information on increase usage of the existing route would be presented in site-specific follow-on NEPA documentation, as appropriate.</p>	

ITEM 3.	AGENCY (COMMENTS NAME): Individual (Bill Sulzman)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (Wildlife)
Comments		Response	
<p>Via e-mail on 11/18/2010: It is very clear that if 120 more helicopters begin training at Fort Carson, areas such as this one will get lots more use. It is important that the EIS take note of the baseline of helicopter training already existing at Fort Carson when the impact of a new CAB is assessed.</p> <p>Subject: The Fort Carson BLM training area. A bit more information on the area where Fort Carson helicopters and Green Berets were training this summer. We know that there was at least one Landing Zone in this Wilderness area. There may be more. The total of LZ's in the mountains that we know about is now up to 17. In the 1976 Federal Land Policy and Management Act, the BLM was directed to invent priority areas for their wilderness characteristics. These areas are known as wilderness study areas (WSA). Until Congress makes a final decision either to designate these areas as wilderness or release them for other multiple-uses, the BLM manages WSAs to preserve their suitability for designation as wilderness. The Royal Gorge Field Office administers five WSAs and one Instant Study Area (ISA). http://www.blm.gov/pgdata/libs/CFC/content/statics.0.gif http://www.blm.gov/pgdata/libs/CFC/content/statics.0.gif</p> <p>View of Beaver Creek Wilderness Study Area. Click on photo for larger view. http://www.blm.gov/pgdata/etc/medialib/blm/co/field_offices/royal_gorge_field/wilderness.Par.81145.Image-1-1.1.gif Beaver Creek WSA - This area is located 10 miles northeast of Cañon City, Colorado. It consists of more than 26,150 acres of public lands in steep, remote granite canyons that are valued for their wildlife and fish habitat. The primary trailhead is located within the Beaver Creek State Wildlife Area at the end of Fremont County Road 132. A portion of Beaver Creek WSA, 13,734 acres, is within an Area of Critical Environmental Concern (ACEC).</p>		<p>Thank you for your comments. We acknowledge your concerns about impacts to wilderness areas.</p> <p>We acknowledge the stationing of up to 120 helicopters would increase requirements for aviation training at Fort Carson and PCMS. Currently there are approximately 30 helicopters stationed at Fort Carson. However, the number of aircraft stationed at Fort Carson has fluctuated widely from the early 1990's to the present. Most recently the 3rd ACR with their Aviation Squadron was assigned to Fort Carson until around 2006. This unit included over 70 aircraft. Some of these units were re-stationed as part of the 2005 Base Realignment and Closure Act.</p> <p>Currently, the Army utilizes Pike and San Isabel National Forests for mountain/high altitude training of Army aviation units preparing for deployment to rugged, high elevation areas such as Afghanistan. Training for these tasks could not be effectively conducted on Fort Carson or in existing PCMS training areas. Aviation units from across the Army, not just at Fort Carson, conduct training on these National Forest System lands. In October, 2007, the Army published an Environmental Assessment for the Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training. Should a CAB be stationed to Fort Carson, there would be no change to the use analyzed in the 2007 Environmental Assessment. Additionally, mountain/high altitude training activities would continue to be conducted per the 1994 Interagency Agreement between the DoD and USFS, Rocky Mountain Region and the Helicopter Training Operating Plan between Fort Carson and Pike and San Isabel National Forests. Should mountain/high altitude training strategies change in the future, that change would be analyzed in a future, site-specific NEPA analysis. At that time, the Army would consider recommending changes to the use restrictions set forth in the special use permit.</p> <p>There is currently no agreement between Fort Carson and the Bureau of Land Management (BLM) for use of BLM lands for aviation training. A transient aviation unit (not stationed at Fort Carson) has recently developed an agreement with BLM for the short-term use of BLM lands in the vicinity of Canyon City. This type of short-term usage by visiting and transient units has occurred in the past and is expected to continue intermittently in the future. We do not expect any impacts to BLM lands as a result of this proposed action analyzed in this PEIS.</p>	
ITEM: 4.	AGENCY (COMMENTS NAME): Individual (Patricia Lindner)	LOCATION: Joint Base Lewis-McCord, Washington	TYPE: Biological Resources and Transportation
Comments		Response	
<p>Via e-mail on 11/19/2010: My husband is active Duty Army. We live here on Main-Post since August 2008. I saw a lot new building rise. That means forest got cleared. I hate to see trees fall. But I also understand the demand of new buildings. I cannot even imagine to have more traffic than we already have, and a higher noise level, during day or night. It takes a lot of patience for soldiers to access, conquer or leave this post (main or north). Then you are finally on the highway, stuck in traffic again. So to even imagine a rise of that, that's not possible. No more stop and go, only standing cars. Specially, during lunchtime, rush hour. Even to go to the px or commissary, banks everybody has to go to once in a while is a hassle. Let alone find parking for example for the library next to housing or whaler hall. Different times there were no PARKING available. This POST IS at its limit.</p>		<p>Thank you for your comments. Also, thank you for your service and the support you give to your husband as an Army spouse.</p> <p>We recognize that there will be impacts resulting from a stationing decision with regards to construction, noise, and the presence of more Soldiers. Discussion of these impacts and proposed mitigations can be found in this PEIS and in JBLM's Grow the Army EIS.</p> <p>We acknowledge and agree that CAB stationing in conjunction with other stationing actions would have a significant impact on traffic in the JBLM area, as identified in Section 4.10 of the JBLM <i>Grow the Army</i> FEIS and Section 6.12 of this PEIS. JBLM is working to address</p>	

<p>Whoever has to make the decision has to live with the consequences not only us living here on post.</p>	<p>both on- and off-post traffic impacts.</p> <p>JBLM has been an active participant in trying to address issues related to rapid regional growth and to find solutions to help alleviate regional impacts, including those associated with transportation infrastructure and traffic congestion. JBLM planners have been involved with the completion of several planning efforts to address these issues and will continue to participate in monthly meetings with WSDOT planners to understand concerns and continue to develop solutions to alleviate regional traffic congestion. We understand how important these issues are to local residents and its Soldiers and Families, and JBLM will continue to work as a partner with WSDOT to alleviate traffic congestion to improve quality of life.</p> <p>Some of the recent traffic improvements include opening a new entry gate to JBLM at Mount's Road. JBLM is also working with the WSDOT to install traffic signals on SR507 & the intersection at East Gate Rd in addition to other improvements. The installation already implements some telecommuting and flexible work schedules to limit commuting trips and will continue to assess new ideas to reduce regional and local traffic issues.</p> <p>JBLM looks forward to continuing its cooperative relationship with the local community, WSDOT, and the Federal Highway Administration to actively seek improvements and solutions to the traffic challenges in and around JBLM. One example is the Joint Base Lewis-McCord Growth Coordination Plan, which was completed and published in December 2010 [www.jblm-growth.com]. Roughly 100 agency partners collaborated to produce this plan using a grant administered by the City of Lakewood and funded by the U.S. Department of Defense, Office of Economic Adjustment. The plan seeks solutions to the consequences of JBLM's growth, including traffic impacts, as well as opportunities to leverage the potential benefits.</p>
--	---

ITEM: 5.	AGENCY (COMMENTS NAME): Individual (Patricia Lindner)	LOCATION: Joint Base Lewis-McCord, Washington	TYPE: Aviation (Helicopters) and Noise
-----------------	---	--	---

Comments	Response
<p>Via e-mail 11/19/2010: Again it is Friday, you can go everywhere on post, just takes some time. After 3 I am staying home, if not you run into traffic. From talking to other soldiers and family members, you get comments like "We don't need no more soldiers." My daughter wants to sleep in my bedroom, because she can hear the helicopters in the night, "It so loud I cannot sleep." I don't like the noise either, it is on all our nerves. My husband tells me they have to do their Hours in the air. But seriously in the middle of the night, all you want to do is sleep. I actually wish nobody this noise. But also the questions remains, where will all those soldiers stay and where will they work. I hope this decision will be a good one.</p>	<p>Thank you for your comments. Also, thank you for your service and the support you give to your husband as an Army spouse. Your support helps the Army ensure our Soldiers are trained and able to execute a full range of combat and stability operations.</p> <p>Please see the response to comment #4 with regards to traffic concerns.</p> <p>As indicated in the installation's <i>Grow the Army</i> Final Environmental Impact Statement, JBLM currently implements a variety of best management practices (BMPs) to mitigate the effects of the Army's activities on noise. These BMPs include implementing the requirements of Fort Lewis Regulation 360-5, <i>Noise and Vibration Complaint Procedure</i>, following the "Fly Friendly" program when flying over congested areas, and implementing noise level reduction features in the design and construction of noise-sensitive receptors.</p> <p>As housing is limited on-post, some CAB Soldiers would be expected to live off-post. The housing-sector private market is expected to be able to meet the demand for off-post housing. Soldiers living off-post would be expected to commute to their unit on-post for work.</p>

ITEM: 6.	AGENCY (COMMENTS NAME): Individual (Bill Sulzman)	LOCATION: Fort Carson, Colorado	TYPE: Aviation
Comments		Response	
<p>Via e-mail on 11/24/2010: After several weeks of stalling, I have received word by telephone that my request for information concerning the number of Fort Carson helicopter flights which have flown into the Pike national forest in what is called the western helicopter training area, and into the eastern helicopter training area on the eastern plains has been denied. I am told that next week I will get written notice of the denial from "higher ups". This stonewalling prevents us from assessing how many more flights would likely fly into those areas if a full Combat Aviation Brigade with 120 helicopters were to be assigned to Fort Carson. The stalling tactics are classic. First they said they did not get my request. I resent the request. They then said it was identical to an earlier request. It was not. Then they said they didn't have the information. And now they say they have the information but I can't have it. As we know transparency is hard to come by when dealing with the Pentagon and its subdivisions.</p>		<p>Thank you for your comments. Per the November 29, 2010 letter you received from Fort Carson in response to your Freedom of Information Act requests, your request was not denied. Rather, the records of the information you sought were not found. As stated in the letter, "[t]his no records response does not constitute a denial".</p> <p>As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment.</p>	
ITEM: 7.	AGENCY (COMMENTS NAME): Tacoma-Pierce County Chamber (Gary Brackett)	LOCATION: Joint Base Lewis-McCord, Washington	TYPE: Socioeconomics, Transportation
Comments		Response	
<p>Via e-mail on 11/24/2010: Please find attached our comments on the Draft Preliminary Environmental Impact Statement for the Growth, Realignment and Sustainment of Army Aviation. To assure our comments are received, a copy will be sent by post to the indicated address. As stated in the attached document, the Chamber supports the Preferred Alternative - Alternative 3. If I may assist you further with clarifications to our comments or additional information, please call on me.</p> <p>Letter dated 11/24/2010: Thank you for the opportunity to comment on the Draft PEIS on Proposed Aviation Growth, Realignment and Stationing.</p> <p>The Chamber has been involved in this process through its participation in the open public process. As a result, please note that the Chamber is supportive of the Preferred Alternative – Alternative 3.</p> <p>Washington State enjoys a positive economic contribution from all its military installations. This is a just released report for the state, but it gives you a good picture of JBLM: http://www.wedc.wa.gov/Publications.htm in addition to other defense industry economic contributions. The community (Region of Influence: Pierce and Thurston Counties) has enjoyed a positive economic and social relationship with Joint Base Lewis-McChord (JBLM).</p> <p>The return deployment over this summer of about 18,000 soldiers (joined by some returning families) has made a significant economic contribution to the local economy in these recessionary times. In spite of the national recovery underway, the local area still suffers from recessionary impacts. Those impacts are forecast in the Chamber's Pierce County Economic Index, to begin improving attributable to significant contribution from JBLM in this final quarter 2010. That forecast is not yet available until its public release December 16, 2010.</p> <p>As a growth installation, JBLM is collaborating in a two-county evaluative process to determine those socioeconomic impacts and appropriate coordinated community actions to assure cooperative efforts for mission support and a high level of quality of life for all citizens (civilians and military personnel and their families). The city of Lakewood is the lead for that two county study of the growth impacts from JBLM. The draft is here: http://www.jblm-growth.com/ which is scheduled for completion December 31, 2010.</p> <p>Already completed is another OEA funded study to assess and determine mitigating actions relating to Interstate 5. This cooperative effort by JBLM, the Washington State Department of Transportation and the City of Lakewood as grant administrator, is already completed and being incorporated into public policy, as evidenced</p>		<p>Thank you for your comments and for providing updated sources of information on economics, traffic planning and impacts.</p>	

here: <http://on-ramp.blogspot.com/2010/09/wsdot-announces-plans-for-i-5.html>. The Chamber has recently submitted comments as here: <http://c-9blog.blogspot.com/2010/10/consider-defense-issues-in.html> to the Washington State Transportation Commission as they are updating the State's transportation policies, recommending incorporation of national defense obligations in those policies.

As mentioned earlier, the community is the beneficiary of community involvement by soldiers and their families. There is a wide range of contributions that are exemplified in the actions of soldiers recognized by the award of the John H. Anderson Military Citizen of the Year. That and other community interaction is documented with the Chamber's C-9 Blog at: www.c-9blog.blogspot.com. If I may provide you additional information or assistance in your evaluative process, please call on me.

ITEM: 8.	AGENCY (COMMENTS NAME): The Chamber Colorado Springs (Brian Binn)	LOCATION: Fort Carson, Colorado	TYPE: Infrastructure
-----------------	---	--	-----------------------------

Comments	Response
----------	----------

Via e-mail on 11/24/2010:
Attached is a letter, w/attachments, in support of stationing the Army's next Combat Aviation Brigade at Fort Carson. I will also be mailing a copy. Thank you for the opportunity to comment on the draft PEIS.

Attached letter dated 11/24/2010:
Thank you for the opportunity to comment on the draft PEIS and to lend support for the decision to station the Army's next Combat Aviation Brigade (CAB) at Ft Carson, Colorado. The PEIS does an excellent job in evaluating the factors related to stationing the CAB at Fort Carson or Joint Base Lewis-McChord (JBLM).

The majority of our elected officials at the Federal, State, County, and City level, as well as many organizations, such as the Greater Colorado Springs Chamber of Commerce and our Military Affairs Council strongly support the selection of Fort Carson. Ft Carson has the only division (4th ID) in the Army without a CAB collocated with the unit. Before the 4th ID left Ft Carson in 1995, there was a CAB at Fort Carson. The 3rd ACR has also called Fort Carson home. A CAB will provide the synergistic training for the Soldiers at Fort Carson to most effectively train the way they will fight to ensure mission success – all of our Soldiers deserve nothing less.

As noted in the PEIS, there are added requirements and factors, easily remedied, for Fort Carson to effectively and efficiently bed down the new CAB. Based on the likely timelines after a final decision from the Army, there is ample time for the needed actions. Fort Carson already has the major infrastructure requirements with Butts AAF, and has identified the necessary MILCON for building the CAB at Fort Carson. Over the past several years, with the decisions of the last BRAC to bring the 4th ID back to Fort Carson, the installation has significantly improved its capability to provide the necessary quality of life and operational infrastructure to fully accommodate the additional growth of bringing the CAB to Fort Carson. Fort Carson training ranges, Pinon Canyon Maneuver Site (PCMS) and the National Guard High Altitude Aviation Training Center provide unparalleled access to an environment of demanding, realistic, and needed training for our Soldiers.

Our community is known for its support of the military and the welcoming environment for the men and women of our military and their families. It is an ideal place for Soldiers and their families – quality of life, schools, educational opportunities, cost of living, and recreational opportunities are just a few of the other important reasons, for Soldiers and families, to bring the CAB to Fort Carson.

Our community looks forward to the decision to station the Army's next Combat Aviation Brigade at Fort Carson. Please feel free to contact me if you have any questions. I can be reached at 719-575-4325, or at brian@csc.org.

Thank you for your support and interest in this proposal. We appreciate your understanding of the history of aviation at Fort Carson and the importance of integrated training.

ITEM: 9	AGENCY (COMMENTS NAME): Law Office of John M. Barth (John M. Barth)	LOCATION: Fort Carson, Colorado	TYPE: Public Review Period
<p>Comments</p> <p>Via e-mail on 12/02/2010: On behalf of Not 1 More Acre!, attached please find a letter requesting an extension of time to submit comments on the Draft Programmatic Environmental Impact Statement for the Growth, Realignment, and Stationing of Army Aviation Assets related to the Fort Carson Combat Aviation Brigade. Thank you in advance for honoring this request.</p> <p>Attached letter dated 12/02/2010: On behalf of Not 1 More Acre!, P.O. Box 773,Trinidad, Colorado 81082, I am submitting this request for an extension of time until February 17, 2011 to submit written comments on the Department of Army’s Notice of Availability of a Draft Programmatic Environmental Impact Statement (PEIS) for the Growth, Realignment, and Stationing of Army Aviation Assets (“NOA”). N1MA! is a non-profit organization dedicated to protecting and preserving the natural and cultural heritage, economy and quality of life in southern Colorado and northern New Mexico.</p> <p>More specifically, on November 5, 2010 the Army published an NOA for the proposed growth, realignment, and stationing of new and existing Army Combat Aviation Brigades (CABs) to Fort Carson, Colorado or Joint Base Lewis-McCord, Washington. The NOA states “[t]he public comment period will end 45 days after the publication of a notice of availability in the federal Register by the U.S. Environmental Protection Agency.” 75 Fed. Reg. 68333-34. On that same date, the U.S. Environmental; Protection Agency published a notice of availability for a PEIS for the “Growth, Realignment, and Stationing of Army Aviation Assets, to Reduce Congestion and Improve</p> <p>Safety, Right-of-Way Acquisition, Fort Carson, CO” and identifying the Army Corps of Engineers (“USACE”) as the lead agency. 75 Fed. Reg. 68356. Two weeks later, on November 19, 2010 the U.S. EPA published a “[r]evision to FR Notice Published 11/05/2010; Correction to Lead Agency from COE to USA and Correction to the Title.” The U.S. EPA’s November 19, 2010 FR Notice now identifies the lead agency as “USA” and identifies the subject matter of the notice as “Growth, Realignment, and Stationing of Army Aviation Assets, Evaluates Environmental Impacts of Stationing Army Combat Aviation Brigade at Fort Carson, CO and Joint Base Lewis-McCord, WA.” 75 Fed. Reg. 70918.</p> <p>EPA’s November 5, 2010 notice of availability did not provide notice of the CAB Draft PEIS because it identified the incorrect Draft PEIS (“to Reduce Congestion and Improve Safety, Right-of-Way Acquisition …”) and the incorrect lead agency (“USACE”). Accordingly, EPA’s November 5, 2010 notice did not provide the public notice of availability of the CAB Draft PEIS. The EPA did not correct its NOA until November 19, 2010.</p> <p>According to the legal Notice of Availability published in the Federal Register on November 5, 2010, the public comment period for the Draft Programmatic is forty-five days, the minimum time required under 32 C.F.R. § 651.14 (b)(3)(i). Although the Federal Register was corrected on November 19, 2010, the public comment period remains scheduled to close on December 20, 2010 only thirty-one days from correctly notifying the public of availability of this important document.</p> <p>The Department of Army’s regulations implementing the National Environmental Policy Act of 1969 (“NEPA”) are codified at Part 651 of Title 32 of the Code of Federal Regulations. The Army is also subject to implementing regulations issued by the Council on Environmental Quality (“CEQ”) in Parts 1500 – 1509 of Title 50 of the Code of Federal Regulations. 32 C.F.R. § 651.1(c). Army policies regarding the timing of the preparation, circulation, submission and public availability of NEPA documentation are set forth at 32 C.F.R. § 651.14 (b) (3)(iv); 40 C.F.R. §1506.10(d). As the lead agency responsible for the “Growth, Realignment, and Stationing of Army Aviation Assets, Evaluates Environmental Impacts of Stationing Army Combat Aviation</p>	<p>Response</p> <p>Via e-mail and letter on 12/15/2010:</p> <p>On behalf of the Army, thank you for your interest in the Draft Programmatic Environmental Impact Statement (PEIS) for the Realignment, Growth, and Stationing of Army Aviation Assets which includes proposals for stationing a Combat Aviation Brigade (CAB) at Fort Carson, Colorado, and Joint Base Lewis-McChord, Washington. The Army has considered your request for an extension of the comment period from December 20, 2010 to February 17, 2011.</p> <p>We understand that the public may have been confused by the differences in the Notices of Availability published by the Department of Army and the Environmental Protection Agency on November 5, 2010. The Notice of Availability by the Department of the Army (Federal Register, Vol. 75, No. 214, pp. 68333-68334) was wholly accurate. However, errors appeared in the corresponding notice published by the Environmental Protection Agency (Federal Register, Vol. 75, No. 214, p. 68356).</p> <p>The Environmental Protection Agency notice provided a partly inaccurate title and erroneously listed the Army Corps of Engineers as the lead agency. A correction to the Environmental Protection Agency notice was subsequently issued November 19, 2010 (Federal Register, Vol. 75, No. 223, p. 70918).</p> <p>The Army has decided to extend the comment period from December 20, 2010 to January 7, 2011, after considering the above noted errors, the Army’s strong desire for public participation, and the critical need to balance Army aviation force structure. This extension compensates for the 14 days that transpired between the Environmental Protection Agency’s initial Notice of Availability on November 5, 2010 and subsequent correction on November 19, 2010. In consideration of the fact that the public comment occurs during the holiday season, the extension also includes an additional four days.</p> <p>We regret that we are unable to grant your request for an extension until February 17, 2011, due to operational considerations. Specifically, any delay in a decision and programming to realign, grow, and/or station Army aviation assets would directly result in adverse impacts to CAB training and overseas deployment of CABs. It could also cause already-stressed Soldiers in current units to deploy sooner than they would under the current deployment cycle.</p>		

Brigade at Fort Carson, CO and Joint Base Lewis-McCord, WA”, 75 Fed. Reg. 70918, the Army has express authority to extend the time period for public comment.			
ITEM: 10.	AGENCY (COMMENTS NAME): Individual (Patricia Herron)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (Helicopters)
Comments		Response	
<p>Via e-mail dated 12/5/2010: I am aware of the impact an additional CAB would do to the environment around Fort Carson. I question whether we need 120 more helicopters for this training. It appears we already have enough. The amount of helicopter activity already is causing damage. Adding another 120 would be devastating.</p>		<p>Thank you for your comments. Please see the response to comment #1 regarding the Army’s need for the proposed action and why Fort Carson was selected as a viable stationing alternative.</p> <p>The Army recognizes that there will be impacts resulting from a stationing decision. This process helps to ensure an informed decision is made and appropriate mitigations are able to be identified and implemented</p>	
ITEM: 11.	AGENCY (COMMENTS NAME): Individual (Sheldon King)	LOCATION: Fort Carson, Colorado	TYPE: Land Use and Biological Resources
Comments		Response	
<p>Via e-mail on 12/12/2010: The attached letter contains my opinion of the CAB expansion request and the EIS process.</p> <p>Attached letter (no date): I am opposed to the expansion of Combat Aviation Brigade (CAB) activities into the mountains west of Colorado Springs for several conservative reasons.</p> <p>At a time when the United States government borrows 40 cents out of every dollar spent, we simply cannot afford to grant every wish to the US Army or any other segment of the population. As Americans, we need to conserve funds. There exist many designated MOAs in the state of Colorado; the military has enough space for training. Several military sites began as unnecessary land grabs and remain unnecessary. Pop your tent on the runway of the Air Force Bulls eye airfield Southeast of Ellicott, camp for the summer, no aircraft will bother you. Pathetic! Once our military obtains airspace, land, or infrastructure, it is very difficult for these areas to revert to the public domain.</p> <p>The high country has other conservation requirements for wildlife and recreation. Continued requests for expansion erode the quality of life for Coloradoans and for the fragile environments above timberline. We need to conserve areas set aside as wilderness areas, and keep them as pristine as possible. I don’t want to live in a garrisoned state, make do with what you already have.</p>		<p>Thank you for your comments. You are right. Every dollar the Federal government spends affects the budget and we need to ensure expenditures are appropriate and used wisely. That is one of the reasons this PEIS is important. It identifies why it is important to analyze the proposed action (see Section 1.3). The screening criteria in Section 3.2 focused the Army’s analysis of alternatives to those installations where aviation growth and realignment will be viable and support the Army’s need. After applying the last screening criteria in Section 3.3, it was determined that only JBLM and Fort Carson were viable stationing locations capable of providing the necessary air-ground integration training. This type of training is a key aspect of the stationing decision and is one of the reasons why Fort Carson is evaluated in this PEIS.</p> <p>As stated in Section 3.4 of the PEIS, land acquisition is not being considered as part of this action.</p> <p>We also have statutory, regulatory, and practical requirements to sustain the environmental resources at Fort Carson. Our agreement with the Pike and San Isabel National Forests, where some mountain/high altitude training of helicopter pilots and instructors take place, also reflects stewardship responsibilities. We have taken those requirements very seriously in the past, we do so now, and we will continue to do so in the future.</p> <p>The Army endeavors to be good stewards of both taxpayer dollars and the environment.</p>	
ITEM: 12.	AGENCY (COMMENTS NAME): Individual (John Liechty)	LOCATION: Fort Carson, Colorado	TYPE: General
Comments		Response	
<p>Via e-mail on 12/12/2010: It seems to me that the United States is in decline, if not freefall.</p> <p>While I may be mistaken in this perception, I am hardly alone in it. To reestablish its footing, the country can either do more of what it’s been doing, or try to change. The best choice seems obvious, but we Americans have grown notoriously averse to prudence. And so we go on spending more than we earn, consuming more than we produce, borrowing more than we save, and stirring up more problems with our "military solutions" than we resolve. Despite a lingering triumphalist chorus that retains the anachronistic audacity to boast of our absolute goodness and supremacy among the nations of the earth, the truth is before our noses.</p>		<p>Thank you for your comments. With regards to ensuring government expenditures are appropriate and used wisely, please see the response to comment #11. Troop withdrawals from Iraq and Afghanistan are outside the scope of this PEIS.</p>	

- we are broke and getting broker.

One of the things breaking us is our consuming dedication to all things military. We have spent nearly a decade now fighting two of the most futile, wasteful wars in our history, perhaps in anyone's history. As the country falls apart at home we persist in finding enemies overseas, like an individual who seeks the source of his failures exclusively outside himself. What does America do anymore? What do we really produce, really contribute to the well-being of this planet? More and more people seem to be wondering, and notwithstanding the fact that some of the criticism of our country is unwarranted or exaggerated, who can blame them? The people of the world and the people of our nation have a right to wonder when it so often seems that chief on America's dwindling list of "accomplishments" is a perpetual entanglement in military conflict and misadventure. The economy, the culture, the cohesion, the system of education, the confidence, the generosity, the versatility, the resourcefulness, the creativity, the capacity to work and get things done... Not so long ago we were admired for such institutions and qualities. Perhaps one day we will be admired for such again. But for now, we appear to be a nation capable of "doing war" and very little else.

It seems to me that a decision to add a Combat Aviation Brigade to Fort Carson would epitomize the lack of vision and initiative combined with the surplus of acquisitiveness and greed that is pulling our country down. Such a remark may seem mystifying or unpatriotic to many residents of Colorado Springs, a community that has all but sold its soul for military money, a community like many others in this nation where "supporting the troops" is largely a matter of flag-waving and bumper stickers and mindless cheerleading. Like the country, the state of Colorado needs many things to snap out of decline. One hundred and twenty more helicopters and 2700 more troops are hardly on the list of priorities. I would encourage the Army to save its (our) money in the interest of truly supporting our troops and of truly helping this country. Often a step in the right direction is a step back, a step over, or no step at all. This is not the moment for expansion. A more responsible initiative would be to get out of Iraq and Afghanistan, and show the world and ourselves that we are good at something besides wasting time, money, reputation, and lives.

ITEM: 13.	AGENCY (COMMENTS NAME): Individual (Larry and Phyllis Stites)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (Noise)
------------------	---	--	-------------------------------

Comments	Response
<p>Via e-mail on 12/11/2010:</p> <p>We are writing in opposition to the Expansion of the CAB at Fort Carson, Colorado. We think that Colorado Springs/Fort Carson has enough military in this area so the CAB should be located elsewhere. The CAB will be composed of 120 helicopters of various sizes and about 2700 troops. As of now, it appears that much of the training done at Fort Carson will use 16 Landing Zones (LZ's) in the mountains to the west of Colorado Springs and also frequent flights to the east of the Post out on the plains.</p> <p>Currently, there have been numerous incidents involving Army helicopter annoying Campers, Hikers and Wildlife in the area has also been impacted. There are already a couple of dozen helicopters at Fort Carson which do training in the mountains. The new CAB would involve about a 500% increase in that activity. The noise pollution will be a terrible problem from the CAB with 120 helicopter of various sizes. We have been unable to find out the current information we need which is the number of flights a day, the number of helicopters per flight and the flying altitude. This seems to be classified information for some reason???</p> <p>Currently, when 2 helicopters fly over the city the noise pollution is excessive.</p> <p>Much concern have been expressed about the Army and Air Force Training Flights over the city disturbing the peace of the local neighborhoods. Your current Environmental Study omits the effects of training in Bureau of Land Management and Forest Service lands West of Colorado Springs. The report also addresses that only the soils at Fort Carson and its Pinion Canyon Maneuver Site in Southern Colorado would be affected, but says nothing about the soils of the Bureau of Land Management and Forest Service lands West of Colorado Springs.</p>	<p>Thank you for your comments. As stated in Section 3.4 of the PEIS, land acquisition is not being considered as part of this action.</p> <p>Please see the response to comment #1 regarding the Army's need for the proposed action and why Fort Carson was selected as a viable stationing alternative.</p> <p>As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment.</p> <p>With regard to your comment about BLM lands, there is currently no agreement between Fort Carson and the BLM for use of BLM lands for aviation training. A transient aviation unit (not stationed at Fort Carson) has recently developed an agreement with BLM for the short-term use of BLM lands in the vicinity of Canyon City. This type of short-term usage by visiting and transient units has occurred in the past and is expected to continue intermittently in the future. We do not expect any impacts to BLM lands as a result of this proposed action analyzed in this PEIS.</p> <p>The U.S. Air Force has recently proposed the establishment of a Low Altitude Tactical Navigation (LATN) area in northern New Mexico and southern Colorado. The LATN would provide airspace to operate C-130 and CV-22 aircraft for training purposes.</p>

<p>This is where I am certain most of the flying will take place, in the 16 Mountainous Landing Zones and also the Landing Zones on the Eastern plains. The area also sometimes hosts CAB's from other Army Posts. That activity would likely continue adding to the glut of helicopters in our mountains. It is also true that Fort Carson will use the expansion to launch a new push for expansion in the Pinon Canyon area. This same area is included in the Air Force's plan for low altitude flights to train Special Forces troops, further compounding the impact.</p> <p>Again, we are in Opposition to the Expansion of the CAB at Fort Carson, Colorado. It will have a detrimental effect on this whole area. We are contemplating moving out of this area if this expansion is to take place.</p>	<p>Discussion of cumulative impacts has been added to Sections 5.6.3 and 5.12.3 of this PEIS.</p> <p>As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible.</p> <p>We also have statutory, regulatory, and practical requirements to sustain the environmental resources at Fort Carson. Our agreement with the Pike and San Isabel National Forests, where some mountain/high altitude training of helicopter pilots and instructors take place, also reflects stewardship responsibilities. We have taken those requirements very seriously in the past, we do so now, and we will continue to do so in the future.</p>
---	---

ITEM: 14.	AGENCY (COMMENTS NAME): Individual (Jo Ann Nieman)	LOCATION: Fort Carson, Colorado	TYPE: Aviation
------------------	--	--	-----------------------

Comments	Response
<p>Via e-mail on 12/09/2010:</p> <p>This is to tell you that I find the idea of increasing the size of the military presence in Colorado Springs to be wrong minded but redundant. The above brigade is unnecessary and destructive. Unnecessary in that all branches of the military have helicopter brigades. The Army and the Marines have the most. I have seen no evidence that more of it is in any way necessary. It is up to the military to prove necessity. It's not up to me to prove that a thing is unnecessary. So let's see the proof!</p> <p>Environmentally, these brigades are destructive because of the noise and intrusion into the lives of animals and people they cause.</p> <p>Mr. Lamborn insists that no one has contacted his office about this, but he's at worst lying or at best misinformed. I have called his office, and I know several others who have as well. His office help is not interested in hearing our opinions and probably don't relay the message. Clearly, he is not my representative.</p>	<p>Thank you for your comments. Please see the response to comment #1 regarding the Army's need for the proposed action and why Fort Carson was selected as a viable stationing alternative.</p> <p>Additional information has been added to Section 5.6.2 in the PEIS to discuss noise impacts to wildlife.</p> <p>We have statutory, regulatory, and practical requirements to sustain the environmental resources at Fort Carson. Our agreement with the Pike and San Isabel National Forests, where some mountain/high altitude training of helicopter pilots and instructors take place, also reflects stewardship responsibilities. For example, as indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. We have taken those requirements very seriously in the past, we do so now, and we will continue to do so in the future.</p>

ITEM: 15.	AGENCY (COMMENTS NAME): Individual (Mary Sprunger-Froese)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (Wildlife and Land Use)
------------------	---	--	---

Comments	Response
<p>Via e-mail on 12/09/2010:</p> <p>Enough already! The proposed CAB addition at Ft. Carson is more of what we don't need - please stop this proposal.</p> <p>This CAB would increase helicopter training activity by nearly 500%. Already there are flyovers in 16 Landing Zones in the mountains west of Colo. Springs. These training exercises disturb campers and hikers, and affect all wildlife adversely.</p> <p>If this CAB proceeds, Ft. Carson will no doubt claim a need for more training area in Pinon Canyon. This would be disastrous to the ranchers who have spent generations caring for this precious land resource, building their homes and legacies with care for irreplaceable natural treasure.</p> <p>Please do all you can to stop this proposal. Colorado Springs needs economic diversity, not more deleterious effects to wildlife, recreation areas, and residential places.</p>	<p>Thank you for your comments. Please see the response to comment #1 regarding the Army's need for the proposed action and why Fort Carson was selected as a viable stationing alternative.</p> <p>As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment. Noise abatement policies for aviation personnel's adherence are contained in both Fort Carson Regulation 95-1 and the Helicopter Training Operating Plan between Fort Carson and Pike and San Isabel National Forests.</p> <p>As stated in Section 3.4 of the PEIS, land acquisition is not being considered as part of this action.</p>

STOP the CAB, I want to get off!			
ITEM: 16.	AGENCY (COMMENTS NAME): Individual (Loring Wirbel)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (Noise, Wildlife and Aesthetics)
Comments		Response	
<p>Via e-mail on 12/09/2010:</p> <p>I would like to submit my observations on the impacts of the planned Combat Aviation Brigade at Fort Carson. Most of those commenting may be from the Security/Widefield or Broadmoor areas, but as a resident of North El Paso County, I think the impacts to this area will be more evident than is anticipated. Many of the 16 Landing Zones impinge on areas of Pike National Forest near the Rampart Reservoir area, and it seems obvious that flights to the LZ regions will be audible and visible in the Monument and AFA region. The impacts on wildlife in the Pike National Forest have not been adequately addressed in the EIS, in my opinion.</p> <p>It is true that Fort Carson already hosts helicopter flights in the region, but a CAB located here would increase such flights by more than a factor of five.</p> <p>I am concerned that the stationing of the CAB at Fort Carson will increase the frequency and integrated-forces training of both low-altitude flights related to Special Forces, and of the Pinon Canyon training area in the south area of the state. While the justifications of these two activities are separate from the CAB proper, I feel that the EIS should address in a more direct fashion the potential for a "multiplier effect" from the integration of CAB, Special Forces, and expanded Pinon Canyon training.</p> <p>Thank you for your consideration.</p>		<p>Thank you for your comments. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment.</p> <p>We acknowledge that stationing of a CAB at Fort Carson would increase the amount of aviation training conducted at PCMS. Section 2.11 of PEIS provides a discussion of the increase flight operations anticipated to occur there.</p> <p>A majority of aviation operations at PCMS would be conducted to support ground maneuver units. Ground maneuver training would occur regardless of whether a CAB is stationed at Fort Carson.</p> <p>The implementation of past, present and future actions on PCMS, cumulatively, are addressed in the "Cumulative Effects" section of each Valued Environmental Component in the PEIS.</p>	
ITEM: 17.	AGENCY (COMMENTS NAME): Individual (Bill Sulzman)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (Helicopters), Wildlife, and Recreational Use
Comments		Response	
<p>Via e-mail on 12/10/2010:</p> <p>I have just printed out this document which Eric Swab was sent in his FOIA request concerning Fort Carson helicopter training in the national forest. I went to the library to make a copy. You can find the hard copy at Penrose. Eric scanned in the pages and I can send them one page at a time if need be. In going through it I realize that what I got earlier from the Pikes Peak Ranger district was a truncated version of this with a lot of the detail left out.</p> <p>Tom Warren of DECAM oversaw this project which was completed in October 2007. It is an EA not an EIS. Notice of its completion appeared in a couple of newspapers at the time. It is boiler plate NEPA a "finding of no significant impact". A FONSI in NEPA speak. It's 24 pages long and goes through the standard process. It creates some straw men and then knocks each of them down with general statements. There is some interesting detail in here and some hints at details that are not in the document:</p> <p>* It summarizes the number of flights as being about 3 or 4 per week during the fall and spring months. If we multiply that out it comes to roughly 78 - 104 flights in just the fall and spring months. It does not say how many helicopters take part in each flight. According to the estimate there is other training as well. Just not as heavy. This contradicts our experience of this past summer's heavy use of the national forest and BLM areas. The document mentions there are other users besides Fort Carson e.g. the National Guard, units from Buckley AFB and visiting Army units from elsewhere. Nowhere does it quantify those flights, one of the many missing and misleading details. Another detail which seems to be missing is a delineation between helicopter crew training and Green Beret's training exercises which actually put troops on the ground such as happened on BLM lands this summer.</p> <p>* It states that the number of helicopters stationed at FC in 2007 was about 70, a much higher number than</p>		<p>Thank you for your comments. We acknowledge that an Environmental Assessment was completed in 2007 that evaluated the environmental impacts of mountain/high altitude aviation training. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in that 2007 Environmental Assessment. As indicated in the response to comment #3, mountain/high altitude training is specialized training and primarily for Army aviation units preparing to deploy to rugged, high elevation areas. This specialized training could not be effectively conducted on Fort Carson or in existing PCMS training areas due to lack of elevation. The majority of helicopter training is not mountain/high-altitude training. There is no conflict or inconsistency between this PEIS and the 2007 Environmental Assessment.</p> <p>To clarify, it is not true that the majority of CAB training would occur at PCMS. Please note, as stated in Section 2.11 of the PEIS, it is estimated that up to one third of total estimated CAB flight time may occur at PCMS if a CAB were to be stationed at Fort Carson.</p> <p>We acknowledge your concern with noise impacts to recreational users. Noise abatement policies for aviation personnel's adherence are contained in both Fort Carson Regulation 95-1 and the Helicopter Training Operating Plan between Fort Carson and Pike and San Isabel National Forests.</p>	

previously thought. It is not clear if some of these belong to the National Guard which is likely. When I visited Butts Airfield a couple of years ago there did not seem to be near that many. Perhaps some are temporarily stationed in war zones.

* Paragraph 3.2 makes this assertion: "There are no sites on either Fort Carson or Pinon Canyon Maneuver Site that meet requirements for this training in terms of elevation and associated topography". That would seem to contradict what is said in the current CAB expansion proposal which claims that the majority of CAB training would be at PCMS.

* Paragraph 4.3.3 states "There have been no reported effects of noise on wildlife since this type of use began 28 years ago." Wildlife of course does not have the capability to do such reporting. The only way to get an accurate report would be to station trained professionals near the LZ's when they are in use. There is no indication that this has ever been done. There is no mention of any systematic oversight or inspection. According to the Forest Service they don't have time to do any comprehensive oversight.

* The document says there could potentially be a conflict between Army use and civilian recreational use in the area. According to them no one as of 2007 had ever complained of such conflict. This summer we have heard anecdotal evidence of problems at sites in Jones Park LZ, Plum LZ and Almagre LZ and several reports of annoyance elsewhere in the forest.

These are just a few of the comments that would come to mind in a more detailed analysis of this Environmental Assessment. It would be great if someone could get a link to this EA on the Fort Carson website. I did some poking around but couldn't come up with anything. I got a second denial letter concerning my own FOIA request.

ITEM: 18.	AGENCY (COMMENTS NAME): Individual (Cecily Jones)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (Wildlife and Noise)
------------------	---	--	--

Comments	Response
<p>Via e-mail on 12/13/2010:</p> <p>As a long time (37 years) former resident of Colorado and as a concerned citizen of this country, I am sending my opinion about the proposed addition of a large fleet of Army helicopters to the already adequate fleet at Fort Carson. I understand that 120 more helicopters would fatten the fleet and would be used for training in the area near Fort Carson.</p> <p>Such an overload would certainly have a negative impact on the wildlife in the mountains and plains nearby. Already I have heard that people enjoying that beautiful part of the state, people camping and hiking, to say nothing of the local residents and ranchers, have suffered inconvenience and noise pollution from the current copter training program. Indeed the mathematical calculation of the added CAB shows that it would be a 500% increase in helicopters there.</p> <p>Fort Carson's training program is already adequate. I ask that the Environmental Impact Statement reflect what would be the negative effects of the proposed addition.</p>	<p>Thank you for your comments. We acknowledge that there would be adverse environmental impacts associated with CAB stationing. Section 5.6 and 5.9 of the PEIS presents a discussion of noise and wildlife impacts respectively. We have added information to Section 4.5 to discuss mitigations in more detail.</p>

ITEM: 19.	AGENCY (COMMENTS NAME): Congress of the United States (Mark Udall, Michael Bennet, and Doug Lamborn)	LOCATION: Fort Carson, Colorado	TYPE: Public Review Period
------------------	--	--	-----------------------------------

Comments	Response
<p>Via letter dated 12/13/2010:</p> <p>As members of the Colorado congressional delegation, we write on behalf of our constituents regarding a request for an extension of the public comment period for the Combat Aviation Brigade's Programmatic Environmental Impact Statement at Fort Carson.</p>	<p>Via letters on 12/20/2010:</p> <p>On behalf of the Army, thank you for your interest in the Draft Programmatic Environmental Impact Statement (PEIS) for the Realignment, Growth, and Stationing of Army Aviation Assets which includes proposals for stationing a Combat Aviation Brigade</p>

We understand that the stationing of the 13th and 16th Combat Aviation Brigades is a time sensitive matter and significant delays in this process could have far-reaching effects both here in Colorado and for our warfighters in Afghanistan. However, we also acknowledge the importance of ensuring full public participation in the process.

We ask that you consider a reasonable extension of the deadline, given the busy holiday season. Colorado is extremely proud of its role in supporting our Army, and we thank you for considering Fort Carson as a home for a Combat Aviation Brigade.

Thank you for your service, and we look forward to your response.

(CAB) at Fort Carson, Colorado, and Joint Base Lewis-McChord, Washington.

Based on your constituents' request, the Army's strong desire for meaningful and productive public participation, and the critical need to balance Army aviation force structure, the Army has decided to extend the comment period from December 20, 2010 to January 7, 2011. This extension compensates for the 14 days due to the confusion caused by the Environmental Protection Agency's initial Notice of Availability on November 5, 2010 and subsequent correction on November 19, 2010. In consideration of the fact that the public comment occurs during the holiday season, the extension also includes an additional four days.

Thank you for your continued support of our Soldiers, Civilians, their Families and the Army. We look forward to maintaining a strong relationship with you, the citizens and community surrounding Fort Carson, and the State of Colorado

ITEM: 20.	AGENCY (COMMENTS NAME): Southern Colorado Environmental Council (Paula Ozzello)	LOCATION: Fort Carson, Colorado (Piñon Canyon Maneuver Site)	TYPE: Wildlife and Cultural Resources
------------------	---	---	--

Comments	Response
<p>Via e-mail on 12/13/2010: Please find attached the SCEC's response to the stationing of Army Aviation full CAB unit to Fort Carson. Would you please verify that our comments have been received at the Public Affairs Office in Houston. We are not sending a printed copy.</p> <p>Via letter dated 12/09/2010: After reviewing the PEIS on the placement of a full CAB unit at Fort Carson, Colorado, we have no problem with Fort Carson Proper receiving a full CAB unit. Fort Carson Proper and surrounding El Paso and Fremont Counties are developed and ready to meet the training needs of a CAB unit. WE CANNOT SUPPORT PINON CANYON MANEUVER SITE USAGE BY THE CAB UNIT AT THIS TIME.</p> <p>Upon review of the Draft National PEIS dated September 2, 2010, we find too many discrepancies in the study. Most of the draft material is pulled from previous EA's and other documents that are out of date.</p> <p>A COMPLETE NEPA ENVIRONMENTAL IMPACT STUDY IS TO BE DONE SPECIFICALLY ON PINON CANYON MANEUVER SITE AND PCMS ALONE, REGARDING THE FOLLOWING:</p> <p>THE IMPACT OF LIVE FIRE NO LARGER THEN 50 CALIBER FROM THE AIR.</p> <p>THE IMPACT OF LIVE FIRE WITH A HEVY MECHANIZED BRIGADE AND THE CAB UNIT.</p> <p>THE EFFECTS OF THE CAB UNIT IN MANEUVER TRAINING ON THE ECO-SYSTEM OF PCMS, SPECIFICALLY THE LAND, WATER, WILDLIFE.</p> <p>THE IMPACT TO SURROUNDING LAND ADJACENT TO PCMS.</p> <p>Taking into account, all the above factors, a complete NEPA environmental impact study has never been done on the Pinon Canyon Maneuver Site. Back in 2004, to go to live fire, 50 caliber or less, only an environmental assessment was done, NOT an actual environmental impact study.</p> <p>The original intent of PCMS was ground infantry training with LIGHT mechanized vehicles. Twenty years usage has completely changed.</p> <p>Rushing into the use of PCMS by a CAB unit, plus the heavy mechanized unit prior to compliance of the</p>	<p>Thank you for your comments. The potential impacts associated with training a CAB at the PCMS were discussed in Fort Carson's 2009 <i>Grow the Army</i> FEIS. That FEIS primarily studied the effects of stationing an Infantry Brigade Combat Team (IBCT), along with the possible stationing of a CAB. No construction at the PCMS was associated with the assignment of a CAB, and none is currently projected in the PEIS. The main environmental impact anticipated at the PCMS from the possible employment of a CAB is some additional disturbance of soils, an impact that may be mitigated to less than significant through various measures such as the Integrated Training Area Management (ITAM) program.</p> <p>Subsequent to the completion of the installation's 2007 <i>Grow the Army</i> FEIS, the Department of the Army decided not to station the IBCT at Fort Carson. As a result, the overall impacts identified in that EIS would be expected to be much less. None of those impacts was considered to be significant after application of mitigation measures.</p> <p>If the resulting decision from the PEIS is to station a CAB to Fort Carson, there will be appropriate site-specific NEPA review of any effects of implementing that decision that have not previously been studied at Fort Carson and the PCMS.</p> <p>Please note that there have been three EISs done with regard to activities at the PCMS: the original acquisition EIS in 1980, the Transformation EIS in 2007, and the Grow the Army EIS in 2009. The Council on Environmental Quality's regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA) does not require an EIS for all actions. The Environmental Assessment level of review done regarding the introduction of live-fire at PCMS was considered appropriate and legitimate.</p> <p>Additionally, the 1980 PCMS acquisition EIS did not limit mechanized vehicles to "light". The purpose and need as described in the acquisition EIS was to acquire training land to meet minimum maneuver training space needs for the Fourth Infantry Division (Mechanized). Paragraph 1.4.2 of the 1980 Draft acquisition EIS, "Personnel and Vehicles", stated: "about 826 wheeled and 432 tracked vehicles would be located within the training area per brigade training period." Although the EIS didn't specify the tracked vehicles, they would have included some variant of M-60 tanks, weighing over 50 tons each, and M-113 personnel carriers, weighing over 12 tons each. Bradley fighting vehicles, which were in development or production in 1980 and started being fielded in 1981,</p>

original EIS will lead to further damage done to the cultural sites and the eco-system.

The overhaul of the structure of the personnel in charge of overseeing the sustainability of the eco-system and the cultural sites will have gross adverse affects to PCMS and must be addressed.

We recognize that adequate sustainability for good training of our military men and women must be done; but hand in hand the sustainability of the maneuver site eco system has to be a top PRIORITY.

The original EIS stated that 95 water wells were working. In the draft PEIS it is stated that there are 30, when in fact there are only 9 working water wells on 234,000 acres. Based on this misleading statement in the draft PEIS, the damage done to the site by the Warhorse Rampage Maneuver to the cultural sites and the eco-system, the loss of key individuals to oversee the maneuvers, the lack of funding for proper support to PCMS, the SCEC request proper implementation of abiding with compliance to the original NEPA EIS and that Fort Carson follow all army regulations that pertain to proper land management and cultural management on PCMS.

It must be recorded that there are no positive social economic benefits to Las Animas County and surrounding communities. There will not be any stationing of military personnel at PCMS. Once again Las Animas County will become a military bedroom community with El Paso County reaping the entire monetary windfall.

Draft does not address the spontaneous landing of helicopters on the open areas of the maneuver site—this is very irreversible damage to soil and vegetation will come. Also the spontaneous landing of helicopters is a very high risk in our drought region for wildfires. Common sense tells us that they will not use the landing strip only if they are to be part of maneuver training even in the war theater they do not do all landings on the airfield. This issue is not addressed at all in the draft PEIS; how can the draft EIS really address the actual impact to PCMS Eco-system.

Thank you for reviewing our response to placement of an Army Aviation Unit at Fort Carson, Co and use of Pinon Canyon Maneuver Site for training.

weighed over 27 tons. The Division would also have had heavy artillery and engineer vehicles.

Paragraph 1.4.2 of the 1980 Draft acquisition EIS also stated that use of PCMS would include an “anticipated 774 hours of helicopter use per brigade training period.” As evidence of a considered and deliberate approach, rather than a rushed one, introduction of a CAB was studied in Fort Carson’s 2009 *Grow the Army* EIS. If a decision is reached following this PEIS to station a CAB at Fort Carson, with training also to occur at PCMS, Fort Carson will do some additional site-specific NEPA analysis, probably with regard to both PCMS and Fort Carson.

The effects of the increase in training at PCMS resulting in part from the gain of a heavy BCT gained by Fort Carson through Base Realignment and Closure (BRAC) were initially studied in the installation’s 2007 Transformation EIS for PCMS. The Record of Decision following the 2007 Transformation EIS for PCMS was vacated in 2009 by Court Order. In response, the Army is in the process of completing an Environmental Analysis studying a reduced and refined proposed action for the increased training, which is anticipated to be released for public comment in late January 2011.

Changes in organizational structure and in personnel do not alter the Army’s responsibility for and commitment to stewardship of environmental and cultural resources at both PCMS and Fort Cason.

We appreciate your recognition of the primary purpose of Fort Carson, including PCMS; i.e., to prepare assigned and attached military personnel to successfully perform any and all missions to which they may be tasked by our Nation to perform. In light of the importance to the National of those missions and the dangers those missions often pose to the young men and women who have to carry them out, we view our purpose in terms of providing “the best possible” training, rather than “adequate” training.

That said, we also have statutory, regulatory, and practical requirements to sustain the environmental and cultural resources at PCMS. As we said above, we have taken those requirements very seriously in the past, we do so now, and we will continue to do so in the future.

Thank you for noting that, since the publication of the 2007 Fort Carson *Grow the Army* FEIS, additional wells on PCMS have become non-functional. We have updated Section 5.8.1 accordingly.

As indicated in Section 5.10.1 of the PEIS, in late summer 2010, the 2nd BCT conducted the first relatively large-scale maneuver exercise at the PCMS in a number of years. Unfortunately, that exercise revealed a number of flaws in Fort Carson’s exercise of its responsibilities with regard to protection of historic properties, including identification of the exercise as an undertaking, pre-exercise consultation with the requisite parties, coordination between the maneuvering units and cultural resources personnel, and marking and protection of historic sites. However, Fort Carson has faced each of these flaws openly and has taken or is taking responsible actions to remedy them to the extent possible and, more important, to avoid repetition in the future. The Army has addressed the loss of “key” individuals; however, to reiterate, changes in people don’t mean changes in requirements or responsibilities. The Army is built on the premise that no individual is indispensable. Funding for “proper” support to PCMS is beyond the responsibilities of this PEIS but, as

stated above, the Army takes its statutory, regulatory, and practical requirements to sustain the environment and cultural resources very seriously. No doubt, despite best intentions and reasonable plans, policies, and procedures, the Army has had instances in which we failed to comply with these requirements. There have also been misinterpretations or differing interpretations, including by regulatory or consulting agencies, that have contributed to what now appear to be discrepancies on our part. Bottom line, though, is that the mistakes we've made haven't significantly degraded either the natural or cultural resources in our care at PCMS, and, when mistakes are discovered, we acknowledge them and take action to improve in the future.

Thank you also for your economics comment but please note that NEPA does not require actions taken to have to have positive economic benefits. The Army recognizes that more can be done to provide such benefits to PCMS and is taking steps in that direction. However, practical and legal concerns will undoubtedly limit their extent.

The PEIS does not state that only landing strips will be used. For example, Section 5.7.2 identifies impacts to soil resources from helicopter landings in the maneuver area. Impacts to fire risks are also discussed in Section 5.9.1. Landing of helicopters is just one of many possible fire risks in a drought area. The largest fire at PCMS in recent years was started by a lightning strike. Regardless of the potential cause of a fire, the Army continues to work to minimize the possibility of igniting wildfires, whatever the source of ignition, and maximize the ability to contain them when they do start.

ITEM: 21.	AGENCY (COMMENTS NAME): Individual (Onorina Vedovi-Rinker)	LOCATION: Fort Carson, Colorado	TYPE: Aviation
------------------	--	--	-----------------------

Comments	Response
<p>Via e-mail on 12/13/2010: I am writing to express my strong opposition to the addition of a Combat Aviation Brigade at Fort Carson. The environmental impact on people and animals with all those helicopters buzzing over the mountains and the plains would cause even more significant damage to the quality of life we now enjoy.</p> <p>The army already has enough helicopters making offensive maneuvers at the present time. We do not need any more!</p>	<p>Thank you for your comments. Please see the response to comment #1 regarding the Army's need for the proposed action and why Fort Carson was selected as a viable stationing alternative.</p> <p>The Army recognizes that there will be impacts resulting from a stationing decision. This process helps to ensure an informed decision is made and appropriate mitigations are able to be identified and implemented.</p>

ITEM: 22.	AGENCY (COMMENTS NAME): Washington State Department of Transportation (Kevin Dayton)	LOCATION: Joint Base Lewis-McCord and Yakima Training Center, Washington	TYPE: Transportation
------------------	--	---	-----------------------------

Comments	Response
<p>Via letter dated on 12/14/2010: Thank you for giving the Washington State Department of Transportation (WSDOT) the opportunity to review and comment on the draft Programmatic Environmental Impact Statement for the possible future placement of a Combat Aviation Brigade (CAB DPEIS). The focus of our comments is on regional transportation issues related to joint Base Lewis McChord (JBLM) and the Yakima Training Center (YTC) in Washington State.</p> <p>Since much of the CAB DPEIS refers to earlier documents and communications, attached are copies of WSDOT's three previous comment letters covering the DEIS (Grow the Army, dated October 26, 2009), the FEIS (Grow the Army, dated October 7, 2010) and the CAB DPEIS scoping letter (dated October 7, 2010). Please refer to these letters as they cover issues the army still needs to address prior to issuing a Record of Decision (ROD).</p> <p>WSDOT scoping comments, received previously by the Army for the CAB DPEIS, are included on pages F-4, F-5, and F-6. We believe these comments have not been adequately addressed and request that the Army delay issuing a ROD until a thorough analysis of transportation impacts is completed and specific appropriate</p>	<p>Thank you for your comments. JBLM has been an active participant in working with planning communities address issues related to rapid regional growth and to find solutions to help alleviate regional impacts, including those associated with transportation infrastructure and traffic congestion. JBLM planners have been involved with the completion of several planning efforts to address these issues and will continue to participate in monthly meetings with WSDOT planners to understand concerns and continue to develop solutions to alleviate regional traffic congestion.</p> <p>With regard to the analysis in the CAB PEIS and the 2010 JBLM <i>Grow the Army</i> FEIS, the Army feels that it has adequate information to understand the breadth of traffic issues and impacts that would result from CAB stationing to support a CAB stationing decision at Headquarters, Department of the Army level. As identified in Section 4.10 of the JBLM <i>Grow the Army</i> FEIS and Section 6.12 of this PEIS, we are aware that traffic congestion from CAB stationing in conjunction with other stationing actions would have a significant impact on traffic in the JBLM area. Section 4.10.6 of the JBLM <i>Grow the Army</i> FEIS</p>

mitigation is identified.

The specific issues previously raised by WSDOT and that still need to be addressed by the CAB DPEIS are:

2015 build out date:

A build out date of 2015 is still being used. This four year project does not explore the future implications of the base expansion upon the regional transportation system. It would be more appropriate to either use a build out timeline of 20 years; or a date of 2040 which is consistent with the year now being used by regional and local traffic forecasts and comprehensive plan updates for the greater Puget Sound region.

Insufficient Transportation Analysis

The CAB DPEIS recognizes that Joint Base Lewis McChord (JBLM) will have significant impacts for Transportation and Airspace.

The Executive Summary mentions that mitigation measures to be implemented as part of the decision will be listed in the final Record of Decision (ROD) along with those that the Army will not be able to implement as part of the ROD. The mitigation measures referenced as being included in the ‘detailed installation level EIS analyses’ is the JBLM EIS “*Grow the Army FEIS.*” WSDOT has two concerns with this proposed process:

The first concern is that the Army has not properly sequenced consideration of traffic impacts from the JBLM Base Expansion EIS into its analysis. Specifically, the Army’s consideration of the CAB at JBLM is a smaller, more specific action than the broader consideration of a JBLM base expansion. The CAB at JBLM has specific impacts that are readily definable and therefore should be described in greater detail than in the JBLM Base Expansion EIS. An appropriate process requires an independent, more thorough traffic analysis specific to CAB consolidation and formation at JBLM.

The second concern is WSDOT, in addition to FHWA and local jurisdictions, has made previous comments that traffic considerations were not adequately assessed in the JBLM Base Expansion EIS. Despite this, the Army is relying solely on the traffic analysis of that EIS in considering the CAB at JBLM. The Army must ensure that site-specific conditions are adequately addressed in the existing programmatic document before using that information subsequent documentation, similar to what is required for adopting previous documentation in a Record of Environmental Consideration (32 CFR 651.14(2)).

Only One I-5 Interchange Analyzed:

The “Grow the Army” Draft EIS addresses only one interchange on I-5 and the subsequent Final EIS only referenced the Lakewood Growth Coordination Study’s Traffic Analysis (which included four interchanges on I-5 between Mounts Road – Exit 116 and State Route 512 – Exit 127). While it is acceptable for the “Grow the Army” DEIS to rely on previous analysis, it should also go one step further and supplement that analysis based on data used to measure the impacts specifically for the “Grow the Army” DEIS and the CAB DPEIS.

New Entry Gate – Mounts Road (Exit 116):

The Army should also consider in its analysis the newly opened Mounts Road entry gate for possible AM and PM peak impacts.

Impacts Beyond the I-5 Corridor not Analyzed:

The CAB DEIS does not address impacts beyond the I-5 corridor, as requested previously by the WSDOT. The locations requested by WSDOT for additional analysis are: SR 507/East Gate Road; SR 7/176th Street South; SR 510/Reservation Road SE; and SR 510/Old Pacific Highway. The effect of vehicle and troop convoy transport between JBLM and the Yakima Training Center along I-5, SR 18,, I-90 and I-82 should also be included in the DEIS analysis.

discusses traffic impacts and identifies key deficiencies in Level of Service (LOS) of the transportation network.

The Army is taking measures to address these significant impacts identified in both the JBLM *Grow the Army* FEIS and this PEIS. Some of the recent traffic initiatives include installing traffic signals on SR507 & East Gate Rd intersection and the recent opening of the new entrance to JBLM at Mount’s Gate.

The Army understands that regional transportation planning is a long term endeavor and JBLM will continue to participate in regular meetings with WSDOT to develop solutions. However, the Army feels that available information on traffic and transportation networks surrounding JBLM, to include the Army’s September 2010 traffic study (Arcadis 2010), are adequate to support programmatic Army stationing decisions at this time. JBLM will continue to work with WSDOT and the Federal Highway Administration as an active partner to develop information and solutions to support regional transportation planning. Specific concerns such as I-5 interchanges, impacts on state roads, additional entry gates, and specific mitigations will continue to be discussed as part of WSDOT, Federal Highway Administration, and Army planning coordination, but are not being addressed within the CAB PEIS analysis which is being conducted to support programmatic stationing decisions.

It should be noted, that the Army is now considering only stationing a subset of the aviation units comprising a CAB at JBLM. Instead of up to 2,700 Soldiers, the Army is considering reducing the scope of aviation unit stationing at JBLM to 1,400 Soldiers. Such a final decision to reduce the total number of Soldiers and Family members is being considered in light of the significant transportation impacts at JBLM, and should help to reduce impacts to regional traffic and transportation networks. A final decision on this reduction in stationing numbers will be made as part of the Record of Decision concluding this environmental impact analysis process.

Appropriate Mitigation for Transportation Impacts not Identified:

The Army has not appropriately identified mitigation for transportation impacts related to JBLM expansion. It is reasonable to assume that mitigation measures identified in the CAB DEIS will not be sufficient since the study did not analyze the entire affected transportation network. According to 32 CFR 651.15(5)(b) "When analysis proceeds to an EA or EIS, mitigation measures **will be clearly assessed** (*emphasis added*) and those selected for implementation will be identified in the FNSI or the ROD." The EIS document itself must describe the specific mitigation measures needed to address the identified (and significant) transportation impacts. Once a proposal is found to have environmental impacts, mitigation measures must be discussed in the EIS (see CEQ Reg 1502.16(h)), and the comparative presentation of alternatives in the EIS must include a description of the appropriate mitigation measures not already included in the proposed action (see CEQ Reg 1502.14(f)).

Proposed Regional Improvements are too Vague

On page 6-63, under *Cumulative Effects* there is the following statement: "Multiple long-term capital improvements are being planned in the region that will accommodate the increase in traffic. Included, for example, are regional freeway improvements on I-5 and the 'Bypass of point Defiance Rail Project.'" While there are proposed freeway improvement projects within the I-5 Transportation Alternatives Analysis and Traffic Operational Model document that would help to address increases in traffic as the result of the Army's proposed growth at JBLM, there is no detail of how the Army might contribute to these potential projects.

The projects were identified as a result of the study, but no funding source currently exists to implement those improvements. WSDOT would like to see specific proposals from the Army as to how the Army would help the state to get these projects built.

One page E-8, under JBLM Transportation Improvements, improvements are proposed for the base but do not address regional transportation impacts off-base. The new system mentioned in the Master Plan Digest claims to offer improved efficiencies and improved safety along the I-5 corridor. This claim should be modeled to determine specifically what level of improved efficiencies and safety that might reasonably be expected.

When considering existing Army bases appropriate for CAB consolidation or formation, the Army created screening criteria where "Not having adequate (Army training) facilities...will not support the proposed action." The army should extend this logic to community transportation infrastructure necessary to support the addition of troops and their families. Many of these additional troops will be living in nearby communities and using local and regional transportation facilities to commute to and from JBLM as well as accessing services provided at the base.

The regional transportation system supports the Army's needs as well as the citizens of the State of Washington. It is to our mutual benefit to ensure these facilities continue to operate adequately now, and into the future, so they will serve the needs of all the travelling public. An inadequate transportation system off-base will negatively affect the ability of the Army to support the proposed action.

We look forward to working with you to resolve these issues. If you have any questions please contact:

ITEM: 23.	AGENCY (COMMENTS NAME): Individual (Curtis Stretz)	LOCATION: Joint Base Lewis-McCord, Washington	TYPE: Aviation (Noise)
------------------	--	--	-------------------------------

Comments	Response
<p>Via e-mail on 12/16/2010: Just a quick note on the proposed stationing of a CAB at JBLM. If they are going to use the same training routes the 4/160 SOAR uses then it will add substantial noise around Tacoma Narrows airport. The 4/160 uses a route that transitions west to east over the approach to the airport. They basically fly the approach to transition the airspace. The approach path to runway 17 causes aircraft to pass over housing at low altitudes and while that is not an issue for civilian aircraft, I can speak from experience that MH-60 and definitely the MH-47's can cause enough vibration to knock stuff off shelves in houses. Any</p>	<p>Thank you for your comment. Section 4.8.6.3.1 of the Fort Lewis Grow the Army Final EIS, incorporated into the CAB FPEIS, and 6.6 of the CAB FPEIS contain an evaluation of noise impacts from operations out of GAAF on sensitive receptors. The Army agrees that the addition of the CAB with its helicopters to maneuver training would increase the amount of noise generated by this type of training. Impacts to noise from operations at GAAF would be significant. With the stationing of the CAB, the increase in helicopter operations at GAAF would extend the LUPZ (60 ADNL) and Zone II (65 ADNL) noise</p>

increase in those aviation activities would cause an Impact on an area that probably is not as obvious as many of the areas around the base. Right now usage is sporadic but typically 10 days per month I'll observe an overflight, mostly the traffic is MH-60's, MH-47's make up a much smaller percentage of the flights. While I don't really care, I can promise there are people in the community that may not be of the same opinion.		contours into the cantonment area. Noise from additional flights would carry into adjoining communities and may cause additional annoyance and complaints.	
As stated in Section 6.6.1 of the PEIS, the installation adheres to noise abatement policies that strive to minimize the impact of aircraft noise on the public. No aircraft will fly below 500 feet (152.4 m) along flight routes and all Army aircraft will maintain a minimum of 2,000 feet (609 m) AGL of national parks, monuments, recreation areas and scenic river. JBLM Regulation 95-1 imposes a 2,000 foot (609 m) altitude restriction for flight over congested areas off the installation. Exceptions to this regulation include emergency situations, periods when weather conditions dictate a lower altitude, or when the use of a lower altitude is mission-essential.			
ITEM: 24.	AGENCY (COMMENTS NAME): Individual (William Spradling)	LOCATION: Fort Carson, Colorado	TYPE: Aviation
Comments		Response	
Via e-mail on 12/16/2010: I would like to encourage the Army to bring the helicopter brigade to Fort Carson. We are a military town and want to support the military any way we can.		Thank you for your comment.	
ITEM: 25.	AGENCY (COMMENTS NAME): City of Fountain (Tim McGrew)	LOCATION: Fort Carson, Colorado	TYPE: Transportation and Socioeconomics
Comments		Response	
Via e-mail on 12/16/2010: Please see attached letter of support for a Ft Carson CAB. Via letter dated 12/16/2010: This letter is to support the decision to station the Army's next Combat Aviation Brigade (CAB) at Ft Carson, Colorado. The proposed site is next to the City of Fountain, which is home to generations of Fort Carson families. We are hugely supportive of our soldiers and all who serve. We wish them all the resources they need to excel and come home to their families. Ft Carson has the only division (4 th ID) in the Army without a CAB collocated with the unit. A CAB will provide the synergies in training to assure they have the best we can give them. The PEIS review of the site at Gate 19 and Butts Airfield brings out several factors, all of which we believe can be addressed. The timeline affords sample time to address any needs. Major infrastructure work is in place. Aviation and training sounds in this town are common – we are on the airport approach route and hear artillery regularly. These are the sounds of freedom. In addition, the area outside the proposed site is in the city's urban renewal area: a study has been completed to redevelop I-25 Exit 128 serving Gate 19. Expect new stores, new businesses, and amenities for soldier families. We are working with current property owners at the Exit 128 interchange and to the north at Fort Carson Gate 20 Exit 132. A civic center and new shopping center/mall is planned. A transit oriented development serving the fort is also planned. The socioeconomic impact of the CAB is positive and dovetails with this community's plans. Fountain looks forward to the decision to station the Army's next Combat Aviation Brigade at Fort Carson. Please feel free to contact me if you have any questions. I can be reached at 719-322-2056, or at lisa@fountaincolorado.org .		Thank you for your comment and additional information on the future urban renewal and development plans. Fort Carson looks forward to continuing to work with the city of Fountain as part of regional collaborative planning efforts to ensure the sustainable growth of the installation and city of Fountain.	

ITEM: 26.	AGENCY (COMMENTS NAME): Individual (Mary Davis)	LOCATION: Joint Base Lewis-McCord, Washington	TYPE: TRnsportatio
Comments		Response	
<p>Via e-mail on 12/16/2010:</p> <p>I drive on I-5 through Tacoma at least once a week. If the helicopter brigade is moved to JBLM rather than to CO I beg you to consider many ways to mitigate the traffic issues on I-5. An additional 2700 soldiers will have a huge negative impact on traffic – which has already been brought nearly to a total standstill on I-5 during both morning and afternoon commutes. Last night it took me over an hour to get through that area at 5:45 – driving 10-20mph the entire time (when it should have taken a few minutes). That can't be good for the soldiers either. I realize that an additional entrance was opened to Fort Lewis earlier this year and that has helped traffic – but it still does not flow well. I've seen quite a few accidents on the onramps onto I-5 (usually involving soldiers) during the evening commute. More than a new entrance will needed – an Army bus service, off base parking with bus transfer, incentives for carpooling, staggered start times....</p> <p>The additional personnel will be a boon to the local economy in many ways – but Pierce County and the State of WA do not have the funds to add infrastructure now. I suspect that is the situation just about everywhere in the US at this time. The Army personnel and their families deserve an adequate living environment and so do the local residents. Please plan for that no matter where this brigade is placed.</p>		<p>Thank you for your comment. We acknowledge and agree that CAB stationing in conjunction with other stationing actions would have a significant impact on traffic in the JBLM area, as identified in Section 4.10 of the JBLM <i>Grow the Army</i> FEIS and Section 6.12 of the CAB PEIS. JBLM is working to address both on- and off-post traffic impacts.</p> <p>JBLM has been an active participant in trying to address issues related to rapid regional growth and to find solutions to help alleviate regional impacts, including those associated with transportation infrastructure and traffic congestion. JBLM planners have been involved with the completion of several planning efforts to address these issues and will continue to participate in monthly meetings with WSDOT planners to understand concerns and continue to develop solutions to alleviate regional traffic congestion. We understand how important these issues are to local residents and its Soldiers and Families, and JBLM will continue to work as a partner with WSDOT and the Federal Highway Administration to alleviate traffic congestion to improve quality of life.</p> <p>Some of the recent traffic improvements include opening a new entry gate to JBLM at Mount's Road. JBLM is also working with the WSDOT to install traffic signals on SR507 & the intersection at East Gate Rd in addition to other improvements. The installation already implements some telecommuting and flexible work schedules to limit commuting trips and will continue to assess new ideas to reduce regional and local traffic issues.</p> <p>JBLM looks forward to continuing its cooperative relationship with the local community, WSDOT, and the Federal Highway Administration to actively seek improvements and solutions to the traffic challenges in and around JBLM. One example is the Joint Base Lewis-McCord Growth Coordination Plan, which was completed and published in December 2010 [www.jblm-growth.com]. Roughly 100 agency partners collaborated to produce this plan using a grant administered by the City of Lakewood and funded by the U.S. Department of Defense, Office of Economic Adjustment. The plan seeks solutions to the consequences of JBLM's growth, including traffic impacts, as well as opportunities to leverage the potential benefits.</p> <p>It should be noted, that the Army is now considering only stationing a subset of the aviation units comprising a CAB at JBLM. Instead of up to 2,700 Soldiers, the Army is considering reducing the scope of aviation unit stationing at JBLM to 1,400 Soldiers. Such a final decision to reduce the total number of Soldiers and Family members is being considered in light of the significant transportation impacts at JBLM, and should help to reduce impacts to regional traffic and transportation networks. A final decision on this reduction in stationing numbers will be made as part of the Record of Decision concluding this environmental impact analysis process.</p>	
ITEM: 27.	AGENCY (COMMENTS NAME): United States Department of Agriculture (John Peterson)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (Biological Resources)
Comments		Response	
<p>Via e-mail on 12/17/2010:</p> <p>Attached via electronic mail of original Forest Supervisor response letter sent to Washington DC address as noted.</p>		<p>Thank you for your comments. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment. Should there be changes in future training strategies that impact use of National Forest System lands, the Army would ensure timely and appropriate coordination with the U.S. Forest Service to discuss any changes. We recognize the U.S. Department of Agriculture must</p>	

Via letter dated 12/15/2010:		balance competing uses for National Forest System lands and that proper coordination under the Master Agreement is essential for enabling effective management. The Army recognizes the value and appreciates the support of the U.S. Department of Agriculture in supporting the training of the Nation's Soldiers.	
<p>The Pike and San Isabel Forests and Cimarron and Comanche National Grasslands National Environmental Policy Act (NEPA) staff reviewed the Army's Draft Programmatic Environmental Impact Statement (PDEIS) for the Growth, Realignment, and Stationing of Army Aviation Assets. The document does not disclose how the increase in helicopters stationed at Fort Carson might impact the use of National Forest System lands on the Forests and Grasslands. The Pike and San Isabel National Forests, in particular, have concerns with the additional helicopter detachments because the Environmental Assessment (referenced on PDEIS page 5-59) that authorized high altitude helicopter training on the Forests specifically states, "there are no sites either on Fort Carson or Pinon Canyon Maneuver Site that meet requirements for this training in terms of elevation and associated topography". This statement leads the Forests to believe that any increase in helicopters on Fort Carson that increases training would most likely direct a portion of that new training onto the Forests.</p> <p>The Forests and Grasslands realize that Forest System Lands provide a variety of unique geographic and topographic settings to conduct training activities.</p> <p>However the use of the Forests for training must be balanced with other uses as evidenced by the following statement from the Master Agreement between the U.S. Department of Agriculture and the U.S. Department of Defense, "training on National Forest System lands will be authorized when compatible with other uses and in conformity with applicable forest plan(s)."</p> <p>The Pike-San Isabel National Forests and Cimarron-Comanche National Grasslands are requesting the Army include analysis in the Programmatic Final Environmental Impact Statement (PFEIS) to show the potential effects of increased helicopter training on National Forest System Lands and the Pinon Canon Maneuver Site as a result of the potential re-stationing of helicopter units to Fort Carson. The Forests and Grasslands consider a change from 24 helicopters now to as many as 224 in the future significant enough to require additional detailed analysis on potential effects to Forest System Lands.</p>			
ITEM: 28.	AGENCY (COMMENTER NAME): Individual (Jeff Chapdelaine)	LOCATION: Fort Carson, Colorado	TYPE: General
Comments		Response	
Via e-mail on 12/17/2010: We are TOTALLY IN SUPPORT of the new / proposed Helicopter Brigade in Colorado Springs!		Thank you for your comment.	
WE LOVE THE ARMY and ALL MILITARY BRANCHES! And.. HELICOPTERS ARE COOL!!! PLEASE MAKE US YOUR NEW HOME!!!!			
ITEM: 29.	AGENCY (COMMENTER NAME): United States Department of the Interior (Robert Stewart)	LOCATION: Fort Carson, Colorado and Joint Base Lewis-McCord, Washington	TYPE: Biological Resources
Comments		Response	
Via e-mail on 12/17/2010: PLEASE ACKNOWLEDGE RECEIPT BY REPLY TO THIS MESSAGE		Thank you for your comment. Text has been added to Section 5.9 of the PEIS to include information on the anticipated impacts of CAB stationing on the Gunnison's prairie dog and mountain plover.	
The Department of the Interior's comments on the subject document are attached. If you require paper-copy or word-processor version, please so advise.		The reference to the Osterhout milk-vetch in Section 5.9 has been removed as requested.	
Via letter dated on 12/17/2010:		Text has been added in Section 5.9.2 discussing potential effects of CAB stationing on the Mexican spotted owl and adherence to the INRMP. Section 5.9.1 has been modified to clarify that the greenback cutthroat trout is no longer present at Fort Carson.	
The Department of the Interior has reviewed the Draft Programmatic Environmental Impact Statement (DPEIS), for the Growth, Realignment, and Stationing of Army Aviation Assets, Fort Carson, CO and Joint Base Lewis-McChord, WA, and offers the following comments.		Additional text on impacts to riparian habitat of the New Mexico jumping mouse has been added to Section 5.9.2 and a discussion of how BASH management will be consistent with	

Pg. 5-37 - Although the Gunnison's prairie dog (*Cynomys gunnisoni*) and the mountain plover (*Charadrius montanus*) are on the El Paso County list of Federally-listed species, the DPEIS does not mention whether these species occur or possible effects to these species in the Fort Carson proposed action. We recommend that the DPEIS be revised to address these species.

Pg. 5-37, Line 2039 - The DPEIS incorrectly states that the Osterhout milk-vetch (*Astragalus osterhoutii*) is on the county list for El Paso County. We recommend that it be removed. (The U.S. Fish and Wildlife Service acknowledges that one of its earlier species lists mistakenly identified this species as occurring in El Paso County.)

Pg. 5-38, Line 2052 - The U.S. Fish and Wildlife Service (USFWS) was unable to determine whether the proposed action, as described in the DPEIS, is consistent with the guidance contained in the Integrated Natural Resource Management Plan (INRMP), including the conservation of greenback cutthroat trout (*Oncorhynchus clarki stomias*) and the Mexican spotted owl (*Strix occidentalis lucida*) that was jointly developed with the USFWS and the State of Colorado. The INRMP specifies certain restrictions will be adhered to within a certain designated area. We recommend that the effects of the proposed action be clarified with reference to any potential impacts to the restrictions and conservation provisions already specified in the INRMP.

Pg. 5-40. Please note that USFWS' list of threatened and endangered species occurring in Las Animas County also contains the New Mexico jumping mouse (*Zapus hudsonius luteus*). The DPEIS should address the impacts of the proposed action on riparian areas potentially inhabited by this species.

Pg. 5-41, Line 2152 - The DPEIS mentions that Bird Air Strike Hazard (BASH) management plans are being developed around black-tailed prairie dog towns. The USFWS recommends that the description of the proposed action be expanded to address whether the BASH management plans will be consistent with the prairie dog management plan that is part of the INRMP.

If you have questions regarding these comments, please contact Leslie Ellwood, Wildlife Biologist, U.S. Fish and Wildlife Service Ecological Services Colorado Field Office at (303) 236-4747 or leslie_ellwood@fws.gov.

prairie dog management plan within the INRMP has been added to Section 5.9 as well.

ITEM: 30.	AGENCY (COMMENTS NAME): Individual (Floyd Bailey)	LOCATION: Fort Carson, Colorado and Joint Base Lewis-McCord, Washington	TYPE: Transportation, Noise, and Socioeconomics
------------------	---	--	--

Comments	Response
<p>Via letter dated 12/09/2010:</p> <p>The Tacoma News Tribune published an article concerning the Army wanting to set up two Combat Aviation Brigades, one at Joint Base Lewis/McChord and one at Fort Carson, Colorado. The article stated the Army would accept comments from the public prior to establishing the Brigades.</p> <p>My comments are attached and I request your serious consideration.</p> <p>News Article in Tacoma, WA News Tribune:</p> <p>Army Plans to create two Combat Aviation Brigades one at Ft. Carson, Colorado one at joint Base Lewis-McChord, WA each with 120 helicopters, 700 wheeled vehicles, 2,700 soldiers and 4,000 military families.</p> <p>Re Joint Base Lewis-McChord, WA</p> <p>Army mentions impact on I-5 Freeway but does not reference any research into the increase in traffic accidents, injuries and deaths that the addition of the Brigade will cause in the area.</p> <p>Nor does the Army mention the need to increase schools, fire and police departments and other vital services as a result of the new Brigade.</p>	<p>Thank you for your comment. The Army is aware that stationing of additional Soldiers at JBLM would likely result in additional accidents in proportion to the number of increased miles that would be driven by additional drivers added as part of the action. Information on traffic impacts is contained in the JBLM <i>Grow the Army</i> FEIS in Appendix E (E-11 and E-12) and has been summarized in Section 6.12.2 of this PEIS. With regard to the increased demand for schools, fire, police and other off-post services, information related to CAB stationing is contained in Section 6.11.2 of this PEIS, with further details contained in the JBLM <i>Grow the Army</i> FEIS on pages 4-143 to 4-147. Currently 45.5 percent of military personnel live off post. As noted in this PEIS, we recognize that CAB stationing would result in increased demand for off-post public safety services (fire, police, emergency response, etc.). With additional Soldiers stationed at JBLM, there would be a corresponding increase to the local tax base (e.g., sales tax, property tax) to pay for these services. While JBLM has five elementary schools and handles most of the educational requirements of its on-post residents, the implementation of CAB stationing along with other <i>Grow the Army</i> stationing actions is projected to add up to 997 students to Clover Park School District and up to 416 new students in the Steilacoom Historical School District. The Army recognizes that impacts to schools would represent a significant impact. Additional text has been added for off post services in Section. 6.11.2.</p> <p>It should be noted, that the Army is now considering only stationing a subset of the aviation units comprising a CAB at JBLM. Instead of up to 2,700 Soldiers, the Army is considering</p>

As I live in the area the noise created by the Brigade helicopters is of very serious concern. The Army states that only the Nisqually Reservation would be impacted by the very noisy helicopters. The Army does not provide any data what so ever to substantiate that 120 helicopters would not be a serious problem for a much larger area.

The nation is in a recession and has a national debt that must be reduced. The news article states “it is not immediately clear how much the expansion would cost.” The army also does not define “the military and humanitarian missions” of the proposed Brigades. Unilateral, unsupported decisions by the Army is not acceptable. Data and the source of the data must be provided to the news industry for citizens to accept or reject the proposed brigades.

reducing the scope of aviation unit stationing at JBLM to 1,400 Soldiers. Such a final decision to reduce the total number of Soldiers and Family members is being considered in light of the significant transportation and schools impacts at JBLM, and should help to reduce impacts to school districts and transportation networks. A final decision on this reduction in stationing numbers will be made as part of the Record of Decision concluding this environmental impact analysis process.

With regard to noise impacts, Section 6.6 of this PEIS and Section 4.8.6.3.1 of the JBLMs Grow the Army FEIS (incorporated by reference into this PEIS) contain an evaluation of impacts from a potential CAB stationing. The Army agrees that the addition of the CAB to maneuver training would substantially increase the amount of noise generated.

Cumulatively, noise impacts from operations out of GAAF on noise receptors would be significant. With the stationing of the CAB, the increase in helicopter operations at GAAF would extend the LUPZ (60 ADNL) and Zone II (65 ADNL) noise contours into the cantonment area. In addition, noise from additional flights would carry into adjoining communities and may cause additional annoyance and complaints.

As stated in Section 6.6.1 of this PEIS, JBLM Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. The installation adheres to noise abatement policies that strive to minimize the impact of aircraft noise on the public. No aircraft will fly below 500 feet (152.4 m) along flight routes and all Army aircraft will maintain a minimum of 2,000 feet (609 m) AGL of national parks, monuments, recreation areas and scenic river. JBLM Regulation 95-1 imposes a 2,000 foot (609 m) altitude restriction for flight over congested areas off the installation. Exceptions to this regulation include emergency situations, periods when weather conditions dictate a lower altitude, or when the use of a lower altitude is mission-essential. Additional text has been added to Section 6.6.1 to discuss noise impacts.

Sections 1.2 and 1.3 of this PEIS discuss the purpose and need for growing, realigning and stationing aviation units to promote more effective force management, training readiness, and enhanced quality of life. Issues of national debt and cost are beyond the scope of this PEIS.

ITEM: 31.	AGENCY (COMMENTS NAME): Individual (Jerald Cook)	LOCATION: Fort Carson, Colorado	TYPE: General
------------------	--	--	----------------------

Comments	Response
Many in the Colorado Springs and Pueblo areas support Fort Carson and the addition of the Helicopter Brigade. Please continue your efforts to make this happen.	Thank you for your comment.

ITEM: 32.	AGENCY (COMMENTS NAME): U.S. Environmental Protection Agency (Maggie Pierce)	LOCATION: Fort Carson, Colorado and Joint Base Lewis-McCord, Washington	TYPE: General (Mitigation and Resource-Specific Impact Analysis)
------------------	--	--	---

Comments	Response
Via e-mail dated 12/20/2010: Please find the EPA's comments on the Draft Programmatic EIS for the Realignment, Growth, and Stationing of Army Aviation Assets attached to this e-mail. A hardcopy of the letter was also sent via post last week. Thank you for the opportunity to comment. Please contact myself or Teresa Kubo with any questions. Via letter dated 12/15/2010:	Thank you for your comments. Responses are provided for each issue below as they are raised.

The U.S. Environmental Protection Agency Region 8 (EPA) has reviewed the Army's Draft Programmatic Environmental Impact Statement (PEIS) for the Realignment, Growth, and Stationing of Army Aviation Assets. We provide our comments in accordance with our review responsibility under Section 102(2)(c) of the National Environmental Policy Act (NEPA), 42 U.S.C. 4332(2)(c), and Section 309 of the Clean Air Act, 42 U.S.C. 7609.

The Draft PEIS considers three alternatives and a no-action alternative. It identifies a preferred alternative, alternative 3, which is implementation of both alternatives 1 and 2. The Army's preferred alternative is to realign units to form a twelfth Combat Air Brigade (CAB) and create a new CAB. One of the two CABs will be stationed at Fort Carson and the other will be stationed at Joint Base Lewis-McChord (JBLM). The Fort Carson CAB will conduct training activities at the Pinon Canyon Maneuver Site (PCMS) and the JBLM CAB will use the Yakima Training Center (YTC). A CAB consists of approximately 120 helicopters, 600 wheeled vehicles, and 2,700 soldiers. The CAB is organized into five battalions and a headquarters unit. CAB units include combat, reconnaissance, and logistics support aircraft.

Fort Carson is approximately 137,000 acres; its cantonment area, at the northern end, approximating 6,000 acres. PCMS is approximately 235,000 acres; its cantonment area approximating 1,660 acres. JBLM is approximately 90,600 acres; 65,000 acres being maneuver areas.

The project will entail garrison construction of offices, housing, vehicle and aircraft parking and maintenance, equipment storage facilities, recreational facilities, roads, barracks, family housing, dining facilities, maintenance shops, hangars, rotary runway parking aprons, and other infrastructure at each post. No construction would occur at the PCMS but future construction may occur at YTC.

The EPA appreciates the efforts of the Army in preparing this Draft PEIS and we offer our comments and recommendations in regard to mitigation, impact characterization, and resource-specific impact analysis, including greenhouse gases. EPA recommends that the Final PEIS include a section on mitigation either within the discussion for each impacted resource or as a standalone section. The Draft PEIS does not identify or describe mitigation for impacts. Section 4.5 of the Draft PEIS indicates that the mitigation for this project is that identified in each installation's *Grow the Army* (GTA) Final EIS and the resource-specific sections reference additional documentation external to the EIS. If mitigation for this action is captured outside of this Draft PEIS, summaries of that information should still be included and the documents should be made available as appendices of on-line with links provided in the Draft PEIS. An explanation of the relationship between this PEIS and its alternatives to the GTA Final EIS should also be included in the Final EIS.

EPA recommends the Army more thoroughly explain its basis for impact determination. The Draft PEIS identifies direct, indirect, and cumulative impacts characterized as "less than significant," "mitigable to less than significant," and "significant" by resource area (Tables 1 and 2). Sections 4.2.2 and 4.2.3 describe and identify significance thresholds for each category of affected resource; however, the document does not describe how the assessment of impacts against these thresholds was made. We recommend the Army include a description of how impacts were assessed for each resource in the Final PEIS.

Consistent with Section 309 of the Clean Air Act, it is EPA's responsibility to provide an independent review and evaluation of the potential environmental impacts of this project. EPA's rating is based on the preferred action alternative.

Based on the procedures EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action, EPA is rating this Draft PEIS as Environmental Concerns – Insufficient Information, "EC-2". The EC-2 rating means EPA identified potential environmental impacts to air quality, water quality, wetlands, and cultural resources that should be avoided or reduced. EPA also concludes that the

Regarding general comments on mitigation and impact determination methodologies, responses are provided to these issues below.

Draft PEIS does not contain sufficient information to fully assess environmental impacts that should be avoided in order to fully protect the environment. EPA did identify opportunities for additional information disclosure and mitigation. A full description of EPA's EIS rating system is enclosed.

If you have any questions regarding our comments or this rating, please contact me at 303-312-6004, Maggie Pierce of my staff at 303-312-6550, or Teresa Kubo of Region 10 at 503-326-2859.

Attached Comments:

Mitigation

EPA recommends that the Final PEIS include a section on mitigation either within the discussion for each impacted resource or as a standalone section. The Draft PEIS does not identify or describe mitigation for impacts. Section 4.5 of the Draft PEIS indicates that the mitigation for this project is that identified in each installation's *Grow the Army* (GTA) Final EIS and the resource-specific sections reference additional documentation external to this Draft PEIS. If mitigation for this action is captured outside of this Draft PEIS, summaries of that information should still be included and the documents should be made available as appendices or on-line with links provided in the Draft PEIS. An explanation of the relationship between this PEIS and its alternatives to the GTRA Final EIS should also be included in the Final EIS.

Description of mitigation should describe what will occur and link that mitigation to the impacts associated with the Army's preferred alternative. The mitigation description should include designation of the entity responsible for implementing the mitigation, the funding source, and specific temporal milestones to meet rehabilitation standards. For those impacts which have been identified as "mitigable to less than significant," the Final PEIS should also describe how mitigation will reduce impacts to less than significant and characterize what types of impacts will not be mitigated. We also recommend a description of any monitoring and adaptive management that will be or have been developed for either the assessment of the effectiveness of mitigation measures or impacts.

The Draft PEIS mentions an erosion control management plan for PCMS described in a Clean Water Act Section 404 permit issued in 2008 (p. 5-33 and p. 5-39) and a Programmatic EA for Erosion and Sediment Control Program developed in 1998 (p. 5-33) as mitigation for impacts associated with sediment erosion and wetlands, and Integrated Resource Management Plan (INRMP) for management of impacts to wildlife, and an Environmental Noise Management Plan (ENMP) for mitigation of noise impacts. The document also describes a programmatic agreement pursuant to Section 106 of the National Historic Preservation Act to protect cultural resources. In order to meet the requirements of NEPA, we recommend the Army summarily describe how these plans and programs mitigate impacts of the project in the Final PEIS and otherwise satisfy statutory responsibilities, and that the Army includes these documents as appendices or makes them available on-line and provides access information.

Impact determination and characterization

EPA recommends the Army more thoroughly explain its basis for impact determination. The Draft PEIS identifies direct, indirect, and cumulative impacts characterized as "less than significant," "mitigable to less than significant," and "significant" by resource area (Tables 1 and 2). Sections 4.2.2 and 4.2.3 describe and identify significance thresholds for each category of affected resource; however, the document does describe assessment

In response to the EPA's comments, and to generate a clearer understanding of proposed mitigations, the Army has expanded Section 4.5 to clearly present potential mitigations that would be implemented as part of CAB stationing, including many that were listed in previous, site-specific *Grow the Army* FEISs. We have also added text to Sections 1.5 and 4.1 of this PEIS to clarify the relationship of the listed proposed mitigations herein, mitigations considered for CAB stationing in previously completed site-specific *Grow the Army* FEISs, and mitigations that would be contained in any appropriate follow-on site-specific NEPA analyses for implementing any CAB stationing decisions. Proposed mitigations for CAB stationing considered in site-specific *Grow the Army* FEISs are carried forward as part of this PEIS analysis. Proposed mitigations for CAB stationing are explicitly discussed in Section 4.5 of this final PEIS to provide additional clarity on the connection between proposed mitigations and the environmental impacts being reduced by the mitigation measure. Further details on the relationship of mitigations to environmental impacts can also be found within the *Grow the Army* FEIS's at the links provided below. Regarding the entity responsible for mitigations, the Army's Installation Management Command (IMCOM) would be responsible for implementing mitigations at the respective garrisons if they were selected for CAB stationing. IMCOM would issue funding to garrison staff that would coordinate the execution of mitigations approved by the Army and included in the final Record of Decision (ROD) for this action. Additional details on monitoring of mitigations and adaptive management are presented in each installation's *Grow the Army* FEIS and include, for example, discussions of their ISO 14001-conformant Environmental Management System and Range and Training Land Assessment Program. In addition, internal and external audits are conducted to assess the effectiveness of mitigation measures.

In order to reduce the size of the PEIS to enhance readability and accessibility of this programmatic document, the Army has not included source documents (i.e., INRMPs, ICRMPs, ENMPs, erosion control management plans) as appendices. Source documents not available on-line or included as part of appendices in site-specific EISs may be obtained by request to the applicable installation. At JBLM, Section 106 consultation activities have been completed for CAB stationing and other *Grow the Army* stationing actions. At Fort Carson, a programmatic agreement and updated ICRMP would be completed as part of site-specific NEPA for implementing CAB stationing, if a decision is made to station a CAB at Fort Carson. Site specific NEPA would provide additional details on the PA and cultural resource management procedures at that time. Further discussion on this is provided in response to the cultural resource comment below.

The Army's methodology for assessing the significance of impacts is contained in the U.S. Army Environmental Command's *NEPA Analysis Guidance Manual*, May 2007, available at <http://aec.army.mil/usaec/nepa/nepa-qlg.pdf>. This manual, coordinated with the Council on Environmental Quality, provides impact ratings, definitions, and methodologies for

of impacts for each resource. We recommend the Army include a description of how impacts were assessed for each resource in the Final PEIS, identifying thresholds and the information used or available to characterize current and predicted conditions for each resource.

Assessment of impacts typically involves a prediction of change to the current condition as a result of this project and other reasonably foreseeable future actions against qualitative or quantitative thresholds.

The current condition likely represents the baseline against which impacts would be assessed; however, because other baseline conditions can be appropriate, the condition which represents the baseline against which impacts are assessed should be explicitly identified. We recommend that the Final EIS include any available data to characterize and quantify the current condition especially for those resources which are likely to be affected (Geology & Soils, Water Resources, Biological Resources, Cultural Resources, Socioeconomics, Transportation & Airspace, and Utilities, and Noise).

Preferred alternative

EPA recommends a more thorough description of the preferred alternative and what activities it will entail. Table 5 which describes the Garrison Facility requirements for a CAB in terms of square footage is helpful but does not convey footprint of location. The inclusion of a map (or modification of existing maps such as Figures 3 and 4) to identify affected resources and the location of construction and training activities would be beneficial.

Air Quality

Fort Carson

The Draft PEIS Air Quality Section on Fort Carson (5.5.2) states that an increase in combustion activities such as those from boilers, emergency generators, equipment maintenance and motorized vehicles is expected from the proposed action. This has the potential to lead to an increase not only in CO, but also nitrogen oxides (NO_x), sulfur dioxide (SO₂), volatile organic compounds (VOCs), and particulate matter (PM₁₀ and PM_{2.5}). An emissions inventory should be presented that supports the conclusion that “less than significant impacts are projected.” If the emissions inventory from the proposed project contains a substantial emissions increase, an air impact analysis should be conducted.

impact assessment. The manual was used in completing site-specific Grow the Army EISs, which included analysis of potential CAB stationing at both JBLM and Fort Carson. As indicated in Section 4.1, this PEIS leverages appropriate information from each without reiterating all details contained in the site-specific analyses. We feel that detailed descriptions of how impacts were assessed for each resource are not appropriate in this programmatic analysis, particularly as site-specific impact determination has already been accomplished, and therefore we have made no changes to this PEIS. Furthermore, we recognize that additional site-specific NEPA analysis would be required at Fort Carson and PCMS to evaluate impacts for CAB stationing implementation not sufficiently addressed in the 2009 *Grow the Army* FEIS, if Fort Carson is selected for a CAB stationing. For more information on the relationship between this PEIS, Fort Carson’s 2009 FEIS, and additional site-specific analysis that would be conducted, please see our response to comment #70. The 2009 Fort Carson *Grow the Army* FEIS is available at http://aec.army.mil/usaec/nepa/carson-feis_feb09.pdf and the 2010 JBLM *Grow the Army* FEIS is available at http://www.lewis.army.mil/publicworks/sites/envir/eia_gta_final.htm. These links have been added to Section 4.1 of this PEIS, per EPA recommendation.

The *Grow the Army* documents provide additional context and more detailed discussions of the current conditions of the affected environment from which impact ratings for implementation of this proposed action were assessed. Additional text has been added to Section 3.4 to define the current baseline conditions and explain how these impact ratings were derived. Furthermore, a table summarizing impact ratings for baseline conditions of the no action alternative has been added to Section 4.3 of this PEIS.

Figures have been incorporated into Section 2.6 to show construction footprints for CAB facilities proposed as part of the preferred alternative. These figures present more detail on where construction would occur if the installation were selected for CAB stationing. Further definition of the proposed action would be included, as appropriate, in follow-on site-specific NEPA analysis if a decision is made to station a CAB at Fort Carson.

With regard to air quality emissions at Fort Carson, a complete air emissions inventory was included in the PSD analysis completed previously under the 2009 Fort Carson *Grow the Army* FEIS. Fort Carson’s analysis included an air emissions inventory of the direct and indirect impacts of stationing 6,700 additional Soldiers at Fort Carson. The 2009 analysis included a 3,500-Soldier Infantry Brigade, a 2,800-Soldier Combat Aviation Brigade, and some additional smaller units. Fort Carson’s analysis did not estimate any emissions exceeding significance thresholds. Additionally, air quality impact modeling was performed for all existing and proposed sources for the Fort Carson *Grow the Army* FEIS. The results did not show any exceedances to any air quality standard. Since that time the decision to station the 3,500 Soldier Infantry Brigade was cancelled by the Army (Headquarters, Department of the Army’s *Updated Record of Decision for Army Growth and Force Structure Realignment*, May 2010). The potential CAB stationing and associated projects represented a fraction of the size of the modeled sources, and therefore are not expected to contribute greatly to regional air quality degradation or to result in significant impacts. This source analysis was included as appendix C of the 2009 Fort Carson *Grow the Army* FEIS, which can be found at the link above.

The Air Quality Section on Fort Carson (5.5.1) notes that the *Prescribed Fire Planning Document* and the *Fort Carson Fugitive Dust Control Plan* have been established. It does not describe anticipated impacts or how the plans will mitigate those impacts. We recommend the Final PEIS describe anticipated emissions at both Fort Carson and PCMS.

A description of how and what the plans will mitigate and a link to access the document should also be included.

The cantonment area of Fort Carson is located in the Colorado Springs maintenance area for carbon monoxide (CO). We note that a CO General Conformity Analysis and Determination (Analysis) for U.S. Army Garrison was conducted in January 2009. This Analysis was performed for the GTA Final EIS. The CAB emission sources are not directly located within the CO Maintenance area; however, vehicle emissions associated with the CAB expansion that would travel into the maintenance area are included in the Analysis. The results of the Analysis confirm that the *de minimis* threshold (100 tons per year) levels for CO were not exceeded; therefore a determination was not required.

JBLM

On page 6-16 of the Draft PEIS, the document states that employees and their transportation activities are expected to have indirect impacts on the CO and O₃ maintenance areas at JBLM, but that no significant degradation is anticipated. Given that 1) JBLM is located in an area that was previously designated as a nonattainment area for both ozone (O₃) and CO; 2) the former Fort Lewis is operating under an air quality maintenance plan; and 3) portions of JBLM could be designated as nonattainment for ozone in the near future (DEIS page 6-13); we believe the Draft PEIS suggestion that no significant degradation is anticipated needs to be further substantiated.

We recommend that the Final PEIS include a hotspot analysis that shows the calculated 8-hour carbon monoxide concentrations in ppm for the poorest performing gates/intersections such as the Liberty and Madigan gates. Emissions analysis should be conducted for existing year, full build-out of the CAB, and 2030 conditions. Should this analysis indicate that National Ambient Air Quality standards are likely to be exceeded; the Final PEIS should include a discussion of additional mitigation measures. We further recommend that the suite of mitigation measures considered look beyond traffic flow improvements to measures such as car pool, van pool, or public transit programs

Greenhouse Gases

Tables 10 and 13 of the Draft PEIS contain *Direct Greenhouse Gas (GHG) Emissions from Aviation Asset Flight Operations*, estimating 51,174.7 tons of annual CO_{2e} emissions. This emissions estimate is based upon annual operation hours and fuel usage for different aircraft types. The inclusion of quantified estimates in the form of CO₂-equivalents can be a valuable means to characterize the proposed action's potential contributions of GHGs; however, this estimate is incomplete. A more complete estimate of emissions would include the total GHG emissions from aviation, vehicle traffic, energy usage, and stationary sources associated with the proposed action. EPA also notes that the Draft PEIS does not include an estimate of the project's indirect GHG emissions, including emissions from increased commuter traffic or increases in power generation over the lifetime of the project. Because this information may be of interest to the public in obtaining a complete picture of the GHG

A discussion of anticipated emissions from prescribed fire planning was included in the 2009 Fort Carson *Grow the Army* FEIS in Section 3.3.3. As discussed in that document prescribed fire is used as a management tool to support the installation's readiness mission and ecosystem health. Fort Carson maintains a burn permit to carry out prescribed burning activities. It is estimated that air emissions from prescribed burning included N₂O, CO₂, and CH₄ as primary emissions that contributed an estimated 349.77 Tons of GHG equivalents of CO₂ to the atmosphere from prescribed burn activities. Fort Carson is required to employ all practical measures at Fort Carson and PCMS to avoid creating visible emissions that are in excess of 20 percent opacity, having any visible emissions go beyond the Installation's boundaries or creating a nuisance dust problem. Control of fugitive dust is regulated by the Colorado Air Quality Control Commission (AQCC) Regulation No. 1. Fort Carson is in the process of finalizing its fugitive dust management plan. Measures for fugitive dust mitigation proposed in the draft plan include restricting traffic speeds and flow over unpaved areas, use of water for short-term surface stabilization, and chemical stabilization for long term mitigations. Additional text has been added to Section 5.5.1 and 5.5.2 of this PEIS to discuss potential air quality impacts (adverse and beneficial) of these plans. The prescribed burn plan would be implemented regardless of CAB stationing and is therefore discussed as part of the affected environment. More detailed impacts analysis would be conducted, as appropriate, in follow-on site-specific NEPA analysis if a decision is made to station a CAB at Fort Carson.

A discussion of CO and O₃ impacts at JBLM was presented in the 2010 JBLM *Grow the Army* FEIS in Section 4.7 of that document. Generation of CO and ozone precursors for all alternatives, including CAB stationing, were predicted to have less than significant impacts to air quality. Additional text has been added to Section 6.5.2 to clarify these impacts. Additional emissions monitoring mitigation has been added to Section 4.5 in response to the EPA recommended hotspot analysis.

Additional discussion on greenhouse gases (GHG) has been added to Sections 5.5.2 and 6.5.2 of the FEIS to discuss increases in GHG emissions that would be associated with CAB stationing, including indirect impacts from increased commuter traffic.

emissions associated with the proposed project, it may be helpful to provide a quantitative estimate of these “indirect” emissions. This approach of estimating total direct and indirect emissions would also be consistent with the 2010 Draft CEQ Guidance. We recommend the Final PEIS include an estimate of the project’s total direct and indirect GHG emissions over the lifetime of the project in CO₂-equivalent terms. It may also be useful to translate these emissions into equivalencies that are easily understood from the public’s standpoint with a tool such as EPA’s Greenhouse Gas Equivalency Calculator.

The Final PEIS should also discuss any potential inconsistencies between the GHG emissions associated with the preferred alternative and any relevant Regional, Tribal or State climate change plans or goals, as well as the extent to which the Army would reconcile, through mitigation or otherwise, its preferred alternative with such plans. For example, Colorado’s Climate Action Plan articulates a goal of reducing GHG emissions 20% below 2005 levels by 2020 and 80% below 2005 levels by 2050; the Governor of Washington issued an Executive Order in 2009 entitled “Washington’s Leadership on Climate Change”; and, Washington is a partner and Colorado is an observer in the Western Climate Initiative.

EPA also recommends revising the discussion of the link between the project’s GHGs and climate change risks.

While the Draft PEIS appropriately acknowledges that the preferred alternative GHG emissions would increase global GHG emissions and contribute to climate change, the Final PEIS should qualitatively discuss the link between GHGs and climate change and the potential impacts of climate change. As described in the CEQ 2010 Draft Guidance, the estimated level of GHG emissions can serve as a reasonable proxy for assessing potential climate change impacts and provide decision makers and the public with useful information for a reasoned choice among alternatives. Accordingly, to the extent that the preferred alternative (as compared to another alternative or no action), an alternative, or mitigation measures will result in lower GHG emissions, EPA recommends that the discussion reflect that lower GHG emissions overall would result in lower climate change risks. This discussion should also be addressed in the context of the cumulative impacts of GHG emissions. The Final PEIS should include analysis of reasonable alternatives and/or means to mitigate project-related GHG emissions.

The Draft PEIS indicates that it purchases natural gas and electricity from Colorado Springs Utilities but that 2.3% of Fort Carson’s energy usage is provided by solar electricity (p. 5-65). We recommend that the Final PEIS describe whether the use of solar electricity or other on-site or off-site renewable energy sources may be utilized with regard to this proposed project and how such mitigation might affect the GHG emissions projections.

Noise

The Draft PEIS indicates that the Environmental Noise Management Program (ENMP) and Fort Carson Regulation 95-1 outline the policies and procedures for mitigating noise impacts to the surrounding communities. We recommend the Final PEIS summarize these documents and include them as appendices to the Final PEIS or links to them on-line. The Draft PEIS includes an addendum to Fort Carson’s and JBLM’s noise contour data for a CAB as part of Appendix B. These documents characterize risk in terms of the percentage of the population that is likely to be highly annoyed by noise from helicopter flyovers. Neither the 2008 addendum nor the 2006j original considers impacts to wildlife. Noise has the potential to impact bird nesting or migration and large mammal behavior and migration. We recommend the Final PEIS discuss potential impacts to wildlife because of noise and mitigation for those impacts.

The Draft PEIS includes an addendum to Fort Carson’s and JBLM’s noise contour data for a CAB as part of Appendix B. These documents characterize risk in terms of the percentage of the population that is likely to be highly annoyed by noise from helicopter flyovers. Neither the 2008 addendum nor the 2006 original considers impacts to wildlife. Noise has the potential to impact bird nesting or migration and large mammal behavior and

A discussion of the proposed CAB stationing and its alignment with federal and state climate change plans has also been added to Section 5.5.2 and 6.5.2 along with additional qualitative discussion on GHG and potential impacts of climate change.

A discussion of climate change risks has also been added to Sections 5.5.2 and 6.5.2 of this PEIS along with a discussion of the link between GHGs and climate change.

GHG mitigation proposals have also been added to this PEIS along with a discussion of alternative energy use at Fort Carson and JBLM. The Army recognizes and has added text to discuss cumulative impacts of GHG emissions when combined with other national and global emissions increases, could add to the climate change risks globally. Increased use of alternative energy and reduction of energy consumption have been proposed to decrease GHG and climate change risks.

Text has been added to discuss other renewable energy sources that are being utilized at Fort Carson along with discussion that articulates the installations desire to increase renewable energy use across the installation to support all of its units, not just the CAB.

Regarding noise, the Army acknowledges that there will be additional noise impacts to wildlife and sensitive species and has included additional text in Sections 5.6.2 and 6.6.2 of the FEIS to discuss these impacts. Additional information has been added to further elaborate installation policies on aviation operations and noise abatement.

Additional information has also been added to Section 5.6.2 to discuss noise impacts to wildlife to include impacts to bird nesting and large mammal behavior to include mitigations that the installation plans on implementing to ensure impacts remain less than significant.

At JBLM and YTC, the Army recognizes that there will be an increase in the potential for noise impacts to wildlife species as a result of implementing the proposed action. In accordance with the installation’s Regulation 420-5, JBLM and YTC take active measures to avoid training activities which would generate noise or otherwise disturb sensitive

migration. We recommend the Final PEIS discuss potential impacts to wildlife because of noise and mitigation for those impacts. Mitigation could include avoidance of areas known to support sensitive wildlife at certain times of the year.

Water Quality

The Final PEIS should disclose and identify all waterbodies on Colorado’s and Washington’s Section 303(d) lists that may be affected by the project and demonstrate that the project will not contribute to degradation of water quality in these listed waters. In our scoping comments, we indicate that project planning should evaluate which waterbodies are listed on the States’ current 303(d) list that could potentially be affected by the project. Waterbodies that may be affected by the project include those immediately within the project area and downstream of it. The Draft PEIS identifies Wildhorse Creek and Teller Reservoir as Section 303(d) listed streams but no others. The northern and eastern portions of fort Carson, including the cantonment area, are located within the Fountain Creek watershed (p. 5-31). EPA has identified the following additional streams within the project area that may be affected in Table 1 below. Constituents include *Escherichia coli* (*E. coli*), selenium (Se), and sulfate (SO₄).

Table1. 303(d)-listed stream segments within Colorado that may be affected by the project.

Waterbody ID	Segment Description	Portion	Clean Water Act Section 303 (d) Impairment	Colorado’s Monitoring and Evaluation Parameters
COARFO02a	Fountain Creek, Monument Creek to Hwy 47	all	<i>E. coli</i>	
COARFO02b	Fountain Creek from Hwy 47 to the Arkansas River	all	Se, <i>E. coli</i> (May-October)	
COARFO04	All tribs. to Fountain Creek, which are not on National Forest or Air Force Academy Land	all	<i>E. coli</i>	
COARLA01a	Arkansas River, Fountain Creek to Colorado Canal headgate	all	Se, SO ₄	
COARLA01b	Arkansas River, Colorado Canal headgate to John Martin Reservoir	all	Se	
COARLA07	Purgatoire River, I-25 to Arkansas River	all	Se	Sediment
COARLA09b	Apache Creek, Breckenridge Creek, Little Horse Creek, Bob Creek, Wildhorse Creek, Wolf Creek, Big Sandy Creek	all	Se	
COARMA04a	Wildhorse Creek	all	<i>E. coli</i>	NO ₂

The Draft PEIS identifies Wildhorse Creek as located at the southern border of the installation and impaired for selenium and *E. coli* and having warranted a monitoring and evaluation listing for nitrate. As noted in Table 1 above, there are two separate segments including Wildhorse Creek in the Arkansas River Basin identified on Colorado’s *Regulation 93: Section 303(d) List of Impaired Waters and Monitoring and Evaluation List*. The segment impaired for selenium is Lower Arkansas 9b (COARLA09b). The segment with a monitoring and evaluation listing for nitrate and the impairment for *E. coli* is Middle Arkansas 4a (COARMA04a). EPA recommends the Army clarify if these are the same streams and which segment(s) may be affected by the project.

species. Specifically, CAB training activities and overflights within designated areas will be avoided during the nesting period. Overflight restrictions are nest specific and include minimum approach distances of aircraft to reduce noise impacts. Restrictions include limitations on flight routes during particular times of year. Additional information has been added to Section 6.6.2 include a discussion of existing mitigations that reduce these noise impacts to wildlife.

Additional information on impaired 303(d) listed waterbodies has been added to Sections 5.8.1 and 6.8.1 along with additional discussion on anticipated impacts to Section 5.8.2 and 6.8.2. More detailed discussion of impacts can be found in Sections 3.6 and 4.6 of the Fort Carson *Grow the Army* FEIS and Sections 4.2 and 6.2 of the 2010 JBLM *Grow the Army* FEIS that look at water quality impacts in greater detail.

If a total maximum daily load (TMDL) has not been established for those waterbodies on the 303(d) list then, in the interim until one is established, the project should demonstrate that there will be no net degradation of water quality to these listed waters. Sources for contributions of *E. coli* that may be affected by the growth associated with this project include wastewater treatment plants, failing septic tanks, or contaminated storm sewers. Soil disturbance and increased irrigation attributable to construction, training, and growth have potential to contribute to impairments for selenium, sulfate, or sediment. Section 5.7.1 indicates that soil erosion, and consequently selenium and mercury, is a significant problem for both Fort Carson and PCMS.

In our scoping comments, we noted that the section of the Purgatoire river from I-25 to its confluence with the Arkansas River is identified on the 303(d) list of impaired waters for selenium. This same segment is also identified on Colorado's Monitoring and Evaluation List for sediment. Selenium is naturally occurring within sediments of this region of Colorado. Activities which disturb the soil in the PCMS have the potential to contribute both selenium and sediment to the Purgatoire River. We continue to recommend that the Draft PEIS specifically address potential impacts to the Purgatoire River, as well mitigation for those impacts.

The Draft PEIS indicates that there are an erosion control management plan for PCMS described on a Clean Water Act Section 404 permit issued in 2008 and a Programmatic EA for Erosion and Sediment Control Program developed in 1998 (p. 5-33).

In order to meet the requirements of NEPA, we recommend the Army summarily describe how this plan and program mitigate impacts of the project and provide these documents as appendices or make them available on-line and provide access information.

Vegetation and Wildlife

EPA recommends the Army disclose what species present at Fort Carson are protected under the Endangered Species Act (ESA) and describe its management for the protection of these species, summarily describing the Integrated Resource Management Plan (INRMP) and making it available as an appendix or on-line. We also recommend that the Army consult the U.S. Fish and Wildlife Service and the Colorado Division of Wildlife on the management and protection of these species and, if necessary, update its management and mitigation strategies accordingly. The Draft PEIS indicates that Fort Carson's INRMP discusses management of the greenback cutthroat trout (*oncorhynchus clarki stomias*), Mexican spotted owl (*Strix occidentalis lucida*), and Preble's meadow jumping mouse (*Zapus hudsonius preblei*) but does not identify specifically which species are present at Fort Carson.

The Draft PEIS does identify ESA species present at PCMS. It also states "the lower reaches of the Purgatoire River watershed, in which PCMS occurs, is one of the few places on the Great Plains that still supports a relatively intact large mammal community" but does not describe how those animals will be protected from activities. We recommend that the Final PEIS address how it will protect the large mammal community at PCMS from impacts of this action and describe any studies of wildlife and possible impacts to them from activities at either Fort Carson or PCMS. These studies need to be referenced in the FEIS and an explanation on how these studies will be used to monitor wildlife impacts as increased trainings occur on the down range facilities.

The Draft PEIS notes that some invasive species of vegetation are present PCMS, specifically identifying one, African rue (*Peganum harmala*), and noting eradication activities for it have taken place under a plan with the Colorado Department of Agriculture. Because training could result in the increased presence of noxious weeds, EPA recommends the Draft PEIS describe its management plan for these plants in the Final PEIS.

Wetlands

Wetlands comprise approximately 1,028 acres at Fort Carson and 361 acres at PCMS. The Draft PEIS indicates

The Army has included additional discussion of naturally occurring selenium and erosion impacts at PCMS in Sections 5.8.1 and 5.8.2 of this PEIS along with a discussion of related PCMS erosion control activities. Impacts to water quality at Fort Carson and PCMS, if a decision is made to station a CAB at Fort Carson, will be further addressed in more detail as part of follow-on site-specific NEPA analysis. As stated above, additional site-specific NEPA analysis would be required at Fort Carson and PCMS to evaluate impacts for CAB stationing implementation not sufficiently addressed in the 2009 *Grow the Army* FEIS, if Fort Carson is selected for a CAB stationing.

As stated immediately above, we have included additional discussion of erosion control management in Sections 5.8.1 and 5.8.2 of this PEIS, including how these mitigate impacts.

Section 3.7 and 4.7 of the 2009 Fort Carson *Grow the Army* FEIS present additional biological information on special status species, noxious weeds, wetlands, and projected impacts of CAB stationing. Additional information on threatened and endangered species present at Fort Carson and PCMS, and other species of concern has been included in Section 5.9.1 of this PEIS.

Information on projected impacts to the large mammal community at PCMS has been added to Sections 5.6.2 and 5.9.2 and additional mitigations have also been recommended and included in this PEIS in Section 4.5.

Clarification of noxious weed management activities and impacts have been added in Section 5.9.1.

Clarification on wetlands impacts at both Fort Carson and PCMS have been added to this

that “minimal individual and cumulative impacts to wetlands occur as a result of Fort Carson soil erosion control activities” (p. 5-39) and that the impacts are accounted for in the Clean Water Act Section 404 permit number SPA-2008-0058-SCO. The Draft PEIS also states “Wetlands will not be impacted as there are no wetlands in or near the proposed BAAF construction and/or renovation site” (p. 5-41). The second statement is contradictory to the first and we recommend clarification in the Final PEIS. The Draft PEIS is not explicit about whether impacts to wetlands are PCMS are anticipated; however, it seems that training activities which may affect soil erosion at PCMS also have the potential to affect wetlands. Table 2 describes impacts to Biological Resources, including wetlands, as mitigable to less than significant.

We would like to see a section explaining the direct, cumulative, or indirect impacts to wetlands and what mitigation efforts will be implemented to offset these impacts. This should include impacts to wetland and stream buffers. As described in the mitigation and water quality sections above, we recommend that the Army summarily describe how impacts to wetlands will be mitigated by the above referenced permit conditions, describe the determination that those impacts will be mitigated to less than significant in terms of wetland quantity and quality and thresholds, and either provide the documentation describing mitigation as an appendix or provide it on-line and include information on how to access the document in the Final PEIS. In addition, if the Army is monitoring the status and trends of wetlands on the base, a summary of the current finding should be included.

Cultural Resources and Tribes

Fort Carson/PCMS

The Draft PEIS discloses that a number of sacred sites, historic and prehistoric rock art sites, and other cultural properties, eligible for inclusion on the National Register of Historic Places (National Register), have been identified at Fort Carson and PCMS.

Documents developed for cultural resources management include a comprehensive agreement between Fort Carson and 11 tribes concerning privacy, inadvertent discovery of human remains and cultural items, and tribal access; a memorandum of agreement among Fort Carson, the Colorado State Historic Preservation Office, and the Advisory Council on Historic Preservation; the *Integrated Cultural Resources Management Plan* (ICRMP); and the GTA Final EIS.

The Draft PEIS indicates that consultation under Section 106 of the National Historic Preservation Act (NHPA) has been initiated. The Draft PEIS notes that a draft of the programmatic agreement (PA) for compliance with Section 106 will be completed in late 2010 and that an update of the ICRMP will be part of the Section 106 PA.

EPA recommends the Final PEIS describe whether the aforementioned PA is complete and include of a summary of how cultural resources will be managed and how impacts to cultural resources will be mitigated or avoided at Fort Carson and PCMS. We also recommend that the Final PEIS include documents that are the basis for mitigation as appendices or make them available on-line and provide links. We also recommend a discussion of updates to the ICRMP or other documents.

JBLM/YTC

We note that while the document references tribal consultation consistent with section 106 of the National Historic Preservation Act, it does not discuss government-to-government consultation with affected tribes consistent with Executive Order 13175 (*Consultation and Coordination with Indian Tribal Governments*). Given the noted impact to tribes, and the proximity of tribal resources, it is reasonable to expect a robust discussion of consultation efforts and outcomes in the Draft PEIS. Page 6-46 of the PEIS discusses cultural resources, but it is not clear from this discussion whether formal consultation was pursued. We recommend that the Final PEIS include a discussion of tribal consultation efforts and outcomes, and how tribal concerns will be addressed in accordance with federal tribal trust responsibilities.

PEIS in Section 5.9.2.

Additional text has been added to this PEIS to clarify that no wetlands occur within the footprint of CAB facilities proposed for construction. Furthermore, proposed facilities do not lie within a stream buffer area. Training an additional CAB could result in indirect impacts to wetlands from erosion and sedimentation. Additional text has been added to Section 5.9.2 and 5.9.3 to discuss impacts and cumulative effects on wetlands at Fort Carson.

Text in Section 5.10.1 of this PEIS has been updated to reflect the current status of the Section 106 PA and ICRMP. The programmatic agreement and updated ICRMP is currently being reviewed by Fort Carson and other Army staff. It is anticipated that these documents will be finalized and signed in the summer of 2011. The programmatic agreement and updated ICRMP would be completed in conjunction with site-specific NEPA for implementing CAB stationing, if a decision is made to station a CAB at Fort Carson. Site specific NEPA would provide additional details on the PA and cultural resource management procedures, including updates to the ICRMP, at that time.

At JBLM, Section 106 consultation activities have been completed for CAB stationing and other Grow the Army stationing actions. Consultation included tribal consultation. A discussion of tribal consultation for the JBLM *Grow the Army* EIS has been added to Section 6.10.1 that discusses the Section 106 consultation process and development of a programmatic agreement in coordination with the Nisqually, Squaxin Island, Puyallup, Yakama and Wanapum tribes. Additional information on the consultation process and outcomes can be found within the JBLM *Grow the Army* FEIS. Section 6.10.2 has been updated with discussion of consultation with affected tribes, concerns and outcomes, as

Water Quantity & Utilities

Fort Carson/PCMS

EPA continues to recommend that the Final PEIS provide additional information regarding the increased demand for water as a result of the proposed action. The Draft PEIS concludes that no changes to water or wastewater infrastructure are necessary; however, it does not substantiate this conclusion with a comparison of the need for increased capacity because of this project or others to the current capacity or planned expansions.

JBLM/YTC

Page 6-65 of the DEIS states that it is expected that discharges from the Solo Point Waste Water Treatment Facility will violate permit treatment requirements more frequently in the future, and that increased demand together with more stringent permitting requirements will render the Solo Point WWTP insufficiently protective of Puget Sound water quality. EPA concurs with this assessment.

When the current draft permit is issued for the Solo Point facility, it will require compliance with more stringent permit conditions. For this reason and because the WWTP is already near its treatment capacity, we are concerned that the increased population associated with the preferred alternative would make the WWTP unable to meet more restrictive permit limits.

The construction of a new wastewater treatment plant is a key mitigation measure. We recognize that Army Installation Management Command has not approved funding for the Solo Point WWTP and that discussion is ongoing. Regardless of its funding status, we strongly recommend that construction of a new WWTP be brought forward in the FPEIS and ROD as a precondition of CAB installation.

Environmental Justice

Fort Carson/PCMS

We encourage the Army to analyze and explicitly address whether a minority or economically disadvantaged community will be disproportionately affected by this project.

The socioeconomic sections describes approximately 20% of El Paso County, 18% of Pueblo County, and 11% of Fremont County populations as minorities and notes that Fort Carson’s residential population leads to a higher percentage of minorities within the vicinity of the post. Poverty levels in Pueblo and Fremont Counties are at or exceed 20% and there are small geographical areas within each county where more than 20% of the population lives below the poverty level.

JBLM/YTC

Page 198 of the PEIS states that increased training at JBLM will result in significant noise effects and that those impacts will be disproportionately realized by residents of the Nisqually Reservation (most of whom identify themselves as American Indian or Native Alaskan). The document goes on to say that although the effects of noise will disproportionately affect the Reservation, the overall environmental justice effects will be less than significant because the noise impact is not anticipated to change or otherwise affect any social, economic, physical, or health conditions that will result in social, cultural, or human health effects to the majority American Indian/Alaska Native population.

We appreciate the disclosure of impacts to the Nisqually Reservation. This is an important step in an effective environmental justice analysis. It is not clear; however, how the determination that impacts would be “less than significant” was reached. Consistent with CEQ guidance we recommend that the Final PEIS provide additional information regarding physical environmental effects of the proposed action on tribes. Information should also be included regarding outreach and community involvement efforts; the results of those efforts; and how the

recommended by EPA.

Section 5.13.2 has been updated to include additional information on the water demand that would result from stationing a CAB at Fort Carson as well as additional water use by family members living off-post. Additional discussion of wastewater generation and has also been included.

Regarding wastewater treatment of the Solo Point wastewater treatment facility, construction of an upgraded wastewater treatment plant has been added in the mitigation Section 4.5 of this PEIS. This facility is currently one of the Army’s top funding priorities for Fiscal Year 2013.

Section 5.11.2 of this PEIS has been updated to include a discussion of environmental justice and disproportionate projected impacts to minority or economically disadvantaged communities surrounding Fort Carson and PCMS.

Section 6.11.2 of this PEIS has been updated to discuss environmental justice and clarify how outreach to the affected community around JBLM was conducted and why impacts have been determined to be less than significant.

feedback received has been incorporated into the document.			
ITEM: 33.	AGENCY (COMMENTS NAME): Individual (KC Carlson)	LOCATION: Joint Base Lewis-McCord, Washington	TYPE: Aviation (Cultural resources)
Comments		Response	
<p>Via e-mail sent 12/21/2010:</p> <p>I work for VA Puget Sound Health Care System at their American Lake Division in Lakewood, WA. The VA hospital campus is literally across the I-5 highway from Joint Base Lewis-McChord. The VA operates a 27-bed Acute Psychiatric Ward, an 83-bed Community Living Center (nursing home), a 15-bed Blind Rehab and a 60-bed Domiciliary, and provides outpatient healthcare services to over 60,000 Veterans annually.</p> <p>The VA is greatly concerned about adding additional aviation assets next to a hospital system that provides long-term and rehabilitative treatment to Veterans with extensive post traumatic stress disorder (PTSD), dementia, traumatic brain injury and other disease conditions. What assurances will the VA have that these additional aircraft won't add new flight paths and/or fly over the VA hospital thereby causing considerable stress on these at-risk, vulnerable patients?</p> <p>This American Lake VA hospital is listed on the National Register of Historic Places and has a defined historic district encompassing our medical center buildings. Not knowing the precise type of aircraft, of than the aforementioned helicopters, that could be realigned to JBLM, what environmental impacts would excessive noise, vibrations, breaking of sound barriers, overhead refueling, etc. have on the American Lake Division and its historic buildings? How often are flight training and "touch and goes" expected and at what intervals?</p> <p>Has this project been vetted with the Washington State Historical Preservation Society? What was their response to this project? Where can the public find additional information regarding the numbers and types of aircraft under consideration of this PEIS?</p> <p>Thank you for this opportunity to comment. Please respond to me at the address below.</p>		<p>Thank you for your comments. The Army shares your concern that its operations do not have a detrimental impact on veterans or other patients receiving care at the VA Puget Sound Health Care System, American Lake Division facility.</p> <p>Please see the response to comment #30 for information on noise impacts to JBLM and the surrounding community. As stated in Section 6.6.1 of this PEIS, flight altitudes will adhere to noise-abatement policies that minimize the aircraft noise footprint on and near the installation.</p> <p>The Army expects to have less than significant impact to the American Lake VA hospital from the proposed action analyzed in this PEIS, though the Army acknowledges that the frequency of noise-generating occurrences may increase for the VA hospital. Any specific issues.</p> <p>The Army operates under a programmatic agreement (PA) with the Washington State Historic Preservation officer with regard to historic properties on JBLM and YTC. The PA stipulates measures the installation will implement to avoid, minimize, or mitigate adverse effects to historic and archaeological properties from Grow the Army undertaking (which include a potential CAB stationing action).</p> <p>The numbers and types of aircraft in a CAB are generally described in Section 2.3 of this PEIS, although no decision has yet been made on the specific number or type of aircraft that may be stationed at JBLM as part of the proposed action analyzed in this PEIS.</p>	
ITEM: 34.	AGENCY (COMMENTS NAME): Individual (David Reed)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (Noise)
Comments		Response	
<p>Via e-mail sent on 12/21/2010:</p> <p>Attached you will find my public comments and opposition to the new 100 helicopter brigade being re-located to Fort Carson Colorado.</p> <p>Via letter dated 12/21/2010:</p> <p>My name is David Reed, and I own property near the town of Peyton, Colorado. We are located northeast of Fort Carson approximately 15 miles.</p> <p>I would have to be in opposition to the new aviation brigade being located in Fort Carson for several reasons. The first and foremost reason would be the noise created by 100 helicopters flying in the El Paso County area day and night, every day of the week with little to no break.</p> <p>We have had no information that would lead us to believe that this aviation unit would restrict its' flight patterns to the boundaries of Fort Carson. In fact it has been mentioned that the unit is looking at Fort Carson do to the mountains being in close proximity to hold high altitude flight training.</p> <p>We already have jet fighter training that encompasses much of the Sangre DeCristo mountain range and the noise from these jets is very disturbing to the environment and hinders the enjoyment of the outdoor recreation.</p>		<p>Thank you for your comments. Please see the response to comment #1 regarding the Army's need for the proposed action and why Fort Carson was selected as a viable stationing alternative. Fort Carson's proximity to mountains and the opportunity to conduct high-altitude training is not one of the screening criteria contained in Section 3.3</p> <p>As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment.</p> <p>As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible.</p> <p>As stated in Section 5.12.2, the proposed action at Fort Carson will not require the Army to seek additional restricted airspace.</p>	

Several times each year groups of Black Hawks gather in Fort Carson for training. When they do, we have these helicopters flying over our property day and night for several hours at a time. They appear to be practicing maneuvers and at times it appears that they are actually using our residence as a target. Sometimes they fly very low +- 500ft and after a while it begins to bother the livestock in the area. They remain here for a couple weeks at a time. Once they leave it quiets down until the next group arrives. I can only imagine what it would be like if a helicopter unit was permanently assigned to Fort Carson.

I am a FAA licensed pilot and fly in and out of Meadow Lake Airport and the Colorado Springs Airport. I suspect that bringing in a 100 helicopter brigade would impact the local flying areas. There are already so many restricted airspaces that it is hard for general aviation to even get around. I further suspect that this unit would use the eastern plains area for maneuvers (over my property) and the army would seek yet another MOA (restricted airspace) for their maneuvers.

I support and respect our armed forces but I must oppose this aviation brigade locating to Fort Carson.

ITEM: 35.	AGENCY (COMMENTS NAME): Individual (M. Carmichall)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (Noise and Safety)
------------------	--	--	--

Comments	Response
----------	----------

Via e-mail on 12/22/2010:

I previously sent this comment, but I think it was to a different e-mail address; so I'm sending it again in case it was not received. However, what's the point. We know that the powers that be decided long ago that the Brigade would be stationed at Ft. Carson. It was a done deal before the Army even asked for comments from the public. This impact statement business is, and was always meant to be just a mere formality (ruse) so that the Army could say it crossed all its "t's" and dotted all its "i's" before making its final decision. Then, upon completion, no one could come back later and say the Army didn't do its due diligence. But the sad truth is (to those of us smart enough not to be fooled by all the lies, fraud, waste, abuse, and corruption of our government) that you didn't even wait until the impact statement report was completed to make your decision; further proving that you didn't really care because your mind had already been made up. You may be fooling a lot of people with your late-to-the-table "concern," but not all of the people.

We would like to add our 2 cents worth on this proposed addition, and the impact it will have on us personally. We live in the foothills above Fort Carson. We moved here from another State and were not familiar with the area. Shortly after moving in, we were rudely awakened around 1:00 a.m. with what was not only a huge explosion that we heard, but that we felt, because it violently shook our house to its very foundation. We thought it was a gas explosion, but you guessed it...it was training at Ft. Carson! Since that time there are some days and nights where bombing training will go on for hours. On those days when we have helicopters fly over, they are so loud and low-flying that they cause our house to shake. They often pass directly over a large skylight that we have over our bathroom. Since we can see them, surely they can see us as well.

Talk about invasion of privacy! I guess we can forget about ever being able to sell our house!

With all the Military bases we already have in Colorado Springs, is it really necessary or fair to add yet another Brigade that will not only cause additional noise pollution, but negatively affect surrounding residential areas, ranchers and their livestock, and wildlife as well? In all of the United States is there not one other area of open space that would less severely impact the population at large?

We also have severe, unexpected winds and downdrafts (one that recently caused a television helicopter to crash) that causes us great fear since the helicopters already at Ft. Carson fly right over our house; not to mention the extreme lightning and hail. We are so close to the Post, we can hear the loudspeaker warning of incoming storms almost daily in Spring and Summer.

Thank you for your comments. We assure you that no decisions have been made regarding the proposed actions described and analyzed in the PEIS. Like any effective NEPA analysis, the purpose of this PEIS is to assist the Army in making informed decisions, while communicating with the public on potential environmental impacts of proposed actions.

We acknowledge your concerns about noise impacts. As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible.

We acknowledge your concern about safety. Please see the response to comment #1 for information on aviation safety

We don't believe that the Army really cares about our plight; and we don't believe that there was not a single Post other than Ft. Carson where this Brigade could be added, that would have less negative impact than there will be here in Colorado Springs.

ITEM: 36.	AGENCY (COMMENTS NAME): Individual (Jane Daeroon)	LOCATION: Joint Base Lewis-McChord, Washington	TYPE: Joint Base Lewis-McChord, Washington
------------------	---	--	--

Comments	Response
----------	----------

Via letter dated 01/04/2011:

I am writing to say I am against stationing a new brigade at Joint Base Lewis-McChord for the following reasons:

The United States already has trillions of dollars of debt. The wars in Iraq and Afghanistan are ending in 2014. Why spend borrowed money after 10 years of fighting which will add to the national debt? This area has major congestion from the population of military here now. More troops mean more traffic on already overcrowded highways. There is a possibility of using neighborhood streets to direct traffic to a military entrance.

Mt. Rainier is a scenic wonder for people world-wide. People come to experience Mt. Rainier from many countries. According to park ranges pollution from the low lands (I-5 corridor) to Mt. Rainier is killing trees and other vegetation. The glaciers are receding. We do not need added pollution.

Pollution is not only in the form of burning fuels, but also in the form of noise. We in this region, have noise from low flying aircraft at McChord helicopters at Ft. Lewis, shooting at both sites, as well as loud blasts from Ft. Lewis.

The Nisqually Indian Tribe, environmental groups, ecologists, and others have been working for years for restoring the salmon runs and northwest fisheries. Expanding the bases would be a step in the wrong direction.

Expansion would also impact the amount of training in Eastern Washington which will suffer an environmental impact there by increasing the danger of wildfires and impact the water quality at the Yakima Training Center.

Please consider carefully the adverse impact this expansion will have on our national debt, the Nisqually Indian Reservation, the ecology of the two regions, the impact of Mt. Rainier, and the people of this area who will have to deal with increased noise, pollution, and traffic.

Thank you for your comments. We acknowledge your concern of the state of our Nation's debt. Every dollar the Federal government spends affects the budget and we need to ensure expenditures are appropriate and used wisely. That is one of the reasons this PEIS is important and why a clear purpose and needs is required. As stated in Section 1.3 of the PEIS, the Army's need for the proposed action is generated by the imbalance between current mission requirements and available aviation forces. In essence, our aviation unit Soldiers are deployed too often, reducing their time at home station. Reduced time at home station directly impacts the quality of life for these Soldiers and their Families, and affects the quality and quantity of the critical training these Soldiers need to prepare for combat. The screening criteria in Section 3.2 focused the Army's analysis of alternatives to those installations where aviation growth and realignment will be viable and support the Army's need. After applying the last screening criteria in Section 3.3, it was determined that only JBLM and Fort Carson were viable stationing locations capable of providing the necessary air-ground integration training. This type of training is a key aspect of the stationing decision and is one of the reasons why JBLM is evaluated in this PEIS.

We acknowledge impacts to transportation would be significant if a decision is made to station a CAB at JBLM. Please refer to the response to comment #26 for information on transportation impacts to JBLM and the surrounding community.

We understand your concern about air pollution impacts to the surrounding community, including Mount Rainier. Air pollution impacts of the proposed CAB stationing is analyzed in Section 6.5 of this PEIS.

Please see the response to comment #30 for information on noise impacts to JBLM and the surrounding community.

Impacts to fish species, including salmon, is analyzed in Section 6.9 of this PEIS.

As noted in Section 6.9 of this PEIS, we expect significant impacts to native plant communities and sensitive species on YTC as a result of wildland fires. While management practices reduce wildfire impacts for most fires that may occur from training and other activities, the impacts of fires can effect unique habitats that are not adapted to an altered fire ecology. YTC's *Integrated Wildland Fire Management Plan* establishes wildfire risks, management goals, and strategies to be used to reduce the risk of fires on the installation and improve YTC's ability to reduce fire losses.

Impacts to water quality at YTC are analyzed in Section 6.8 of this PEIS.

ITEM: 37.	AGENCY (COMMENTS NAME): Individual (Scott Nightengale)	LOCATION: Fort Carson, Colorado	TYPE: General
Comments		Response	
Via e-mail on 12/22/2010: To paraphrase a letter written long ago, the sound of those helicopters is the sound of freedom. Those young men and women in those units are what help keep us free. I live by their flight path and have absolutely no problems with this. Bring them on!		Thank you for your comments. We appreciate your support of our Nation's Soldiers.	
ITEM: 38.	AGENCY (COMMENTS NAME): Individuals (Anne and O.M. Earley)	LOCATION: Fort Carson, Colorado	TYPE: General
Comments		Response	
Via e-mail on 12/22/2010: We believe the only environmental impact of having an Army Aviation Brigade stationed at Fort Carson, CO would be minimal. Any additional noise would be almost unnoticeable. Colorado Springs and the surrounding communities already deal with multiple lifesaving helicopter flights daily and only recently lost the Colorado Springs Police Department helicopter patrol. In addition, the Pikes Peak region already hosts multiple Army/Civilian/Air Force flights from Peterson Air Force Base/Colorado Springs Municipal Airport as well as the Army helicopters already stationed at Fort Carson and other aviation units that come to Colorado for high altitude training. Admittedly, we have not read the entire PEIS, but can think of no other environmental concerns that do not already occur with Fort Carson's current mission and training requirements, and cannot imagine that this brigade would add to them materially.		Thank you for your comments.	
ITEM: 39.	AGENCY (COMMENTS NAME): City of Fountain (Colorado) Council Members	LOCATION: Fort Carson, Colorado	TYPE:
Comments		Response	
Via e-mail dated 12/28/2010: The Council Members from the City of Fountain support the proposed aviation growth, realignment and stationing at Fort Carson, Colorado. Their signed letter of support is attached. Via letter dated 12/21/2010: On behalf of the City of Fountain, Colorado, we wish to thank you for the opportunity to comment on the Draft Programmatic Environmental Impact Statement (Draft PEIS). The City joins elected officials, business leaders and organizations throughout the Pikes Peak Region and the State of Colorado in unified support of the proposed stationing of a Combat Aviation Brigade (CAB) at Fort Carson. The economic impact of Fort Carson to the City of Fountain, the Pikes Peak Region and the State of Colorado is immense generating approximately \$2.4 billion in economic activity. Fort Carson has the only division (4 th ID) in the Army without a CAB co-located with the unit. Before the 4 th ID left Fort Carson in 1995, there was a CAB at Fort Carson. The 3 rd ACR has also called Fort Carson home. A CAB will provide the synergistic training for the soldiers at Fort Carson to most effectively train the way they will fight to ensure mission success – all of our soldiers deserve nothing less. The Draft PEIS indicates that direct and indirect impacts as well as cumulative impacts to valued environmental components are less than significant or mitigable to less than significant (for noise, geology and soils, and		Thank you for your comments and support.	

biological resources). The City of Fountain will continue to work with numerous federal, state, and local partners to address the community impacts with the addition of a CAB at Fort Carson through the Fort Carson Regional Growth Plan.

Our community is known for its support of the military and a welcoming environment for the men and women of our military and their families. It is an ideal place for Soldiers and their families – quality of life, educational opportunities, cost of living, and recreational opportunities are just a few of the other important reasons, for Soldiers and their families, to bring the CAB to Fort Carson.

In summary, the City of Fountain, Colorado strongly supports the stationing of a Combat Aviation Brigade at Fort Carson and we look forward to a long continued partnership with Fort Carson.

ITEM: 40.	AGENCY (COMMENTS NAME): Individual (Charles Gwyn)	LOCATION: Fort Carson, Colorado	TYPE: Traffic, Infrastructure, Noise, Safety, Wildlife, and Socioeconomics
------------------	---	--	---

Comments	Response
----------	----------

Via e-mail dated 12/28/2010:

Please do not allow the transfer of the proposed helicopter brigade and any further expansion of the Fort Carson Army Base in Colorado Springs for the following reasons:

1. The urban sprawl of apartment complexes supporting Ft. Carson has added thousands of low cost apartment units and has overloaded the City infrastructure. Increased traffic has saturated the existing street and highway capacity in the southern part of the Springs with attendant increases in traffic accidents and delays and no accompanying road improvements other than entrance roadways into the base
- 2.Noise from Base training exercises and maneuvers and accompanying aircraft has eliminated the quiet residential environment along the front range and southern part of the city both day and night,
3. There has been a dramatic increase in city crime including home invasions, burglaries, assaults and homicides.
4. There has been additional increases in costs for automobiles, appliances, and commodities to accommodate discounts given to military personnel,
5. For aircraft exercises, the low altitude flights along the front range and up the canyon toward Woodland Park have drastically disturbed the residential and wildlife environments,
6. Although the expansion of Ft. Carson during the early part of this decade appealed to the business interests of the Springs, any additional expansion will completely destroy any remainder of the once tranquil community and eliminate the attractive living environment that was experienced during the previous 25 years when the Springs was noted as a community that encouraged new start up businesses, provided an ideal environment for raising a family, and a community for retirees.

Although we have been silent on the above issues in the past, the continued destruction of the Springs environment by the by the Army has reached the breaking point. In order to conserve the remaining City environment, we request that you not consider any further additions to the Base and instead choose rural locations for military expansion where the environmental impact is less.

Thank you for your comments. Please see the response to comment #1 regarding the Army’s need for the proposed action and why Fort Carson was selected as a viable stationing alternative.

We acknowledge your concerns about the potential impacts of the proposed actions on the surrounding community. As noted in Section 5.11 of this PEIS, we anticipate the cumulative socioeconomic impacts of CAB stationing to be less than significant. Traffic impacts to Fort Carson and PCSM are analyzed in this PEIS at Section 5.12.

We also acknowledge your concerns about noise impacts and disturbance from low altitude flights. As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible.

We are not aware of data showing an increase in local crime rates nor additional costs for consumer goods related to the proposed action or past actions of the Army impacting Fort Carson. In accordance with 42 C.F.R. Section 1508.14, a NEPA analysis should address economic or social effects only to the extent that they are “interrelated” with “natural or physical environmental effects.”

To clarify, as noted specifically on page 2-12 of the PEIS, none of the proposed actions would require land expansion for either Fort Carson or PCSM. We do acknowledge there would be an increase in the numbers of Soldiers, Family members, and aviation assets at Fort Carson should the installation be selected for a CAB stationing.

ITEM: 41.	AGENCY (COMMENTS NAME): Colorado Springs Chamber of Commerce (Brian Binn, President)	LOCATION: Fort Carson, Colorado	TYPE: General
Comments		Response	
<p>Via letter dated 11/24/2010:</p> <p>Thank you for the opportunity to comment on the Draft PEIS and to lend support for the decision to station the Army's next Combat Aviation Brigade (CAB) at Fort Carson, Colorado. The PEIS does an excellent job in evaluating the factors related to stationing the CAB at Fort Carson or Joint Base Lewis-McChord (JBLM).</p> <p>The majority of our elected officials at the Federal, State, County, and City level, as well as many organizations, such as the Greater Colorado Springs Chamber of Commerce and our Military Affairs Council strongly support the selection of Fort Carson. Ft Carson has the only division (4th ID) in the Army without a CAB collocated with the unit. Before the 4th ID left Ft Carson in 1995, there was a CAB at Fort Carson. The 3rd ACR has also called Fort Carson home. A CAB will provide the synergistic training for the Soldiers at Fort Carson to most effectively train the way they will fight to ensure mission success – all of our Soldiers deserve nothing less.</p> <p>As noted in the PEIS, there are added requirements and factors, easily remedied, for Fort Carson to effectively and efficiently bed down the new CAB. Based on the likely timelines after a final decision for the Army, there is ample time for the needed actions. Fort Carson already has the major infrastructure requirements with Butts AAF, and has identified the necessary MILCON for building the CAB at Fort Carson. Over the past several years, with the decisions of the last BRAC to bring the 4th ID back to Fort Carson, the installation has significantly improved its capability to provide the necessary quality of life and operational infrastructure to fully accommodate the additional growth of bringing the CAB to Fort Carson. Fort Carson training ranges, Pinon Canyon Maneuver Site (PCMS) and the National Guard High Altitude Aviation Training Corridor provide unparalleled access to an environment of demanding, realistic, and needed training for our Soldiers.</p> <p>Our community is known for its support of the military and a welcoming environment for the men and women of our military and their families. It is an ideal place for Soldiers and their families – quality of life, educational opportunities, cost of living, and recreational opportunities are just a few of the other important reasons, for Soldiers and their families, to bring the CAB to Fort Carson.</p> <p>Our community looks forward to the decision to station the Army's next Combat Aviation Brigade at Fort Carson. Please feel free to contact me if you have any questions. I can be reached at 19-575-4325, brian@csc.org.</p>		<p>Thank you for your comments and support.</p>	
ITEM: 42.	AGENCY (COMMENTS NAME): Individual (David Ottoes)	LOCATION: Fort Carson, Colorado	TYPE: General
Comments		Response	
<p>Via e-mail dated 12/27/2010:</p> <p>Fort Carson and the US Army have my complete support for the expansions being considered. I have been a resident in south Colorado Springs for 15 years and have no ill effects from the proximity of Ft. Carson.</p>		<p>Thank you for your comments and support.</p>	
ITEM: 43.	AGENCY (COMMENTS NAME): Washington Department of Ecology (Gwen Clear, Environmental Review Coordinator)	LOCATION: Yakima Training Center, Washington	TYPE: Hazardous Materials
Comments		Response	
<p>Via letter dated 12/15/2010:</p> <p>Thank you for the opportunity to comment on the Draft Programmatic Environmental Impact Statement for the Growth, Realignment, and Stationing of Army Aviation Assets. We have reviewed the documents and have the following comment.</p> <p>Toxics Clean Up</p>		<p>The Army anticipates no impact to the cleanup site from any of the alternatives analyzed in the PEIS. However, we note your comment, and we thank you for highlighting the issue.</p>	

The Yakima Training Center facility included in this proposal is a known (or suspected) contaminated site on the Washington State Department of Ecology (Ecology) Confirmed and Suspected Contaminant Sites List. Ecology Facility/Site ID: 105; TCP Cleanup Site ID # 2301. Hazardous substances may be present at the site in amounts and/or concentrations likely to affect human health or the environmental. Site cleanup may be required in the future by Ecology under the Model Toxics Control Act. Site characterization and/or cleanup may be desirable prior to the site alteration or development.

If you have any questions or would like to respond to these Toxics Clean-up comments, please contact Valerie Bound at (509) 454-7886.

ITEM: 44.	AGENCY (COMMENTS NAME): Pikes Peak Area Council of Governments (Wayne Williams, Chair)	LOCATION: Fort Carson, Colorado	TYPE: General
------------------	--	--	----------------------

Comments	Response
----------	----------

Via letter dated 12/13/2010:
Please include the attached resolution adopted by the PPACG Board of Directors on 8 December 2010 in the written comments related to the Draft Programmatic Environmental Impact Statement regarding the stationing of a Combat Aviation Brigade at Fort Carson.

RESOLUTION BY THE PIKES PEAK AREA COUNCIL OF GOVERNMENTS BOARD OF DIRECTORS IN SUPPORT OF A COMBAT AVIATION BRIGADE AT FORT CARSON

December 8, 2010

WHEREAS, the Pikes Peak Area Council of Governments is an association of 16 local governments representing the Pikes Peak Region; and

WHEREAS, the Pikes Peak Area Council of Governments is the regional planning agency for the Colorado Springs metropolitan area with responsibilities in the area of military impact planning; and

WHEREAS, Department of the Army has released a Draft Programmatic Environmental Impact Statement (Draft PEIS) that proposes the stationing of a Combat Aviation Brigade (CAB) at Fort Carson; and

WHEREAS, the Draft PEIS indicates that direct and indirect impacts as well as cumulative impacts to valued environmental components are less than significant or mitigable to less than significant (for noise, geology and soils, and biological resources); and

WHEREAS, Fort Carson generates approximately \$2.4 billion in economic activity and more than 31,000 jobs in the Pikes Peak region and state; and

WHEREAS, PPACG will continue to work with numerous federal, state, and local partners to address the community impacts with the addition of a CAB at Fort Carson through the Fort Carson Regional Growth Plan; and

NOW, BE IT THEREFORE RESOLVED, the Pikes Peak Area Council of Governments Board of Directors hereby supports the stationing of a Combat Aviation Brigade at Fort Carson.

RESOLVED, APPROVED, and ADOPTED, by the Pikes Peak Area Council of Governments this 8th day of December 2010, at Colorado Springs, Colorado.

Thank you for your comment and for forwarding to us the resolution of the PPACG Board of Directors.

ITEM: 45.	AGENCY (COMMENTS NAME): Individual (Deborah Cade)	LOCATION: Joint Base Lewis-McChord, Washington	TYPE: Transportation
Comments		Response	
<p>Via letter dated 12/13/2010:</p> <p>I have reviewed the above PEIS for the planned expansion at Joint Base Lewis-McChord and have the following comments.</p> <p>I live in North Tacoma and have been commuting to my old job in Olympia for 15 years. My commute on Interstate 5, which because of Fort Lewis is the only route between Tacoma and Olympia, used to take 35 minutes. It now routinely takes anywhere from an hour and fifteen minutes to over two hours. Some of the delay is due to an increased accident rate, but most is due to the hugely increased congestion. I used to have evenings free to work around my house, or participate in community activities. Now I generally work late to try to “miss” the traffic backup. Even with leaving my office at 6 or 6:30, I still regularly encounter traffic backups through JBLM, and rarely get home before 7:30 p.m. That is the hour and a half that I used to be able to do something other than work – now it’s gone.</p> <p>The PEIS does not analyze at all the cumulative impact of the planned expansion together with the significant adverse traffic impacts of the previous expansion and base consolidate decisions. The PEIS noise that the base has expanded by over 36,000 troops, families, and civilian employees since 2003. However, it devotes all of about five lines to the cumulative traffic impacts to I-5. The PEIS alleges at page 6-63 that “Multiple long-term capital improvements are being planned in the region that will accommodate the increase in traffic.” Nothing in this document says what these “long-term capital improvements” are. Although the PEIS lists a number of fiscally constrained highway projects for the Fort Carson area, there is no such list in the document for JBLM. Perhaps that is because there is actually no funding for I-5 improvements anytime in the foreseeable future. “Long-term” improvements that will not be funded or built in my working lifetime cannot be considered to “accommodate the increase in traffic” that has [missing second page]...</p> <p>JBLM also needs to do more with its troops to emphasize safe driving. I can’t tell you how many times I’ve seen a car or motorcycle on I-5 that is speeding and swerving in and out of traffic – and it is always being driven by a young man in a military uniform. When you have an inordinately large population of 18-25 year old males, you are going to have a higher accident rate – that’s why their insurance rates are so high. The slightest accident on this section of I-5 quickly creates a ten mile backup that can take hours to clear, making our drive even longer than the hour and a half that it is routinely.</p> <p>The federal government needs to contribute significantly to the needed improvements on I-5 in Mounts Road to SR 512 segment. The PEIS refers to other growth in Pierce and Thurston counties contributing to the congestion. However, by far the most significant growth in this area has been the growth at the base. The growth in subdivisions and commercial areas in Lacey and east Pierce County is an indirect consequence of the growth at the bases; the additional troops and families, and civilian employees, need places to live and to shop. All of this generates traffic on this short section of I-5.</p> <p>The base consolidation program is intended to promote efficiency and ultimately save costs, but it should not be carried out at the expense of those of us who were already living here and who have depended on I-5 as our sole route between work and home for a very long time. The cost of the base consolidation program should include the cost of mitigating the adverse impacts of that program, including paying for the expansion of I-5.</p> <p>In the meantime, the PEIS is deficient for failing to address the significant impacts to I-5, the cumulative impacts to I-5 from the previous base consolidation and expansion actions (none of which are listed), and the failure to identify any mitigation for those impacts.</p>		<p>Thank you for your comments. We acknowledge your concerns about traffic impacts to the community surrounding JBLM. Please refer to the responses to comments #22 and #26 for information on transportation impacts to JBLM and the surrounding community. Comment #22 was from the Washington State Department of Transportation.</p> <p>We also acknowledge your concerns about traffic safety. Army Regulation 385-10, The Army Safety Program, contains requirements for traffic safety and loss prevention to reduce the risk of death or injury to Army personnel and civilians. Through training and other means, the Army seeks to instill in our Soldiers the importance of vehicle safety, expecting Soldiers to operate motor vehicles in a safe manner and always to employ risk management principles when using their privately owned vehicles We care about the safety of our Soldiers and that of the public.</p>	

ITEM: 46.	AGENCY (COMMENTS NAME): Colorado Department of Natural Resources Division of Wildlife (Dan Prenzlów)	LOCATION: Fort Carson and PCMS, Colorado	TYPE: Wildlife (Protected Species) and Aviation (Over Flights)
Comments		Response	
<p>Via letter dated 12/10/2010: The Colorado Division of Wildlife has been made aware of the above mentioned draft programmatic Environmental Impact Statement (PEIS). We have reviewed the published document and offer the following comments for consideration.</p> <p>Several species of wildlife not specifically addressed in the draft PEIS that we recommend receive consideration include Golden Eagle and American Peregrine Falcon both species of concern in Colorado. Both the golden eagle and peregrine falcon nest in the canyons on the east and southern slopes of Pikes Peak, and utilize Fort Carson for foraging. If training flights should egress Fort Carson the west along the east or south face of the Pikes Peak massif then consultation with the Division of Wildlife should take place for identification of specific nest sites and adoption of best management practices in the form of avoidance measures. This also applies to the Mexican Spotted Owl since several protected activity centers (PAC's) exist on the east, southeast, and southern slopes of Pikes Peak.</p> <p>No mention is made in the PEIS that Chronic Wasting Disease (CWD) is present with a high degree of prevalence in the deer population at Fort Carson. Chronic wasting disease is a fatal neurological disease found in deer, elk and moose. It belongs to a family of diseases known as transmissible spongiform encephalopathies or prion diseases. The disease attacks the brains of infected deer, elk and moose, causing the animals to become emaciated, display abnormal behavior and impaired mobility, and eventually die. Since the prevalence and spread of CWD is density dependent and further curtailment of hunting of big game is mentioned as a possible outcome of increased training activity CDOW believes this rises to the level of a significant adverse affect that should be more specifically addressed in the PEIS. CDOW is concerned that with a lack of hunting to maintain or decrease deer and elk densities at Fort Carson that densities will increase, Fort Carson will serve as a population sink, and eventually dispersal of infected deer and elk to the surrounding area will occur further spreading this disease to currently healthy herds. We believe that with proper management of deer and elk through hunting at Fort Carson animal densities can be properly maintained to minimize the spread of CWD to the surrounding area. CDOW requests more specific discussion and analysis of this potential outcome of increased training in the final PEIS with specific mitigation measures identified in the ROD that will move this VEC significance threshold from significant with adverse impact more towards "significant but mitigable" as defined in the PEIS.</p> <p>More detailed evaluation and mitigation of the Route Hawk should be undertaken in the PEIS and ROD with regard to impacts to nesting and wintering waterfowl, wintering bald eagle, nesting osprey, nesting and foraging great blue heron and cormorant, foraging white pelican, and bighorn sheep, as well as impacts to the recreating public at Pueblo State Wildlife Area when crossing the Arkansas river west of Pueblo. Pueblo State Wildlife area extends west of Pueblo Reservoir along the Arkansas River almost to Hobson. CDOW believes that over flights at 100' during critical seasonal periods could have significant adverse impacts to several of the species listed above and should be addressed in the PEIS and mitigated in the ROD. A similar analysis should be undertaken where Route Hawk crosses the Arkansas River east of Pueblo at the Pueblo County Line.</p> <p>It appears, as best we can tell, that the design of the Route Hawk low level training route from Fort Carson to PCMS avoids the Apishapa State Wildlife Area. This State Wildlife Area is located northeast of PCMS between U.S. Highway 350 and State Highway 10. Avoidance of this important State Wildlife Area by low level aircraft over flights is important and appears to be the case given that there is strict adherence to the established Route Hawk and Centerline. If instead, aircraft fly on a true compass bearing between Fort Carson and PCMS then impacts to this State Wildlife Area and surrounding lands leased for recreational hunting purposes will need to be addressed and mitigated in the final EIS and ROD.</p>		<p>Response</p> <p>Thank you for your comments. We acknowledge your concerns about analysis of potential impacts to the golden eagle and peregrine falcon. As explained in Section 4.1 of this PEIS, this programmatic document incorporates the 2009 Fort Carson <i>Grow the Army</i> FEIS analysis by reference. The 2009 FEIS included detailed analysis of the potential addition of a CAB to Fort Carson, and provided analysis of potential impacts to both the golden eagle and peregrine falcon.</p> <p>Additional management information on these species can be found in Fort Carson's INRMP.</p> <p>With regards to Pikes Peak, please see the response to comment #3 which explains that, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment. This means that there would be no new impacts beyond those described in the 2007 Environmental Assessment. The 2007 Environmental Assessment specifically provides that there would be no overflights of known Mexican Spotted Owl nesting sites.</p> <p>Fort Carson staff is aware of the presence of the CWD on Fort Carson. If a decision is made to station a CAB at Fort Carson, that action is anticipated to have no affect on the occurrence or spread of CWD. CWD is not known to occur at PCMS. Text has been added to Section 5.9.2 in this PEIS regarding CWD.</p> <p>We acknowledge and appreciate your comments on the need for more detailed analysis and mitigation of species impacts associated with Route Hawk. Follow-on NEPA analysis to implement the stationing of a CAB to Fort Carson, if such a decision is made, would cover the increased use of Route Hawk for CAB training activities, as appropriate.</p> <p>We have confirmed that Route Hawk avoids the Apishapa State Wildlife Area.</p>	

The Colorado Division of Wildlife again expresses appreciation for the opportunity to review this programmatic EIS. We look forward to hearing from you with regard to the issues we have raised and with seeing them addressed in more detail in the final EIS and ROD. Please feel free to contact us with any questions or information requirements you might have to address the issues outlined above.

ITEM: 47.	AGENCY (COMMENTS NAME): El Paso County (Dennis Hisey)	LOCATION: Fort Carson, Colorado	TYPE: General
------------------	---	--	----------------------

Comments	Response
----------	----------

Via letter (no date):

As Chairman of the Board of El Paso County Commissioners I am writing to express the Board’s unanimous support for the location of the Army’s 13th Active Component Combat Aviation Brigade (CAB) at Fort Carson, Colorado. El Paso County is the proud home of Fort Carson and the Board of County Commissioners is unanimous and unwavering in its support of our Soldiers and their mission to defend our freedom. We salute the Army’s leadership in moving to establish two new Combat Aviation Brigades because we understand from talking with our Soldiers who’ve been on the ground on battlefields around the world that air support is frequently the difference between victory and catastrophic loss.

Location of a CAB at Fort Carson will give these Army aviators training unequalled real world training opportunities. The tall mountains and deep gorges of southern Colorado are legendary challenges for pilots of all types of aircraft. The Army currently requires aviators to train at the Colorado National Guard’s High Altitude Aviation Training site prior to deployment in Afghanistan.

Fort Carson’s proximity to the experts at this facility would give the Army an opportunity to maximize efficiency by limiting time and distance barriers – not to mention the fact that every training mission taking off from fort Carson will provide valuable experience from take-off to touch-down.

Since locating the 41D at Fort Carson, it has demonstrated that unique geography of the Mountain Post provides soldiers with tough, realistic training opportunities. The Ivy Division’s Brigade combat Teams and other units based at Fort Carson have reported that their training in the thin mountain air of Colorado gave them the upper hand in subsequent missions in Iraq and Afghanistan. But the lack of a CAB at Fort Carson has limited training opportunities for Soldiers to develop a clear understanding of aviation assets and to maximize relationships with those assets before deployment.

Existing hangars and facilities at Fort Carson are ready to support the 13th CAB. Butts Army Airfield (BAAF) is big enough to support construction of additional facilities required by the CAB. BAAF is already home to an Attach Aviation Battalion and is due to receive a Reserve Component MEDEVAC detachment soon. All of these will compliment the 13th CAB and contribute to the efficient use of training assets for the Army.

Finally, the El Paso County Board of Commissioners urges location of the new CAB here because we know that our Soldiers and their families endure many hardships in protecting our freedoms and they deserve the outstanding quality of life offered here in El Paso County. We offer affordable housing, good schools, a variety of adult education opportunities, an enviable four-season climate and unlimited access to healthy outdoor activities. As a community, our support of Soldiers and their families is unequalled and Fort Carson has earned its reputation as “The Best Hometown in the Army-Home of America’s Best.”

Thank you for your comments and for your continued support of Fort Carson.

ITEM: 48.	AGENCY (COMMENTS NAME): Friends of the Peak (Eric Swab)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (noise, biological, and recreation)
Comments		Response	
<p>Via letter (no date): I would like to submit the following comments concerning the Draft Programmatic Environmental Impact Statement (PEIS) for the Growth, Realignment, and Stationing of Army Aviation Assets. This being the PEIS covering the potential establishment of a Combat Aviation Brigade (CAB) at Fort Carson, Colorado.</p> <p>Clearly the establishment of a CAB at Fort Carson will have a positive economic benefit for the Pikes Peak Region. In addition I acknowledge the invaluable service that Fort Carson Personnel have provided in fighting wild land fires and in the search and rescue of civilian users of public lands. While I fully appreciate the need to train military personnel in an environment that approximates the conditions in which they will be fighting, there are some special circumstances that make the Pikes Peak massif unique among the Rocky Mountains and hence less appropriate for military training.</p> <p>Pikes Peak is the only high mountain in the state of Colorado that is situated so closely to a densely populated area. The population of the Colorado Springs Metropolitan Statistical area is over 625,000 people, and consequently many residents look to Pikes Peak for a variety of recreational opportunities. Comparable opportunities require driving 1.5 hours or more from the City. The Pikes Peak Highway, the Manitou and Pikes Peak Railway, the Pikes Peak Auto Hill climb and the pikes Peak Marathon all attract visitors from the state, the nation and from foreign countries. The result is that the Pikes Peak massif is already heavily impacted by human activity.</p> <p>My primary concerns are; the impact of noise on human users, the impact of noise on wildlife and impact on the environment from military training. I note that the PEIS states that cumulative noise impact from fort Carson was found to be "Mitigable to less than significant". My experience as a hiker this past summer has been that the noise of three or four helicopters circling above me on Pikes Peak was <u>significant</u>. Given that 24 helicopters are currently stationed at Fort Carson, I believe the impact of 120 more will be difficult to mitigate.</p> <p>The PEIS appears to focus on the impact of the CAB on the populated areas of the Pikes Peak Region and on the Pinon Canyon Maneuver Site, but not on the National Forest or the Mountains to the west. The PEIS makes only passing reference to an Environmental Assessment that was conducted in 2007, entitled "Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training, October 2007". Obviously one of the major reasons for establishing a CAB in Colorado is access to the mountains for training.</p> <p>An increase of from 24 to 144 helicopters should require a new Environmental Assessment of high altitude military helicopter training, at least.</p> <p>Recognizing that the National Forest Service is the steward of the Pikes Peak massif and that the "Master Agreement Between Department of Defense and Department of Agriculture Concerning The Use of National Forest System Lands For Military Activity" (MABD&A) spells out specific requirements for coordination between the two departments, I would like to make five suggestions for mitigating the impact of the proposed establishment of a CAB at Fort Carson.</p> <p>Look at Other Public Lands for Training Because of the already heavy use of the Pikes Peak massif I would encourage the Army to look at other public lands for landing zones that have a lesser impact on public users. If the Army considers it necessary to user the Pikes Peak massif, then an Environmental Impact Study should be done.</p> <p>Establish a Liaison With the Pikes Peak Ranger District It is my understanding that the Directorate of</p>		<p>Thank you for your comments. We acknowledge your concerns about impacts to Pikes Peak. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment.</p> <p>Army installations, including Fort Carson, underwent reorganizations to a standard structure. As a result, DECAM functions are now under the Directorate of Public Works, Environmental Division. Contact information for the Environmental Division is available on the Directorate's Web site, http://www.carson.army.mil/DPW/. This Division is the point of contact for Pikes Peak Ranger District liaison activities on environmental issues.</p>	

Environmental compliance and Management (DECAM), the agency responsible for coordination between the Army and the Pikes Peak Ranger District (PPRD), no longer exists or at least is no longer functioning in this capacity. In order for both parties to comply with the MABD&A, it is essential that the lines of communication between the Army and the District be open and ongoing.

Enhance Communications With the Public The Army should establish a process whereby Fort Carson can receive and respond to the issues and concerns of forest users. The forest user should be able to find out when and where training activities are to take place and what restrictions to user access those activities might demand.

Update Use Restrictions The Use Restrictions spelled out in Exhibit C of the “US Department of the Army, fort Carson Special Use Permit for Mountain/High Altitude Helicopter Training”, need to be updated. Better criteria for the selection of, and the assessment of damage to, landing zones needs to be developed in coordination with the PPRD.

Based on the current Use Restrictions the landing zones that are “heavily used recreation areas” should be increased to include LZ9, “Rosa” and LZ 10, “Beaver”. If new landing zones are chosen the popularity of the area with forest users should be part of the criteria for selection. No over flights or landing should take place on weekends in the areas of heavy public use. Any training event that impacts the environment should be reported immediately to the PPRD. No materials or supplies that might be attractive to wildlife should be left unattended at landing zones. LZ 8, Frosty Park, is a wetland that the PPRD is making an effort to recover from the damage done by motor vehicles and should be removed from the list of landing zones. These Use Restrictions should become a part of the training for the CAB pilots and crews.

Establish a Training Itinerary A schedule of training missions should be established which would minimize the impact on human use and impact on wildlife of the pikes peak massif. Scheduling should include consideration for times of the year, wildlife migration pattern, times of day, and number of flights by landing zone. This information should be made available to the public, so that forest users can avoid the training areas during these times.

I am not personally opposed to the establishment of a Combat Aviation Brigade at Fort Carson, I would like to see the impacts of such a move on Pikes Peak massif mitigated.

ITEM: 49.	AGENCY (COMMENTS NAME): Tacoma-Pierce County Chamber (Gary Brackett)	LOCATION: Joint Base Lewis-McChord, Washington	TYPE: Socioeconomics and Transportation
------------------	--	--	--

Comments	Response
-----------------	-----------------

Via letter dated 11/24/2010:
Thank you for the opportunity to comment on the Draft PEIS on Proposed Aviation Growth, Realignment and Stationing.

The Chamber has been involved in this process through its participation in the open public process. As a result, please note that the Chamber is supportive of the Preferred Alternative – Alternative 3.

Washington State enjoys a positive economic contribution from all its military installations. This is a just released report for the state, but it gives you a good picture of JBLM: <http://www.wedc.wa.gov/Publications.htm> in addition to other defense industry economic contributions.

The community (Region of Influence: Pierce and Thurston Counties) has enjoyed a positive economic and social relationship with Joint Base Lewis-McChord (JBLM). The return deployment over this summer of about 18,000 soldiers (joined by some returning families) has made a significant economic contribution to the local economy in these recessionary times. In spite of the national recovery underway, the local area still suffers from recessionary impacts. Those impacts are forecast in the Chamber’s Pierce County Economic Index, to begin improving attributable to significant contribution from JBLM in this final quarter 2010. That forecast is not yet

The Army looks forward to continuing its cooperative efforts with the Washington State Transportation Commission and the City of Lakewood to address traffic impacts. Thank you for your comments.

available until its public release December 16, 2010. As a growth installation, JBLM is collaborating in a two-county evaluative process to determine those socioeconomic impacts and appropriate coordinated community actions to assure cooperative efforts for mission support and a high level of quality of life for all citizens (civilians and military personnel and their families). The city of Lakewood is the lead for that two county study of the growth impacts from JBLM. The draft is here: <http://www.jblm-growth.com/> which is scheduled for completion December 31, 2010.

Already completed is another OEA funded study to assess and determine mitigating actions relating to Interstate 5. This cooperative effort by JBLM, the Washington State Department of Transportation and the City of Lakewood as grant administrator, is already completed and being incorporated into public policy, as evidenced here: <http://on-ramp.blogspot.com/2010/09/wsdot-announces-plans-for-i-5.html>. The Chamber has recently submitted comments as here: <http://c-9blog.blogspot.com/2010/10/consider-defense-issues-in.html> to the Washington State Transportation Commission as they are updating the State's transportation policies, recommending incorporation of national defense obligations in those policies. As mentioned earlier, the community is the beneficiary of community involvement by soldiers and their families. There is a wide range of contributions that are exemplified in the actions of soldiers recognized by the award of the John H. Anderson Military Citizen of the year. That and other community interaction is documented with the Chamber's C-9 Blog at: www.c-9blog.blogspot.com.

If I may provide you additional information or assistance in your evaluative process, please call on me.

ITEM: 50.	AGENCY (COMMENTS NAME): Individual (David Hughes, Col (Ret.))	LOCATION: Fort Carson, Colorado	TYPE: General
------------------	---	--	----------------------

Comments	Response
<p>Via email / letter dated 1/1/2011: Comment on Stationing Aviation Brigade at Fort Carson, Colorado I have strong views, on whether or not the Army should station a 100 helicopter Brigade with 2,700 soldiers at Fort Carson.</p> <p>Bluntly, I think the unit should be stationed there, and while its operations may periodically disturb those who have chosen to live nearby I insist that NIMBY should NOT be a major determinant in its stationing. That its stationing should be solely determined by the training needs of the Army, and especially the needs for joint training with the major combat formations stationed at Fort Carson – currently the 4th Infantry Division (Mechanized) and its supporting units. Mechanized Brigades have been deliberately designed to train with, and operate in combat with, Aviation units.</p> <p>I bring 40 years military perspective to this issue, for I was assigned as the first G-3 – Operations and Training Officer - to the 5th Infantry Division (M) which was quickly reorganized as the 4th Division (M) at Fort Carson in 1968. I was a Battalion Commander, the Chief of Staff of both the Division and Post, and then the 2d Brigade Commander between 1968 and early 1972. I was assigned there by request of its Commanding General because of my combat command record in both the Korean and the Vietnam Wars, and my knowledge from assignments in the Pentagon both in Army Staff Planning, and in the Secretary of Defense's office about the future nature of warfare and what the Army would need to be prepared to engage in them. I.e. what kind of training they would have to do.</p> <p>Our predictions then have been born out quite accurately now – with a series of protracted Insurgent Wars including Iraq and Afghanistan where the premium is on boots on the ground soldiers widely dispersed supported by airmobile transport and aviation support in both counterinsurgency and special operations, and potential Conventional Wars similar to Desert Storm requiring mechanized, armor and air supported large formations.</p> <p>In fact Secretary of Defense Gates has recently described the future reality that 50% of the Army has to be capable of fighting both Insurgent Wars and Conventional Wars, while smaller portions have to be capable of</p>	<p>Thank you for your comments, your service, and your continued support of the Army.</p>

fighting either exclusively Insurgent Wars or Advanced Technology Wars. Fort Carson's units are a major part of that dual-readiness 50%

What difference does that make? Right now 4th ID soldiers who have been deployed to Afghanistan repeatedly countering the Taliban insurgents, are right now, upon their return, training at Fort Carson for their OTHER vital mission, readiness for conventional war in places it could occur rapidly such as on the Korean Peninsula. It has to train at BOTH, constantly. That is a heavy burden to put on our no-draft and smaller forces. The US Army does not have the luxury, as in the past, of taking years to mobilize, and then get prepared for the next war. Readiness, and the training to achieve it, is the ONLY reason for Fort Carson's existence.

During that period of assignments to Fort Carson I became acutely aware of
Why the Army chose Fort Carson, a hitherto 2d rate wartime-only expansion post – to station a full Mechanized Infantry Division – a substantial proportion of the entire Fighting Strength of the US Army - there with long range plans for Carson as a major permanent future-needs Post.

What obstacles Civilian Communities outside Fort Carson have repeatedly tried to block its needed FOR VITAL TRAINING expansion. Even after those same communities fell all over themselves desiring Fort Carson not be closed down in 1968 and later Base Closings for its economic benefits in an area and city – Colorado Springs - which would dry up and blow away if it were not for the payroll both civilian and Army that Carson represents.

What creeping NIMBY sentiments by communities who, during this period of an all Volunteer Force, care little about the training needs of Army personnel – especially the volunteer force. With no draft, few Americans care what happens to soldiers or why. Most surrounding communities or legislators at the State of Colorado level have no real stake in Fort Carson's mission or how well its soldiers are trained.

My long held conclusion is that El Paso County cannot have it both ways – the full economic benefits of Fort Carson's personnel and support structure costs, and then limit the training that its stationed units can have – particularly in a shrinking Army, post Afghanistan.

Secretary of Defense Robert McNamara was ready to shut down Fort Carson in 1967-68. In the first of a series of Base Closing Reviews, Fort Carson was considered a high-overhead, low-Defense-value post. A Major General Heintges was dispatched to survey a number of similar Army Posts. He reported back that, BECAUSE of the expansibility of Fort Carson to the south toward the Arkansas River, in a nation whose military posts in the east were being encroached upon evermore to the point that advanced Army weapons in Mechanized units were unable to be fired on the Post.

Fort Carson had been a boots-on-the-ground Infantry Division post from 1941 to 1968. Its field training space was adequate for the maneuver units of a strait Infantry Division. But by 1968 as Vietnam was going to phase down, there were, and ARE NO MORE plain infantry divisions. All divisions have to be either armor, mechanized infantry, airborne, or airmobile. Army combat units are not designed to minimize the impact on the environment in or around their training bases. The best possible and realistic TRAINING is the #1 function of combat units while not yet engaged in another war or armed operation.

Fort Carson was saved originally because it could house AND TRAIN a Mechanized Division – which the 4th ID was converted into after 51 years of being a non-mechanized Infantry Division. That took much MORE field training space for maneuver units, and a fully adequate impact area – for artillery, mortar, tank gun, high performance ground support aircraft AND Army Aviation helicopter air-ground firing.

Even though local and state political leaders assured the Army that it would welcome the retention of the Fort, and support its expansion, in fact, from the beginning, greedy Pueblo who wanted the new FEDERAL reservoir on the Arkansas for itself opposed the needed expansion to the south in Pueblo County to the north shore of Pueblo Reservoir where amphibious tracked vehicle training – vital to the 4d ID when all its Personnel Carriers

were amphibious. Training was needed for cross river operations in Europe which was then the main Soviet military threat, AND my Readiness Mission as a Mechanized Brigade Commander – to be able to fly quickly to Europe without heavy equipment, from Peterson Field, climb into matching mech-infantry carriers prepositioned in Europe, take to the field and engage in combat across the small and some large rivers in Central Europe. No time to train AFTER arrival in the operational theater.

The Army could have used its power of eminent domain but it chose not to, for political opposition, not national military security, reasons.

As a consequence I, as a 4,000 soldier Brigade Commander in 1971 over 2 Mechanized Infantry Battalions and 2 Tank Battalions was crippled by inadequate down range maneuver space, and denied access to water for unit training. We were fortunate that the Soviet Union did not make a hostile move against NATO while I was in command of that Brigade. Our operations would have been less than they could be, and bloodier. There is old soldier wisdom that is just as true today as it was at Pearl Harbor – more sweat, less blood. The better prepared for action units are, the lower casualty rates.

In 1968 there was the issue of a strip of private land called Rancho Colorado relatively near the Fort Carson Impact area, and across I-25 from Widefield-Security-Fountain area. The Army correctly understood that as both the Post and communities around it grew that there would be the inevitable NIMBY complaints about the sound of live firing training.

A fly-by-night real estate firm declared it was going to ‘develop’ Rancho Colorado with housing, (to cash in on the expansion of the post) even though it had no water and very poor prospects for a successful development on that arid land. The Army could have condemned that other-wise useless strip – for a sound barrier for towns east of I-25. But the 3 man El Paso Board of County Commissioners voted 2 to 3 against the Army condemning it for the needs of the Army. On knee-jerk ideological grounds of supporting ‘private development’ over ‘government’ needs. So the Army declined to do condemn it , even though decades later after a half-baked development was started there, losing money, the NIMBY complaints started up from the handful of people who lived on that extremely marginal strip. Much later (after 2000) the developer was more than ready to negotiate a sale of the land to the Army. He was bailed out of his bad investment by the Army which was forced to pay far more than it would have in the first place.

Often totally overlooked in the uses of Fort Carson has been the reliance on Carson for summer field training of Army National Guard units from Colorado and adjacent states. Especially are needed by them the live firing ranges and the Impact Area. While currently the Reserve units of the Army are getting lots of real-war training in combat theaters, as active duty troop levels are reduced post Afghanistan there is bound to be continued reliance on National Guard and Reserve component which require training areas,

such as Fort Carson across the spread-out west to keep their military skills up.

The only bright spot during those early days was the building of Butts Army Airfield for aviation support and training. As Army aviation BEGAN to become ever more militarily important for all types of operational needs. Both fixed wing and rotary wing aircraft were stationed there, flying training missions, support-of-ground-unit missions, administrative missions, at Fort Carson, and into the Rocky Mountains. Fort Carson’s helicopters were the genesis through the MAST program of almost sole reliance on civilian mountain rescue missions by 1970, then enabling a transition from almost sole reliance in 1970 to current dependence on private hospital and government helicopters

And of course the then small Special Forces units stationed at Carson (now a full SF Group) relied on those aircraft for their extreme and classified training. That need continues. Whether or not there will be sufficient Army Aviation resources at Fort Carson to support continuous (always ready for missions) Special Forces units,

will also weigh in the balance of whether Fort Carson should be shut down or not.

Then followed the costly acquisition of the Pinion Canon Training areas. Which ONLY occurred at huge and recurring annual expense because the Army folded on its planned expansion of Fort Carson to the south toward Pueblo? Now, if the Army is not permitted to develop, FULLY including for Live Fire, and full Aviation operations will start the shutdown of Fort Carson.

Carson does not exist for the economic benefit of Colorado.

As my comments above imply, I stand in defense for the ESSENTIAL TRAINING of soldiers at Fort Carson, on the post, at also in the Pinion Canon Training area, with and without live fire, in the mountains on Federal land, or by land owner permission, by lease or sale.

I am sick and tired, after 40 years monitoring the incessant NIBMY resistance, all the way to Congress for both expansion of Carson at Pinion Canon and full training at or over Fort Carson. I insist that Army, for a change, stand up the complete training needs of the SOLDIER, and not the ENVIRONMENT.

I am a Colorado Native who grew up on my Family 3,000 acre Cattle Ranch SE of Denver, homesteaded in 1898, rode in the National Horse Show and Rodeo, and knew cattle ranching before my military career. I know how Ranchers try to cling to their land. As if there is NO other consideration as important. But who also, not forced by the Draft to fight for this country (not volunteer) and thus won't pay the price soldiers do who are not trained the best and most complete way the US and its Army can train them.

Put that Aviation Brigade at Fort Carson where it belongs. I am already fully knowledgeable that the Army will promulgate a huge host of limitations and restrictions on all military training units anyway. I am not the bit worried about commander at Fort Carson damaging the Environment or disturbing the population any more than it is necessary for their TRAINING MISSION.

David R Hughes, Colonel (Ret)
DSC, SS w/2 OLC, BSV w/OLC, PH w/OLC, CIB w/Star
Designated 2004 Distinguished West Point Graduate.

PS. I will testify and confront face to face ANY Colorado resident or politician in hearings who holds that environmental protection is first priority OVER the Combat Soldier training needs at Fort Carson. And if the final decision is against the training needs for Fort Carson units, I will be the FIRST to lobby the Army to close down Fort Carson permanently.

ITEM: 51.	AGENCY (COMMENTS NAME): Individual (Kay Woltman)	LOCATION: Fort Carson, Colorado	TYPE: General
------------------	--	--	----------------------

Comments

Via email dated 1/4/2011:
In regards to the Army moving a Combat Aviation Brigade to Colo. Springs, CO. EIS # 20100438

Moving this unit to the Fort Carson Army Base would be in the best interest of all related parties. Fort Carson provides the means necessary for this type of military training. It is the only training that is not available right now at Fort Carson.

It would bring soldiers & their families to the Colorado Springs area, which would mean growth & jobs for our community.

We have the experience & expertise with the number of military bases that are already located in this area.

Response

Thank you for your comments.

ITEM: 52.	AGENCY (COMMENTER NAME): Individual (Dan Moberly)	LOCATION: Fort Carson, Colorado	TYPE: General
Comments		Response	
<p>Via email dated on1/4/2011: I would like to express my approval for a new Combat Aviation Brigade at Fort Carson, Colorado. I am a 58 year old resident of Colorado Springs, and living here all of my life I know what an important role Fort Carson plays in our community. Being in the Army back in the 1970's I know how important air support is to ground troops. Fort Carson has the space, the facilities to accommodate a new Brigade, and Colorado Springs can accommodate the personnel's needs.</p>		<p>Thank you for your comments and support.</p>	
ITEM: 53.	AGENCY (COMMENTER NAME): Individual (Lynne Gish)	LOCATION: Fort Carson, Colorado	TYPE: General
Comments		Response	
<p>Via email dated on 1/4/2011: Colorado Springs and the surrounding area has been blessed with the presence of Fort Carson for many years. The additional troops that would be stationed at Fort Carson and the impact on the local economy far outweighs any perceived negative environmental affects.</p> <p>Colorado Springs would welcome a Combat Aviation Brigade.</p>		<p>Thank you for your comments and support.</p>	
ITEM: 54.	AGENCY (COMMENTER NAME): U.S. Department of Agriculture, Forest Service (Jerri Marr)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (helicopters)
Comments		Response	
<p>Via email dated 1/5/2011: The attached comments concerning your Federal Register Notice should have been sent to your attention. Your notice appeared on the same page as a notice of mine and the respondent erroneously picked up my name for submission of their public comments.</p> <p>Please take for action.</p> <p>Via letter dated on 12/15/2010: The Pike and San Isabel Forests and Cimarron and Comanche National Grasslands National Environmental Policy Act (NEPA) staff reviewed the Army's Draft Programmatic Environmental Impact Statement (PDEIS) for the Growth, Realignment, and Stationing of Army Aviation Assets. The document does not disclose how the increase in helicopters stationed at Fort Carson might impact the use of National Forest System lands on the Forests and Grasslands. The Pike and San Isabel National Forests, in particular, have concerns with the additional helicopter detachments because the Environmental Assessment (referenced on PDEIS page 5-59) that authorized high altitude helicopter training on the Forests specifically states, "there are no sites either on Fort Carson or Pinon Canyon Maneuver Site that meet requirements for this training in terms of elevation and associated topography". This statement leads the Forests to believe that any increase in helicopters on Fort Carson that increases training would most likely direct a portion of that new training onto the Forests.</p> <p>The Forests and Grasslands realize that Forest System Lands provide a variety of unique geographic and topographic settings to conduct training activities. However the use of the Forests for training must be balanced with other uses as evidenced by the following statement from the Master Agreement between the U.S. Department of Agriculture and the U.S. Department of Defense, "training on National Forest System lands will be authorized when compatible with other uses and in conformity with applicable forest plan(s)."</p> <p>The Pike-San Isabel National Forests and Cimarron-Comanche National Grasslands are requesting the Army include analysis in the Programmatic Final Environmental Impact Statement (PFEIS) to show the potential effects of increased helicopter training on National Forest System Lands and the Pinon Canon Maneuver Site as</p>		<p>Thank you for your comments. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment.</p>	

a result of the potential re-stationing of helicopter units to Fort Carson. The Forests and Grasslands consider a change from 24 helicopters now to as many 224 in the future significant enough to require additional detailed analysis on potential effects to Forest System Lands.			
ITEM: 55.	AGENCY (COMMENTS NAME): Individual (Carmela Trujillo)	LOCATION: Fort Carson, Colorado	TYPE: Aviation, Noise, and Wildlife
Comments		Response	
<p>Via email dated 1/5/2011:</p> <p>I am writing to comment on the Environmental Impact Statement being prepared concerning the addition of a full Combat Aviation Brigade at Fort Carson. Several aspects of the local environment will be adversely affected by the addition of 120 helicopters and up to 2,700 more troops to Fort Carson. I live in a secluded area not far from several of the Landing Zones for Army helicopters. The Rampart Range cluster of Fort Carson Landing Zones is only a few miles from us here at Mount St Francis. A dramatic increase in flights to and from those Landing Zones would greatly affect our normally peaceful environment. In addition our region is blessed by many acres of forest lands that are ideal for hiking and camping. The existing level of use of the National Forest is already impacting our area.</p> <p>Our local economic and political environment is already saturated by the giant military presence of the Army and Air Force in the region. A major increase such as the one being proposed would only exacerbate that problem. We desperately need diversity in our local economy. This expansion would be a step in the wrong direction.</p>		<p>Thank you for your comments. We understand your concern about the potential for increased disturbance. As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible.</p> <p>We also acknowledge your concern about potential impacts on hiking and camping on National Forest System lands. As explained in the response to comment #3 above, the Army's use of these lands is governed by formal agreement with the U.S. Forest Service and analyzed within a separate environmental assessment. The Army intends to remain consistent with the agreement and this assessment, meaning that use of the National Forest System lands by the Army will not exceed levels previously agreed upon and analyzed within these documents.</p>	
ITEM: 56.	AGENCY (COMMENTS NAME): Individual (Aaron J. Weil)	LOCATION: Fort Carson, Colorado and Joint Base Lewis-McChord, Washington	TYPE: Transportation
Comments		Response	
<p>Via letter dated 12/23/10:</p> <p>We have one freeway I-5 that runs through Ft. Lewis, three lanes each way for eight miles. At Ft. Lewis they have six to eight exits, all but two exit onto I-5. The others exit to two lane roads one in each direction.</p> <p>The freeway needs more lanes that will take years to build. If you came here to look you would be in gridlock both north and south from 7AM to 9:30AM and from 2PM to 6PM every weekday. I live in Lacey my wife works at State Farm Insurance in DuPont. Before all the extra people you have already added at the fort, it took my wife 10 minutes each way to get to work and return at night. Now most days it takes 25 minutes. If there is an accident in the north or south lanes, the back-up could be 10 miles or more. In the summer with tourist using the only N/S freeway, it is worse.</p> <p>The money to expand the freeway and build a cross base road, which they have talked about for years to be built is not available in this economy. And what about the delays during construction?</p> <p>As a retired Air force sergeant who uses the freeway and fort and base for services and all the people who work on and around Ft. Lewis and McChord, this would be a bad idea. If I were on active duty and you sent me to this mess, it sure would affect how I performed my duties.</p> <p>Please, please, please do your homework and give this opportunity to some other area or this country that has the area and roads to support your mission. Lots of other states would love to have you. I-5 is filled up and overflowing.</p> <p>I'm enclosing this interoffice State Farm memo. Share the info. and not the names.</p> <p>Via e-mail dated 11/02/2010 One of our employees was able to attend a meeting with local city administrators and Intel to review JBLM</p>		<p>Thank you for your comments. Please refer to the response to comment #26 for information on transportation impacts to JBLM and the surrounding community. As noted in the response to comment #26, the Army is now considering only stationing a subset of the aviation units comprising a CAB at JBLM. Instead of up to 2,700 Soldiers, the Army is considering reducing the scope of aviation unit stationing at JBLM to 1,400 Soldiers. Such a final decision to reduce the total number of Soldiers and Family members is being considered in light of the significant transportation impacts at JBLM, and should help to reduce impacts to regional traffic and transportation networks. A final decision on this reduction in stationing numbers will be made as part of the Record of Decision concluding this environmental impact analysis process.</p>	

growth plan and traffic study. Below is a brief summary and facts regarding the base and the traffic concerns. Please note the following and the possible impact to the DuPont office as traffic becomes more congested.

What to expect in the next couple of weeks. Approximate 18,000 soldiers have been on leave and will be returning. Traffic might become congested again when the soldiers start to return to their duties on JBLM. They will continue to look for solutions to this problem, but it looks like the real fix is to add another lane to I-5 and this could take approximate 10 years and around \$600 million dollars to complete it.

Joint Base Lewis McChord recent growth has increased from 35,331 to 50,587 (43%) for personnel (both military and civilian) and associated family members grew from 36,399 to 54,444 (77%). As many as 18,000 + troops returned from deployments this fall. An anticipated growth is expected to increase the total number of direct personnel to 52,404. By 2016, JBLM will support 136,124 soldiers, airmen, dependents and employees, in addition to the 117,971 military retirees already present. Total population accessing JBLM on a regular basis is estimated to be 254,095.

ITEM: 57.	AGENCY (COMMENTS NAME): Individuals (Charles and Carol Gwyn)	LOCATION: Fort Carson, Colorado	TYPE: Transportation, Noise, and Socioeconomics
------------------	--	--	--

Comments	Response
-----------------	-----------------

Via letter dated 12/28/10:
Please do not allow the transfer of the proposed helicopter brigade and any further expansion of the Fort Carson Army Base in Colorado Springs for the following reasons:

1. The urban sprawl of apartment complexes supporting Ft. Carson has added thousands of low cost apartment units and has overloaded the City infrastructure. Increased traffic has saturated the existing street and highway capacity in the southern part of the Springs with attendant increases in traffic accidents and delays and no accompanying road improvements other than entrance roadways into the base.
2. Noise from Base training exercises and maneuvers and accompanying aircraft has eliminated the quiet residential environment along the front-range and southern part of the city both day and night.
3. There has been a dramatic increase in city crime including home invasions, burglaries, assaults and homicides.
4. There have been additional increases in costs for automobiles, appliances, and commodities to accommodate discounts given to military personnel.
5. For aircraft exercises, the low altitude flights along the front-range and up the canyon toward Woodland Park have drastically disturbed the residential and wildlife environments.
6. Although the expansion of Ft. Carson during the early part of this decade appealed to the business interests of the Springs, any additional expansion will completely destroy any remainder of the once tranquil community and eliminate the attractive living environment that was experienced during the previous 25 years when the Springs was noted as a community that encouraged new start up businesses, provided an ideal environment for raising a family, and a community for retirees.

Although we have been silent on the above issues in the past, the continued destruction of the Springs environment by the Army has reached the breaking point. In order to conserve the remaining City environment, we request that you not consider any further additions to the Base and instead choose rural locations for military expansion where the environmental impact is less

We appreciate your comments. Please see the response to Mr. Gwyn's comment #40 above, which

We acknowledge your concerns about the potential impacts of the proposed actions on the surrounding community. As noted in the PEIS section analyzing socioeconomics, Section 5.11, we anticipate the cumulative socioeconomic impacts of CAB stationing to be less than significant. Traffic impacts to Fort Carson and PCSM are analyzed in the PEIS at Section 5.12, page 5-55.

Noise impacts to Fort Carson and PCMS are analyzed in the PEIS at Section 5.6, page 5-19. As explained in the PEIS at Section 5.12.1, page 5-57, and in the Operational Noise Study referenced at Appendix B, page B-38, Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas.

We are not aware of data showing an increase in local crime rates nor additional costs for consumer goods related to the proposed action or past actions of the Army impacting Fort Carson. In accordance with 42 C.F.R. Section 1508.14, a NEPA analysis need address economic or social effects only to the extent that they are "interrelated" with "natural or physical environmental effects."

To be clear, as noted specifically on page 2-12 of the PEIS, none of the proposed actions would require land expansion for either Fort Carson or PCSM; however, there would be an increase in Soldiers and aviation assets stationed and training at Fort Carson and PCMS.

ITEM: 58.	AGENCY (COMMENTS NAME): Friends of the Peak (Michael Cotter)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (noise, recreation, and biological resources)
------------------	--	--	---

Comments	Response
-----------------	-----------------

Via e-mail dated on 01/06/11:
Please find attached comments on the CAB at Fort Carson, Colorado from Friends of The Peak.

Via letter dated 01/06/11:

Thank you for your comments. We acknowledge your concerns about impacts of the proposed actions on recreational hikers and on the environment of Pikes Peak in general. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as

I am writing on behalf of Friends of The Peak to voice our concerns over the establishment of a Combat Aviation Brigade (CAB) at Fort Carson, Colorado. While we are not opposed to the CAB being stationed at Fort Carson, we would like the Army to consider making the Pikes Peak massif and the surrounding area a no training zone and no fly zone due to the unique features of the area.

Friends of The Peak is an all-volunteer organization dedicated to preserving, restoring and appreciating Pikes Peak. Over the last 15 years we have been involved in advocating and volunteering to preserve and rehabilitate endangered habitat on Pikes Peak. This includes efforts with tundra above tree line and waterways below the Pikes Peak Highway. Our efforts have also focused on maintaining and creating hiking trails on Pikes Peak to give the public access to the many different areas on Pikes Peak while limiting harmful impact.

Pikes Peak currently has a small herd of bighorn sheep that has been decreasing in size. Both the Colorado Division of Wildlife and the US Forest Service are concerned about the impact of people on the bighorn sheep. If the CAB is allowed to train and fly over Pikes Peak they could have a huge impact on these sheep. In addition, Pikes Peak has a number of historical sites and fragile forest lands that could be permanently damaged by training missions on the Pikes Peak massif.

The recreational users in the Colorado Springs area are drawn to Pikes Peak due to its ease of access, the diverse recreational opportunities, and the sense of solitude. The current helicopters stationed at Fort Carson can regularly be seen around Pikes Peak and can often be heard even when they are a distance away. The potential 6 fold increase in the number of helicopters stationed at Fort Carson has the potential to negatively impact the recreational users in the area and create bad will towards the troops at Fort Carson. By limiting the flyovers and training sessions on Pikes Peak, the Army can positively influence public opinion and show they are listening to the concerns of the Pikes Peak users.

The Board of Friends of The Peak fully recognizes the benefits that the Army provides to the Colorado Springs area and the Nation. We also recognize that the parts of Pikes Peak that make it unique are also the parts that make Pikes Peak attractive for the Army to use in training the troops. However, Fort Carson is unique in that it is close to a number of mountainous areas that can be used for training, both Army areas and less used public lands. We hope that the Army will recognize the unique character of the Pikes Peak massif and work to find an alternative to using this area. In addition, we hope that the Army will open a dialogue with the public to communicate their plans and be open to the feedback that they receive about these plans.

analyzed in the 2007 Environmental Assessment.

ITEM: 59.	AGENCY (COMMENTER NAME): Individuals (Mary and Tom Mourar)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (noise, biological resources, recreation, and health & safety)
------------------	--	--	--

Comments	Response
<p>Via e-mail dated 01/06/11: This letter is to provide comment on the Draft Programmatic Environmental Impact Statement (PEIS) for the Growth, Realignment, and Stationing of Army Aviation Assets and concerning the potential establishment of a Combat Aviation Brigade (CAB) at Fort Carson, Colorado. We understand the importance of managing the military and its training for current and future demands but are concerned about the potential impact of the proposed increase in helicopter numbers on the Colorado Springs metropolitan area and the surrounding environment.</p> <p>We find it hard to believe that the PEIS did not find a significant impact related to increased noise. As residents of Colorado Springs, we find that we are already significantly impacted by the noise related to current military operations and functions in the area. The PEIS specifies how the helicopters will travel beyond base boundaries to limit the impact of their noise but provides too many exceptions. We've also found that helicopters flying around and over the city to be quite loud even at 1000 feet and are concerned about the noise from 110 more helicopters.</p>	<p>Thank you for your comments. We acknowledge your concerns on noise, safety, quality of life, and impact on the environment. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment.</p> <p>As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible. We also acknowledge that noise from helicopter operations can impact wildlife. Additional information has also been added to Sections 5.6.2 and 6.6.2 of this PEIS to discuss noise impacts to wildlife. We continue to conclude that impacts to noise from potential CAB stationing to Fort Carson would be less than significant.</p>
<p>The PEIS does not address the training sites used in the Pike/San Isabel National Forest other than to mention</p>	<p>We acknowledge your concern about safety, and assure you that the Army is fully</p>

the Special Use Permit. This omission raises serious concerns with the PEIS.

An Environmental Assessment was conducted in 2007 (Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training, October 2007) for the 24 helicopters at Fort Carson. According to the PEIS, the number of helicopters will increase by an additional 110 or 120. Therefore, the 2007 Environmental Assessment is inadequate for this large number of helicopters and another Environmental Assessment needs to be conducted to truly assess the impact of the significant increase in helicopter numbers and their use of the current or other landing zones on National Forest land. This updated EA should be completed prior to the decision to proceed with moving the CAB to Fort Carson.

Pikes Peak is a popular recreation area and is heavily used by residents of the area as well as visitors from every state and outside of the United States. The idea of using it as a training zone for military helicopters has us concerned about the safety of recreation users and the experience of the visitors.

The Environmental Assessment and Special Use Permit describe the concerns about use of landing zones during the hunting season, summertime high recreation use, and Christmas tree cutting which means the Army acknowledges the impact on humans in the National Forest. The Colorado Springs economy depends on income from tourists, not just the military. These concerns were not addressed in the PEIS.

The PEIS describes steps that will be taken to mitigate the noise around the metropolitan area, but doesn't address the impact on wildlife. Recreationists and residents of the area have already noticed changes in wildlife habits after helicopters have used the landing zones. Landing zones on Pikes Peak and Rampart Range are near protected locations where bighorn sheep lamb and elk calve.

We're also concerned about the landing zones (currently designated LZ1 and LZ2) near the Rampart East Roadless Area in the South Rampart Range. Although it does not have a wilderness designation it has been identified as having wilderness-like qualities by the Forest Service and citizens of the state. This large tract of undeveloped land provides a large habitat zone, possibly including sensitive or endangered species, as well as a wildlife travel corridor from the mountains to the plains, which has become increasingly endangered in Colorado's Front Range.

With these concerns, we suggest that the Army reassess its findings of No Significant Impact related to noise and quality of life for the residents of Colorado Springs metropolitan area. We think that there will be significant impact from the additional helicopters that needs to be addressed prior to moving any CAB to Fort Carson.

We also think the Army should conduct a new environmental analysis to fully consider the impact of the four-fold increase in number of helicopters and their use of landing sites within the National Forest. The environmental analysis should consider the impacts on the wildlife in areas immediately surrounding the landing zone as well as under the flight corridors approaching these zones. The analysis should also provide a full assessment of the impact on human use of these zones, with the high level of recreation use on Pikes Peak and the wilderness-like experience of the Rampart East Roadless Area.

committed to aviation safety. Aviation accident prevention is an integral part of the Fort Carson Safety Program and applies to all aviation units assigned to or operation on Fort Carson. It includes certain mandatory weather-related restrictions and requirements. With safety policies contained in Fort Carson Regulation 95-1, contractors engaged in maintenance, industrial, ground and flight operations on Fort Carson are also part of the team ensuring safety standards are implemented. The Safety Program applies to not only military personnel, contractors, and military equipment, but also applies to ensuring the public is kept safe. The Army continuously works to identify hazards, assess the hazards, develop controls and countermeasures, implement the controls and most importantly provide supervision on all aviation missions.

ITEM: 60.	AGENCY (COMMENTS NAME): Individual (Susan Gordon)	LOCATION: Fort Carson, Colorado	TYPE: Noise, biological resources, and socioeconomics
------------------	---	--	--

Comments	Response
<p>Via e-mail on 01/07/11:</p> <p>Attached please find my comments regarding the potential establishment of one or more Combat Aviation Brigades.</p> <p>Via letter dated 01/06/11:</p>	<p>Thank you for your comments. We acknowledge your concerns about noise impacts. As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Specifically, Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training</p>

I am writing to express my concern about the proposed addition of a Combat Aviation Brigade at Fort Carson, Colorado Springs, CO. I manage Venetucci Farm, a 190 acre diverse farm located approximately 2 miles directly east of the base. I am very concerned about the potential negative impact the noise from the increased number of flights over and near the farm will have on the farm animals, as well as on overall quality of life. Almost daily during the summer months, we hear the noise from the firing ranges, as well as from frequent flyovers of military aircraft. An increase in the number of helicopter flights will certainly add to that negative impact.

Because we spend much of the day out doors, the loud, incessant noise from the range and low flying military aircraft negatively impacts our work space. It has been reported that the CAB unit would involve about a 500% increase in helicopter activity to and from the base and in the surrounding mountains. Not only will this add to the negative impact on quality of life that we already experience due to our close proximity to Ft Carson, but it will also potentially annoy campers and hikers who travel to Colorado to enjoy the serenity of the mountains. The mountains west of Colorado Springs are already home to 16 Landing Zones used for flight training.

In addition to the 120 helicopters scheduled to be housed at Ft Carson, the CAB unit means the addition of 2700 troops and their families. I am concerned that not enough attention has been given to the economic and social impact that the influx of these troops will have on the Colorado Springs and surrounding communities. Infrastructure including roads, parks, public schools, social services and fire and police services are already stretched and underfunded. The increase in population from the CAB unit will put additional demands on these systems and services that are neither prepared nor adequately funded to respond.

Thank you for the opportunity to express my concerns regarding the proposed addition of a Combat Aviation Brigade at Ft Carson. As Military leaders look for ways to implement the \$78 billion cuts recently called for by Secretary Gates, the CAB would be a good starting place.

whenever possible.

Please note, as explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment.

We acknowledge your concerns about the potential socioeconomic impacts of the proposed actions on the surrounding community. With regard to the increased demand for infrastructure and services in the surrounding communities to support higher populations, we believe the socioeconomic impacts related to a potential CAB stationing is adequately addressed in this PEIS and Fort Carson's 2009 *Grow the Army* FEIS, which is incorporated by reference in this PEIS. The greatest level of detail is in Appendix H of the 2009 FEIS, an analysis titled "Socioeconomics Economic Impact Forecast System." The increased demand for services provided by local governments would be partially off-set by increased tax base (e.g., sales tax, property tax) created by the increased population resulting from a potential CAB stationing. We conclude that socioeconomic impacts from a potential CAB stationing at Fort Carson would be less than significant.

ITEM: 61.	AGENCY (COMMENTS NAME): Wild Connections (James Lockhart)	LOCATION: Fort Carson and Piñon Canyon Maneuver Area, Colorado	TYPE: Aviation (helicopters), Noise, and Wildlife
------------------	---	---	--

Comments

Response

Via email dated 1/7/2011:

Thank you for your comments. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment.

The following comments are made on behalf of the undersigned environmental groups: Central Colorado Wilderness Coalition, Great Old Broads for Wilderness, Quiet Use Coalition, Rocky Mountain Chapter of the Sierra Club, San Luis Valley Ecosystem Council, and Wild Connections. They concern the portion of the Draft Programmatic Environmental Impact Statement (PEIS) that addresses the Growth, Realignment, and Stationing of Army Aviation Assets concerning establishment of a Combat Aviation Brigade (CAB) at Fort Carson, Colorado.

According to the PEIS, bringing a full Combat Aviation Brigade to Fort Carson would more than quadruple the number of helicopters stationed there, increasing it from the current 24 to at least 110 and 120, or as many as 144 if a new CAB were activated in addition to the units already stationed at Fort Carson. This would require a presumably proportionate increase in the use of mountainous areas in this part of Colorado for high altitude training purposes. Whether this would be done by increased use of existing training areas or by identifying and utilizing additional areas, or both, the impact would clearly be significant. We are concerned that this could have significant adverse impacts on wildlife and human recreational use of Pike/San Isabel National Forest.

The PEIS gives very little consideration to these impacts, except in the vicinity of Fort Carson and the Pinon Canyon Maneuver Site. With regard to Pike/San Isabel National Forest, it states only:

5.12.1 Affected Environment

Additionally, lands of the Pike/San Isabel National Forests have been used to provide the Army and Fort Carson locations related to mountain/high altitude training of helicopter pilots and instructors since about 1978 and is operated under a Special Use Permit. An Environmental Assessment was conducted in 2007 (Use of National

Forest System Lands for Mountain/High Altitude Military Helicopter Training, October 2007) in cooperation with the USFS for reissuance of the Special Use Permit. There are no flights or operations conducted in the vicinity of Federally designated wilderness areas and adherence is maintained as to environmental and safety laws and regulations that are in place for this type of activity.

The PEIS in other contexts recognizes that helicopter operations can have very significant impacts. It describes an Environmental Noise Management Program aimed at managing and limiting noise impacts to the surrounding communities. It notes that to minimize these impacts, helicopters normally maintain a minimum of 1,000 feet (304.8 m) above ground level (AGL), and 0.25 mile (0.4 km) standoff outside Fort Carson while flying through the mountain passes until clear of inhabited areas. It identifies the following as “noise sensitive” areas: residential areas, schools, office space, and child development centers, and also Cheyenne Mountain State Park, west of Fort Carson, presumably because of human recreational use. We suggest that the same is true of areas in Pike/San Isabel National Forest where helicopters would not simply be flying over at relatively low altitudes, but practicing hovering or landing. We therefore suggest that potential impacts to these public lands need to be considered in order to form a proper basis for analysis of the action alternatives.

Although the PEIS describes cumulative noise impact to be "Mitigable to Less Than Significant", we believe that the actual impacts in the vicinity of the landing zones are extreme. According to the 2007 Environmental Assessment mentioned above, training is prohibited in most of the landing zones during hunting season; in five of the zones during the summertime due to heavy recreational use; and in three zones during late November through mid-December due to Christmas tree cutting. No landing is permitted in any zone when people or vehicles are present. This suggests that the training is considered incompatible with nearby human activities. In fact, it seems that no human or animal would remain within one or two hundred feet of a low-hovering military helicopter because of noise (up to 97.5 db at 200 feet according to the 2007 EA) and wind currents from the rotors. Human and wildlife activities would presumably be affected to a significant degree at a considerably greater distance. Frequent helicopter use of an area could cause both humans and animals to abandon use of it. We suggest that these impacts cannot be mitigated, except by choosing training times and locations that, to the maximum extent possible, avoid conflict with human and wildlife activities.

Although none of the landing zones are located in designated wilderness areas, several of them are within or adjacent to Forest Service inventoried roadless areas which Wild Connections has identified as suitable for wilderness designation in the Wild Connections Conservation Plan; namely the Weston Peak roadless area west of Fairplay, and the Front Range

(Rampart East) roadless area northwest of Palmer Lake. (For further description of the Wild Connections Conservation Plan, see the Wild Connections website at <http://www.wildconnections.org/conservationplan.html>.) The lack of a current formal wilderness designation in these areas does not mean the character of the land is any less important, nor that helicopter traffic flying close to the ground, hovering, or landing in these locations is any less impacting to humans and wildlife. Indeed, these areas, and indeed other roadless areas within Pike/San Isabel National Forest, are important as core areas where wildlife can exist with relatively little human interference.

We suggest that in order to properly analyze these impacts, the Army needs to:

1. Consider whether changes in other uses since 2007 require reexamination of the current sites' suitability. We note in particular that the Pikes Peak Ranger District is in the process of completing the South Rampart Travel Management Plan, which could significantly affect recreational use in the vicinity of the approved landing zones in the Rampart Range and near the Rampart East Roadless Area.
2. Consider the cumulative impact of more helicopters using the existing training sites.

3. Consider whether these impacts would require, or make it appropriate to consider, deletion of some existing training areas or landing zones, and designation of new ones to reduce the impacts. If so, identify and analyze the impacts of this action.			
Since this proposal has impacts to human recreational use, we feel that it would be appropriate for the Army to take public comment on this proposal, with the idea of not only identifying areas of substantial human use, but also areas where recreationists are devoted to “quiet use” activities that would be more significantly impacted by helicopter noise and intrusion on a natural landscape.			
ITEM: 62.	AGENCY (COMMENTS NAME): Individuals (Mona & Burt Imber)	LOCATION: Fort Carson, Colorado	TYPE: Noise
Comments		Response	
Via email dated 1/6/2011: Our only concern regarding the proposed helicopter brigade is the potential noise impact on the environment of the south Colorado Springs area. The thought of helicopters flying over our peaceful residential area at any time of the day is frightening. It would have a significant impact on our property values if the airspace is not restricted to much further south from Fort Carson.		Thank you for your comments. We acknowledge your concerns on noise impacts. As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible.	
ITEM: 63.	AGENCY (COMMENTS NAME): FAA Western Service Center (Douglas Switzer)	LOCATION: Not specified	TYPE: Airspace, Noise, and Transportation
Comments		Response	
Via email dated 1/7/2011: The FAA has the following observations regarding the PEIS For the Realignment, Growth, and Stationing of Army Aviation Assets dated November 2010: 1) Concur with the document conclusion that no changes or additions to existing Special Use Airspace or Air Traffic Procedures are necessary, as well as no new airspace or procedures. 2) The Significant Impacts identified in the document, particularly the cumulative impacts to the Noise and Transportation & Airspace categories are noted.		Thank you for your comments. We note your concurrence regarding Special Use Airspace and Air Traffic Procedures.	
ITEM: 64.	AGENCY (COMMENTS NAME): Trails and Open Space Coalition (Susan Davies)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (helicopters), Noise, and Wildlife
Comments		Response	
Via email dated 1/7/2010: The Trails and Open Space Coalition has consistently advocated for trails and open space in the Pikes Peak region. We are supported by more than a thousand members. We consistently work to improve the trail/open space experience for local hikers and cyclists. We would like to submit the following comments concerning the Draft Programmatic Environmental Impact Statement (PEIS) for the Growth, Realignment, and Stationing of Army Aviation Assets. This being the PEIS covering the potential establishment of a Combat Aviation Brigade (CAB) at Fort Carson, Colorado. We understand the establishment of a CAB at Fort Carson will have a positive economic benefit for the Pikes Peak Region. And we appreciate the invaluable service that Fort Carson Personnel have provided in fighting wild land fires and in the search and rescue of civilian users of public lands. But we are very concerned about a proposal that would increase the number of helicopters from 24 to 120. We would ask that you take into consideration the impact that amount of activity will have on recreational users, the impact of noise on wildlife and impact on the environment from military training. Our members tell us the noise of three or four helicopters circling above on Pikes Peak is significant.		Thank you for your comments. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment.	

We don't pretend to understand what kind of impact that increase will have on wildlife and the environment. Further environmental investigation will do a better job out assessing the risk and determining if this project should go forward as planned. All we ask is that you consider what the effects will be as you make your decision. Thank you for this opportunity to comment.

ITEM: 65. **AGENCY (COMMENTS NAME):** Individual (Claude Neumann) **LOCATION:** Fort Carson, Colorado **TYPE:** Aviation (biological resources, recreation, health and safety, and noise)

Comments **Response**

Via letter dated 1/7/2011:
I would like to take the opportunity to submit comments regarding the PEIS for the Growth, Realignment, and Stationing of Army Aviation Assets concerning the potential establishment of a Combat Aviation Brigade (CAB) at Fort Carson. While I do recognize the importance of maintaining proper and authentic training conditions for necessary military operations, I must question proceeding with this proposal without adequate study.

My concern regarding this proposal of increased training operations is the flights over and landing zones in or near the National Forest, and specifically the Rampart East Roadless Area (RERA) northwest of Palmer Lake and other roadless areas in the immediate area. Allowance for these operations is currently under a special use permit with the Forest Service for the past 28 years. An environmental assessment (EA) was apparently done in 2007 to renew this permit.

I am a frequent quiet use / recreational user of this area and have also worked for over 10 years with the various stakeholders in trying to achieve protection of these areas. My major concerns and points are itemized below. My efforts include work with the Colorado Mountain Club, Douglas County, Wild Connections Conservation organization, and the Forest Service. Though my comments are specific to the above areas to the north of Ft Carson, I also have serious concerns about the additional operations in the Pikes Peak area from Colorado Springs to Pinyon Canyon.

Substantial Increase In Operations & the EA- My first concern is what I feel is the inadequacy of the existing EA (environmental assessment) for either the previously approved operations and especially the expanded operations. Under this proposal, I feel a four fold increase in operations will have substantially greater affects on human use and wildlife in the areas affected. The EA appears to have done little consideration of these ramifications under the present level of operations, and I feel would be especially inadequate for the expanded operations.

Importance of the affected Area - This area has also become of much more concern over those 28 years as it is literally an island in the midst of heavy recreational use to the west and and human expansion to the east. Since the 1976 congressionally mandated formation of inventoried roadless areas, many of us have worked diligently to assure that these last vestiges of wild and undeveloped land remain as is, as much as possible.

Many of them are under consideration for potential wilderness. (reference to the Citizens proposal for wilderness, Wild Connections Conservation Plan published by "Wild Connections"). These areas, along with the established Wilderness areas are critical to preservation of remaining open and wild lands.

Affect On Wildlife - Protection of the above areas becomes critical when considering the overwhelming data suggesting that encroachment and degradation of habitat has a profound affect on wildlife survival and wildlife movement, particularly close to an urban area. . The areas are especially important as refuge for our remaining wildlife which are also "crammed" in between that surrounding activity. Helicopter operations produce substantial disturbance and with a certain frequency of operations, one must seriously question the magnitude of the affects. Yet the EA does not appear to have done that. These roadless areas represent an important component in the survival of wildlife. An EA must carefully consider the ramifications of intense operations as proposed.

Thank you for your comments. Your comments appear to be directed at the October, 2007 Environmental Assessment for the Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training. As explained in the above response to comment #3, change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment is not part of the proposed action analyzed in this PEIS.

Affects on Humans – Human quiet use of the area could also be significantly impacted. Being in the midst of surrounding disturbances from human activity, they represent an important refuge for human respite and recreation. Increasingly they will be important for that purpose, because of the proximity of urban areas nearby. Another possible affect to humans is elevated danger of fire from these operations that should be considered in the EA.

Better Places for Operations – Since a substantial amount of forest land is already heavily used in the area for motorized – noise producing activity, I feel serious study should be given to confining operations to these areas where wildlife and human activity has already been disturbed. Perhaps this study would clarify whether the intuitive conclusion that wildlife (and human quiet users) are better served by not having to flee the few areas where they have reached a level of solitude.

Dispersed Operations – I also question whether further dispersal of these operations would be a more optimal solution than the apparent concentration of activity in one general area. This question may be better resolved in a more comprehensive EA.

Better Dialogue with the Ranger Districts and Public – It seems that with intensifying operations in one area, the need grows to better communicate with the Ranger Districts involved and the public. I feel the EA should better assess how this can be done as I suspect it has not been done much in the past. In addition, if an expanded operation is indeed instituted, perhaps an ongoing monitoring program would be called for to enable the public on-going chances to offer feedback. It might be important for the EA to more succinctly specify the extent of the operations.

Opportunity for Public Comment – With the increasing public exposure and awareness of these operations, it seems like the public, and technical experts, has not had a proper chance to comment on the proposal. I feel a more expanded environmental assessment would provide that chance for the public to comment before a significant plan is implemented.

SUMMARY - I thank you for receiving and considering my comments and those of the many that are concerned about this proposal. I truly believe that a better EA could help achieve more concerned citizen acceptance and enable our military to have the proper conditions to achieve it's training goals

ITEM: 66.	AGENCY (COMMENTS NAME): The Colorado Mountain Club (Phil Kummer)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (Biological resources and Noise)
------------------	--	--	--

Comments	Response
<p>Via letter dated 1/7/2011:</p> <p>Thank you for the opportunity to comment on the Draft Programmatic Environmental Impact Statement (PEIS) for the Growth, Realignment, and Stationing of Army Aviation Assets and concerning the potential establishment of a Combat Aviation Brigade (CAB) at Fort Carson, Colorado. We are a committee of members from the Colorado Mountain Club and other interested citizens working to protect a designated Forest Service roadless area, the Rampart East Roadless Area.</p> <p>We understand the importance of managing the military and its training for current and future demands but are concerned about the potential impact of the proposed increase in helicopter numbers on the environment surrounding Colorado Springs. The emphasis of the PEIS is on the community of Colorado Springs, the area surrounding Piñon Canyon and points in between.</p> <p>It does not address the training sites used in the Pike/San Isabel National Forest other than to mention the Special Use Permit. This omission raises serious concerns with the PEIS.</p>	<p>Thank you for your comments. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment. Should mountain/high altitude training strategies change in the future, that change would be analyzed in a future, site-specific NEPA analysis.</p>

An Environmental Assessment was conducted in 2007 (Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training, October 2007) for the 24 helicopters at Fort Carson. According to the PEIS, the number of helicopters will increase by an additional 110 or 120. The 2007 Environmental Assessment is inadequate for this large number of helicopters and another Environmental Assessment needs to be conducted to truly assess the impact of the significant increase in helicopter numbers and their use of the current or other landing zones on National Forest land.

The PEIS describes steps that will be taken to mitigate the noise around the metropolitan area. The Environmental Assessment and Special Use Permit describe the concerns about use of landing zones during the hunting season, summertime high recreation use, and Christmas tree cutting. Therefore, both documents acknowledge the potential high impact and safety concerns of helicopter activity and their use of these landing zones. The same impact must also exist for the wildlife.

The 24 helicopters currently stationed at Fort Carson and other military helicopters have already impacted recreation users on Pikes Peak and the Rampart Range to the north of Pikes Peak, including several people being waved off of a point by an approaching helicopter in Rampart East Roadless Area. Recreationists and residents of these areas have also noticed changes in wildlife habits after helicopters have used the landing zones. Landing zones on Pikes Peak and Rampart Range are near protected locations where bighorn sheep lamb.

Although it does not have a wilderness designation, the Rampart East Roadless Area has been identified as having wilderness-like qualities by the Forest Service and citizens of the state. This large tract of undeveloped land provides a large area of wildlife habitat, possibly including sensitive species, and serves as a wildlife corridor from the mountains to the plains. Wildlife corridors have become endangered in Colorado's Front Range from Colorado Springs to Fort Collins.

We are particularly concerned about two landing zones in the Rampart Range that are on the edge of the roadless area, LZ1 and LZ2. Landing Zone 1 is within the roadless area boundaries proposed by citizens.

With these concerns, we suggest that the Army conduct a new environmental analysis to fully consider the impact of the four- to five-fold increase in number of helicopters and their use of landing sites within the National Forest. The environmental analysis should consider the impacts on the wildlife in areas immediately surrounding the landing zone as well as under the flight corridors approaching these zones. The analysis should also provide a full assessment of the impact on human use of these zones, with the high level of recreation use on Pikes Peak and the wilderness-like experience of the Rampart East Roadless Area.

ITEM: 67.	AGENCY (COMMENTS NAME): Wild Connections (James Lockhart)	LOCATION: Fort Carson, Colorado	TYPE: Natural resources (Pike/San Isabel National Forest), Noise, and Aviation (helicopters)
------------------	---	--	---

Comments

Via letter dated 1/7/2011:

The following comments are made on behalf of the undersigned environmental groups: Central Colorado Wilderness Coalition, Great Old Broads for Wilderness, Quiet Use Coalition, Rocky Mountain Chapter of the Sierra Club, San Luis Valley Ecosystem Council, and Wild Connections. They concern the portion of the Draft Programmatic Environmental Impact Statement (PEIS) that addresses the Growth, Realignment, and Stationing of Army Aviation Assets concerning establishment of it Combat Aviation Brigade (CAB) at Fort Carson, Colorado.

According to the PEIS, bringing a full Combat Aviation Brigade to Fort Carson would more than quadruple the number of helicopters stationed there, increasing it from the current 24 to at least 110 and 120, or as many as 144 if a new CAB were activated in addition to the units already stationed at Fort Carson. This would require a presumably proportionate increase in the use of mountainous areas in this part of Colorado for high altitude

Response

Thank you for your comments. As explained in the above response to comment #3, change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment is not part of the proposed action analyzed in this PEIS. Should mountain/high altitude training strategies change in the future, that change would be analyzed in a future, site-specific NEPA analysis.

training purposes. Whether this would be done by increased use of existing training areas or by identifying and utilizing additional areas, or both, the impact would clearly be significant. We are concerned that this could have significant adverse impacts on wildlife and human recreational use of Pike/San Isabel National Forest.

The PEIS gives very little consideration to these impacts, except in the vicinity of Fort Carson and the Pinon Canyon Maneuver Site. With regard to Pike/San Isabel National Forest, it states only:

5.12.1 Affected Environment

Additionally, lands of the Pike/San Isabel National Forests have been used to provide the Army and Fort Carson locations related to mountain high altitude training of helicopter pilots and instructors since about 1978 and is operated under a Special Use Permit. An Environmental Assessment was conducted in 2007 (Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training, October 2007) in cooperation with the USFS for reissuance of the Special Use Permit. There are no flights or operations conducted in the vicinity of Federally designated wilderness areas and adherence is maintained as to environmental and safety laws and regulations that are in place for this type of activity.

The PEIS in other contexts recognizes that helicopter operations can have very significant impacts. It describes an Environmental Noise Management Program aimed at managing and limiting noise impacts to the surrounding communities. It notes that to minimize these impacts, helicopters normally maintain a minimum of 1,000 feet (304.8 m) above ground level (AGL), and 0.25 mile (0.4 km) standoff outside Fort Carson while flying through the mountain passes until clear of inhabited areas. It identifies the following as "noise sensitive" areas: residential areas, schools, office space, and child development centers, and also Cheyenne Mountain State Park, west of Fort Carson, presumably because of human recreational use. We suggest that the same is true of areas in Pike/San Isabel National Forest where helicopters would not simply be flying over at relatively low altitudes, but practicing hovering or landing. We therefore suggest that potential impacts to these public lands need to be considered in order to form a proper basis for analysis of the action alternatives.

Although the PEIS describes cumulative noise impact to be "Mitigable to Less Than Significant", we believe that the actual impacts in the vicinity of the landing zones are extreme. According to the 2007 Environmental Assessment mentioned above, training is prohibited in most of the landing zones during hunting season; in five of the zones during the summertime due to heavy recreational use; and in three zones during late November through mid-December due to Christmas tree cutting. No landing is permitted in any zone when people or vehicles are present. This suggests that the training is considered incompatible with nearby human activities. In fact, it seems that no human or animal would remain within one or two hundred feet of a low-hovering military helicopter because of noise (up to 97.5 db at 200 feet according to the 2007 EA) and wind currents from the rotors. Human and wildlife activities would presumably be affected to a significant degree at a considerably greater distance. Frequent helicopter use of an area could cause both humans and animals to abandon use of it. We suggest that these impacts cannot be mitigated, except by choosing training times and locations that, to the maximum extent possible, avoid conflict with human and wildlife activities.

Although none of the landing zones are located in designated wilderness areas, several of them are within or adjacent to Forest Service inventoried roadless areas which Wild Connections has identified as suitable for wilderness designation in the Wild Connections Conservation Plan; namely the Weston Peak road less area west of Fairplay, and the Front Range (Rampart East) roadless area northwest of Palmer Lake. (For further description of the Wild Connections Conservation Plan, see the Wild Connections website at <http://www.wildconnections.org/conservationplan.html>.)

The lack of a current formal wilderness designation in these areas does not mean the character of the land is any less important, nor that helicopter traffic flying close to the ground, hovering, or landing in these locations is any less impacting to humans and wildlife. Indeed, these areas, and indeed other roadless areas within Pike/San Isabel National Forest, are important as core areas where wildlife can exist with relatively little human

interference.

We suggest that in order to properly analyze these impacts, the Army needs to:

1. Consider whether changes in other uses since 2007 require reexamination of the current sites' suitability. We note in particular that the Pikes Peak Ranger District is in the process of completing the South Rampatt Travel Management Plan, which could significantly affect recreational use in the vicinity of the approved landing zones in the Rampart Range and near the Rampart East Roadless Area.
2. Consider the cumulative impact of more helicopters using the existing training sites.
3. Consider whether these impacts would require, or make it appropriate to consider, deletion of some existing training areas or landing zones, and designation of new ones to reduce the impacts. If so, identify and analyze the impacts of this action.

Since this proposal has impacts to human recreational use, we feel that it would be appropriate for the Army to take public comment on this proposal, with the idea of not only identifying areas of substantial human use, but also areas where recreationists are devoted to "quiet use" activities that would be more significantly impacted by helicopter noise and intrusion on a natural landscape.

ITEM 68.	AGENCY (COMMENTER NAME): Washington Department of Fish and Wildlife (Greg Schiarto)	LOCATION: Joint Base Lewis McChord, Washington	TYPE: Biological Resources (Endangered Species), Noise, Aviation (Helicopters), and Mitigation
-----------------	---	--	---

Comments	Response
<p>Via letter dated 1/6/2011:</p> <p>Thank you for the opportunity to review the Draft PEIS for the Realignment, Growth, and Stationing of Army Aviation Assets at Joint Base Lewis-McChord. After review of this document the Washington Department of Fish and Wildlife (WDFW) has the following comments on the content of this Draft PEIS and the potential for these actions to impact special status wildlife species. Of particular concern are the four federal candidate species: streaked horned lark, Mazama pocket gopher, Taylor's checkerspot butterfly and mardon skipper butterfly; all are state-listed species in Washington.</p> <p>1. The PEIS repeatedly refers to JBLM' s <i>Grow the Army</i> FEIS as a source of additional detailed information on biological impacts and mitigation for the proposed stationing of the CAB. The WDFW found both the assessment of impacts and mitigating actions in JBLM's FEIS to lack the necessary scope and specificity regarding impacts of the proposed actions on the four federal candidate species, making the FEIS and consequently the PEIS incomplete and inadequate. Both documents rely on qualitative descriptions of impacts, making impact assessment and mitigating actions subjective and arbitrary. Unmitigated impacts to federal candidate species are unacceptable to WDFW.</p> <p>2. The FEIS relies heavily on monitoring, and corrective actions outlined in the INRMPs hinge on adequate funding and access to training lands. Access to training lands has become exceedingly difficult with 40,000 troops simultaneously stationed there. Consequently there is no means for assessing impacts to federal candidate species as a result of the proposed actions or to mitigate for damages incurred or anticipated.</p>	<p>Thank you for your comment. We maintain a keen interest in the protection, conservation, and stewardship of JBLM and YTC's wildlife populations. Specific responses to other comments are provided below.</p> <p>We feel that discussion of biological impacts and impacts to candidate species presented in the JBLM <i>Grow the Army</i> FEIS and contained within this PEIS adequately address impacts to biological resources. The Army acknowledges that there would be impacts to federal candidate species and has proposed several mitigation measures to address and reduce identified impacts. A list of mitigations, including many for candidate species, can be found in Table 4-41 and 4-41 of the JBLM <i>Grow the Army</i> FEIS as well as Section 4.5 of this PEIS.</p> <p>The Army is committed to providing access to training areas for management for mitigation in order to ensure training area sustainability for future training. The Army will continue to monitor and conduct management activities in accordance with JBLM regulations, the Integrated Training Area Management (ITAM) Program, and other installation management plans. This PEIS and JBLM's 2010 FEIS identify mitigation to minimize, avoid, or compensate for adverse effects to environmental resources. All practicable means to avoid or minimize environmental harm from the selected alternative, to include feasible measures identified within the INRMP, would be adopted. A mitigation and monitoring plan will be implemented to ensure that these mitigation measures are implemented, monitored, and their effectiveness measured, with appropriate adjustments made when necessary. In addition, JBLM would continue to implement the requirements of the installation's Regulation 420-5, <i>Procedures for the Protection of State and Federally Listed, Threatened,</i></p>

3. The scale, timing and frequency of fires on the AIA under current conditions are a source of significant conservation concern and appear to adversely impact several federal candidate species (mardon skipper, Taylor's checkerspot, streaked homed lark, and Mazama pocket gopher) through direct and indirect mortality and are a significant source of habitat loss and degradation. The current condition and any worsening of these effects are unacceptable impacts to these species and must be mitigated via new efforts, since the existing fire management plan does not include corrective actions for the AIA.

4. An additional 55,000 take-offs and landings are expected as a result of the proposed CAB. Many of these would occur at GAAF and other sites currently occupied by streaked homed lark. This is expected to lead to an increase in air strikes, that would likely result in significant mortality of this rare and declining species in South Puget Sound.

5. The PEIS and FEIS reference construction of 110 acres of CAB facilities, many of which would be placed on habitat at GAAF that is currently occupied by streaked homed lark. Larks exhibit high site-fidelity on their

Endangered, Candidate Species, Species of Concern, and Designated Critical Habitat. As part of this regulation, JBLM would continue to adjust training activities to protect candidate species. Such protections include:

- Taylor's Checkerspot: as depicted on JBLM's environmental coordination map, training activities involving off-road maneuver and ground disturbing activities are prohibited in Johnson Prairie, Upper and Lower Weir Prairies, and limited on the 91st Division Prairie.
- Streaked Horned Lark: restrict mowing of areas at Gray Army Airfield (GAAF) identified as nesting sites during the nesting season (April 15 to July 15) unless vegetation height poses a safety concern to aviation; prohibit recreational activity in Training Area 14 during the nesting season; and review and potentially revise planned training activities within nesting areas to minimize adverse impacts.
- Mazama Pocket Gopher: as depicted on the JBLM environmental coordination map, training activities involving off-road maneuver and ground disturbing activities are prohibited in Johnson Prairie, Upper and Lower Weir Prairies, and limited on the 91st Division Prairie.

As discussed in the JBLM *Grow the Army* FEIS, the Artillery Impact Area (AIA) is the only area that can support artillery and mortar live fire training, into which artillery and mortar rounds can be fired at JBLM, and these rounds occasionally cause fires. The installation's Forestry section conducts a prescribed burn within the AIA each year prior to the high-fire hazard season to minimize the occurrence of intense fires. As discussed in Section 4.3.3.6.2.1 of the 2010 FEIS, fires would continue to maintain open grassland and would have beneficial, as well as adverse impacts to federal candidate species. Overall, impacts to federal candidate species from wildfire are anticipated to be less than significant. The Army has proposed several mitigation measures for candidate species in Section 4.5 of this PEIS.

Section 4.3.3.6.3.1 of the 2010 Fort Lewis *Grow the Army* FEIS, which is incorporated by reference into this PEIS, included in its Special Status Wildlife Species discussion an assessment of potential adverse effects to the streaked horn lark from helicopter flights. That FEIS also explains that the installation would protect the streaked horned lark by continuing to implement the requirements of the INRMP and installation regulation 420-5, *Procedures for the Protection of State and Federally Listed, Threatened, Endangered, Candidate Species, Species of Concern, and Designated Critical Habitat*. In addition, Table 4-42 of the FEIS contains a variety of specific mitigation measures for the streak horned lark: specifically, creating and maintaining suitable habitat for the lark, restriction of areas at GAAF identified as nesting sites during the nesting season, prohibiting recreational activity in Training Area 14 during nesting season, and reviewing and potentially revising planned training activities within nesting areas to minimize adverse impacts. To reduce the potential for bird strikes, Table 4-42 of the 2010 FEIS also provided that the installation would develop and maintain habitat and protective buffers for all identified streaked horned lark nesting colonies, and restrict low level hovering by aircraft near nesting colonies and in buffer areas during the nesting period. As noted above, Section 4.5 of this PEIS has been updated to incorporate proposed mitigation measures for the streaked horned lark.

According to the 2010 JBLM *Grow the Army* FEIS, there are no streaked horned lark populations within the areas identified in the FEIS as potential future CAB construction

breeding grounds and a poor tolerance of visible structures above the 6-inch grass height they inhabit. Significant and long-term habitat loss and degradation would result from CAB facility construction; ill-timed construction could also result in destruction of nests and young. No mitigating actions have been proposed in the PEIS or the FEIS. Please address this short-coming and identify a source of funding for these and other requiring mitigation actions.

6. Table 4-6 in the FEIS indicates **more than a 4- to 10-fold** increase in training impacts, most notably **generating 1,567 to 3,797 acres of bare ground annually, given the amount of maneuver area available on JBLM is limited to about 3,800 acres!** Furthermore, current supplies of native seeds and plugs from all existing sources in South Puget Sound provide enough material to treat about 400-500 acres, without considering the poor survival rates that would be expected in the face of ongoing training. The FEIS fails to address how training land repairs would be paid for and implemented to avoid a shift to 100 percent cover of bare ground within a 10-15 year time frame.

7. Helicopter training impacts are not described in detail or quantified. NOE training activities "as low as the vegetation would permit" could cause significant mortality to prairie butterflies and streaked horned lark. Larks will be significantly adversely affected by the increase over baseline conditions of more than 55,000 take-offs and landings at GAAF. Please specify how and where all such activities would occur, what seasons and with what frequency so that impacts can be properly assessed and suitable mitigation strategies developed and implemented. Nothing in the Mitigation section of the FEIS compensates for these effects.

sites, although there are known active nests near GAAF. Table 4-42 from the 2010 FEIS contained a variety of mitigation measures to protect the lark such as requiring the installation to develop and maintain habitat and protective buffers for all identified streaked horned lark nesting colonies. Section 4.5 of this PEIS has been updated to incorporate proposed mitigation measures for the streaked horned lark.

Regarding funding, the Army is committed to adopting all practical means to avoid or minimize environmental harm from the effects of CAB stationing at JBLM and YTC, should a decision be made to station a CAB at JBLM. Should a CAB be stationed at JBLM, JBLM would implement a mitigation and monitoring plan to ensure that mitigations in the Record of Decisions from this programmatic FEIS and the 2010 site-specific FEIS are implemented and monitored, and their effectiveness measured, with appropriate adjustments made when necessary. Mitigation measures stated in the Record of Decision are those measures that the Army has committed to fund, subject to the availability of funds.

We do not agree that there would be more than a 4- to 10-fold increase in training impacts at JBLM. However, we recognize that there would be increased training intensity should a CAB be stationed at JBLM, and a corresponding increase on of impacts to our training lands. Sustainability of our training lands is extremely important to the Army. Our policy and guidance for managing and operating Army training lands to support long-term utility and viability is contained in Army Regulation 350-19, *The Army Sustainable Range Program (SRP)*, a major component of which is the ITAM program.

As explained in Appendix G, Section 3.2, of the 2010 JBLM *Grow the Army* FEIS, the installation ITAM program currently repairs training lands and ranges using a variety of methods that include the use of native plugs, native seed mix, and sterile wheat. ITAM has had great success in using these methods to repair the land. Monitoring is being completed on the success of ITAM native plug planting and the Plant Propagation Manager is developing methods to increase the survival of the native plugs. We recognize that increased training will require increased rehabilitation efforts.

The ITAM staff works as effectively as possible to assess and monitor training activities by managing funds by priority. The Army is committed to providing access to training areas for management or mitigation in order to ensure training area sustainability for future training. The Army will continue to monitor and conduct management activities in accordance with installation regulations, the ITAM Program, and other installation management plans.

The details of helicopter training that are currently known are presented in Section 2.2.3.3 of JBLM's 2010 *Grow the Army* FEIS. As noted above, the Special Status Wildlife Species discussion in Section 4.3.3.6.3.1 of the 2010 FEIS includes an assessment of potential adverse effects to the streaked horned lark and federal candidate butterflies from helicopter flights. Section 4.5 of this PEIS has been expanded to include proposed mitigation measures such as continuing to implement existing environmental programs, plans, and BMPs that would offset CAB stationing impacts to prairie butterflies and streaked horned lark; and, restricting low level hovering by aircraft near streaked horned lark nesting colonies and in buffer areas during the nesting period

<p>8. A circular argument throughout the PEIS and the FEIS states that “Significant” impacts can be made “Significant but Mitigable to less than Significant” by implementing the INRMP, PBMS, and CCA. These documents were not written with the knowledge or purpose of addressing impacts of the proposed actions. No dedicated funds are available for implementation of these plans or mitigation associated with the FEIS. Mitigation dependent on unsecured funding is not mitigation at all.</p> <p>Washington Department of Fish and Wildlife believes both the PEIS and the FEIS are incomplete in their assessment of impacts to the four federal candidate species, that stated impacts are significant and negative, and that mitigating actions referenced in these documents are wholly inadequate to prevent significant decline and endangerment. In addition, no dedicated source of funding has been identified to offset the stated impacts to species and their habitats 01’ to insure even basic operating costs related to implementation of the INRMP. Substantial work remains for these documents to be acceptable to WDFW and to meet the guidelines specified under NEPA. The WDFW would welcome the opportunity to work with the Army and the USFWS to identify workable solutions to these issues and insure training land sustainability into the future.</p>	<p>Proposed mitigation measures in this PEIS for JBLM and YTC, should JBLM be selected for a CAB stationing, are based on measures from existing JBLM management plans. These are dynamic documents and as new versions are approved, mitigation measures in those documents will be implemented. Further, mitigation measures that will be stated in the Record of Decision are those measures that the Army has committed to fund, subject to the availability of funds. All practicable mitigations would be implemented, as stated above.</p> <p>Please see response to item # 1 of your comment regarding sufficiency of the 2010 FEIS and this PEIS. Please see discussion above regarding funding and implementation of mitigations.</p>		
ITEM 69.	AGENCY (COMMENTS NAME): Individual (Kathy Shantz)	LOCATION: Fort Carson, Colorado	TYPE: General
Comments		Response	
<p>Via letter dated 12/16/2010:</p> <p>I am writing to express my wholehearted support for the helicopter brigade Fort Carson is possibly in line to obtain.</p> <p>I have lived in Fountain, Colorado for over 25 years and for 5 years shared the north border of my property with Ft Carson on Charter Oak Ranch Road. (Johns – 1994 + 1999) We actually had a fire from a shooting range on that border in 1997, complete with fire trucks wetting down our roof. I had no problem with this or the noise that often shook pictures crooked on the walls. We constantly hear traffic to and from Butts Field. I consider this the “Sound of Freedom” and am extremely grateful to all branches of our military for their service and sacrifice.</p> <p>I cannot imagine that the small environmental impact would hurt Colorado or New Mexico. Certainly less impact that Afghanistan or other involvement within our borders. I doubt they would ask for input from the citizens?</p>		<p>Thank you for your comments and support.</p>	
ITEM: 70.	AGENCY (COMMENTS NAME): Not One More Acre! (John M. Barth)	LOCATION: Fort Carson and Piñon Canyon Maneuver Area, Colorado	TYPE: Entire document
Comments		Response	
<p>Via letter dated 1/6/2011:</p> <p>On behalf of Not 1 More Acre!, P.O. Box 773, Trinidad, Colorado 81082, I am submitting this National Environmental Policy Act (“NEPA”) comment letter regarding the Department of Army’s Programmatic Environmental Impact Statement (PEIS) for the Growth, Realignment and Stationing of Army Aviation Assets, Federal Register Notice of Intent, (referred to herein as the “Draft CAB PEIS”). Not 1 More Acre! (“N1MA!”) is a Colorado non-profit corporation formed to promote the ecological, cultural and economic of health of southern Colorado and northern New Mexico.</p> <p>On October 10, 2010 N1MA! submitted a scoping comment letter to the Army on this proposal. N1MA!’s October 10, 2010 scoping letter is incorporated herein by reference.</p> <p>For the reasons stated below and in our October 10, 2010 scoping letter, Not 1 More Acre! opposes relocating or</p>		<p>We have thoroughly reviewed your extensive comments, and appreciate your concerns. Responses are provided for each issue below as they are raised.</p>	

adding any new or existing CAB, Army, Joint Forces, military civilian or contract personnel to be stationed, trained, or housed at Piñon Canyon Maneuver Site (“PCMS”), Colorado.

Procedural issues with the PEIS

To date, the Army has yet to explain why it is proceeding with a Programmatic EIS. Programmatic EISs normally apply to actions of nationwide application and breadth. See, U.S. Environmental Protection Agency’s scoping comment letter dated October 12, 2010 (Draft PEIS pp. F-16 through F-22). The instant PEIS mainly applies to site-specific actions at Fort Carson, PCMS, Fort Lewis, YLC and any existing bases that would lose a CAB in the event one is transferred either to Fort Carson or Fort Lewis. Please explain why the Army is utilizing a PEIS and allow the public to comment on the appropriateness of this procedure. For example, is this action part of a larger program, project, or plan of the Army’s? If so, shouldn’t the cumulative impacts of the larger program, project, or plan be considered as a whole at this time? Has a new CAB been authorized or otherwise established without public knowledge? Please clarify this issue and provide the public with an opportunity to comment.

Factual errors with the PEIS

The Draft CAB PEIS refers to PCMS as being part of Fort Carson (ex. “Fort Carson’s PCMS” at Draft PEIS p. 5-1). PCMS is not part of Fort Carson. Rather, it is an independent military installation of the United States Department of Army. See, Exhibit 1 hereto, (U.S. District Court Order dated September 8, 2009). This distinction is important because as an independent military facility, the Army must acquire all necessary approvals under the National Environmental Policy Act before proceeding with actions that may adversely impact the environment, cultural heritage and economy. As explained further below, the Army may not proceed with stationing a new or existing CAB at Fort Carson because all prerequisite NEPA approvals have not been

As explained in Section 1.3 of this PEIS, the Army suffers from an imbalance in current mission requirements for aviation assets and available aviation forces. This imbalance exists across the Army and forces aviation units to deploy too often, reducing their time at home station. Reduced time at home station directly impacts the Quality of Life for our Soldiers assigned to aviation units and their Families, and affects the ability of these Soldiers to prepare for combat.

To address this Army-wide deficiency in our aviation program, and in accordance with 40 C.F.R. § 1502.20, and 32 C.F.R. § 651.14(c), the Army has decided to conduct this programmatic environmental analysis to assist Army leaders in making national-level decisions on how best to allocate existing aviation assets, whether additional aviation assets are necessary, and where best to station existing and/or additional aviation assets.

Generally, a programmatic analysis of this nature would be followed by a more detailed analysis analyzing site-specific impacts that follow from the programmatic decision. In this instance, fortunately, certain installations – well aware of the imbalance between mission requirements and available aviation assets – anticipated the likelihood they could be chosen for CAB stationing, and proactively analyzed the potential requirements and environmental impacts of CAB stationing. Fort Carson is one such installation.

In February 2009, Fort Carson published its *Grow the Army* FEIS [available at: http://aec.army.mil/usaec/nepa/carson-feis_feb09.pdf]. This 2009 *Grow the Army* FEIS tiered from the Army’s programmatic *Final Environmental Impact Analysis for Army Growth and Force Structure Realignment*, published in October 2007 [available at: <http://aec.army.mil/usaec/newsroom/news/arforgenfinal.pdf>]. The Fort Carson *Grow the Army* FEIS analyzed the addition of approximately 6,700 Soldiers, which included detailed analysis of the addition of a 2,800-Soldier CAB. In particular, Chapter 4 of the Fort Carson *Grow the Army* FEIS thoroughly analyzes impacts of potential CAB stationing and training at PCMS, and addresses many, if not most, of the site-specific issues you raise in your comments.

We fully recognize that, should the Army decide to station a CAB at Fort Carson and to train the CAB at Fort Carson and PCMS, there would be additional, site-specific NEPA analysis required prior to implementing a CAB stationing decision. The fact that additional NEPA analysis will be required makes this a classic “tiering” situation within the meaning of CEQ regulation 40 CFR 1502.20 and 1508.28.

We believe that the analysis contained in this PEIS is sufficient to enable the Army to make an informed, programmatic decision about CAB stationing.

Section 2.1.4 of the 2009 Fort Carson *Grow the Army* FEIS describes PCMS as a separate installation. It was appropriate for that FEIS to look at impacts at both Fort Carson and PCMS because the proposed actions at each installation were connected within the meaning of CEQ NEPA regulation 40 CFR §1508.25.

obtained.

Failure to secure record of decision for PCMS Transformation

The Piñon Canyon Maneuver Site is a Department of Defense (“DoD”) installation located in southeastern Colorado in Las Animas County, approximately 150 miles southeast of Fort Carson and Colorado Springs, Colorado. No soldiers are permanently stationed at the PCMS. Its primary, but not exclusive, mission is to support maneuver training exercises for soldiers stationed at Fort Carson. See, Exhibit 1 hereto.

The Army acquired the PCMS in the early 1980s. Previously the land had been used mainly for family-owned ranching. The PCMS is located along the western margin of the Great Plains. Adjacent private land is zoned for agricultural uses and used for dryland grazing. The terrain includes wooded hills, volcanic formations, grassy plains, mesas, dissected plateaus and deep canyons. Exhibit 1. The Comanche National Grasslands, Apishapa State Wildlife Area, Picket Wire Canyonlands, State School Board lands and county roads are adjacent to PCMS.

When the Army proposed to acquire land in southeastern Colorado for combat maneuver training, it prepared an EIS for Training Land Acquisition to assess the environmental impacts associated with such use. The Army selected the Piñon Canyon site even though it was “slightly more fragile” than the alternative Huerfano River site. The Draft EIS for Training Land Acquisition recognized that land in semi-arid southeastern Colorado couldn’t accommodate perpetual use for maneuver training. Accordingly, the amount of land to be acquired must be large enough “to allow for rest and recovery of the land on a rotating basis.” In assessing the variables to be considered in a Land Use and Management Plan (“LUMP”), the Army identified Training Intensity and Time of Use as the key variables.

Military training operations began at the PCMS in 1985. Since then, the PCMS has been used for training exercises, on average, less than twice a year (Army’s After Action Reports 1985 – 2002). Exhibit 1 hereto.

As noted above, the Army is undergoing a restructuring process, referred to as “Transformation.” Three programs are relevant to the Proposed Action addressed in the Final PCMS Transformation EIS:

Army Modular Force (“AMF”) is a program for changing the size of Army units by reorganizing forces into Brigade Combat Teams. All Army soldiers are being reconfigured into Brigade Combat Teams. The AMF initiative changes Army training doctrine. Base Realignment and Closure (“BRAC”), governed by the Base Realignment and Closure Act of 1990 as amended, is “a process by which military installations are closed or realigned to meet the infrastructure, training and force structure requirements of the military and save taxpayers’ money.” Recommendations of the 2005 Base Closure and Realignment Commission became law in November 2005. One of those recommendations was to relocate a Division Headquarters and a Heavy Brigade Combat Team and other support units from Fort Hood, Texas to Fort Carson. The Commission’s analysis states that, “with or without including Piñon Canyon Maneuver Site in the accounting acreage, Fort Carson still has more contiguous maneuver acres per brigade combat team than Fort Hood.” Exhibit 1 hereto.

Integrated Global Presence and Basing Strategy (“IGPBS”) is a program for assessing the size, character, and location of the military’s overseas presence.

As part of that effort, some forces currently based overseas are being returned to the United States over a period of years. The Army determined that an Infantry Brigade Combat Team from Korea will be stationed at Fort Carson. Exhibit 1.

The combined effect of these programs increases the troop population of Fort Carson to approximately 30,000 soldiers. With support personnel and families, Fort Carson will have a population of 80,000.

IGPBS has subsequently been renamed Global Defense Posture Realignment (GDPR). It is referred to as such in the 2009 Fort Carson *Grow the Army* FEIS.

The Army's projections of the total maneuver training requirements of the Brigade Combat Teams to be stationed at Fort Carson exceed the capacity of the PCMS. An area expansion has been under consideration for several years. Exhibit 1.

A moratorium on major land acquisitions by military departments has been in effect since 1990. A waiver of the moratorium for any land acquisition involving more than 1,000 acres or costing more than \$1.0 million requires approval by the Office of the Secretary of Defense. Exhibit 1.

An Analysis of Alternatives Study, dated May 6, 2004, concluded that the PCMS has a maneuver area shortfall and recommended the acquisition of additional training land adjacent to the PCMS. The "Piñon Vision Operations Order 05-09," dated December 22, 2004, describes a plan for implementing "the long-term expansion of [PCMS] in order to obtain adequate training areas and ranges to support current and future Army and Joint Force mobilization, mission rehearsal and training requirements." A second Analysis of Alternatives Study and a Land Use Requirements Study, both dated April 12, 2005, addressed expansion. Exhibit 1. On January 12, 2006, an updated version of planning document Piñon Vision detailed the acquisition of 2.4 million acres of the desired 7 million acre expansion at Piñon Canyon. [AR 275 O-PLAN 05-18].

In November 2005, the Army published in the Federal Register a notice of intent to prepare an environmental impact statement for the purpose of examining the impacts to the PCMS resulting from the recommendations of the 2005 Base Closure and Realignment Commission. In April, 2006, the Army conducted public scoping hearings regarding the issues to be addressed in the PCMS Transformation EIS. Exhibit 1. In May 2007, authorization for expansion construction at PCMS was inserted in the Armed Services committee.

In July 2006, the Army submitted a formal request to the Deputy Under Secretary of Defense, seeking approval to acquire up to 418,577 acres of land in and around the PCMS. Exhibit 1.

Having advanced authorization for acquisition of real property to expand Piñon Canyon through Congressional defense committees but without public review, the Army decided to proceed with an assessment of the environmental impacts of increased use of the present facility. Accordingly, on October 13, 2006, the Army published a Draft PCMS Transformation Environmental Impact Statement, identifying the proposed action as (1) increased frequency, duration and intensity of training exercises at the PCMS; (2) construction of new facilities in the cantonment, and (3) construction of new facilities in the training areas ("the Proposed Action"). Without public knowledge, authorization for the acquisition of real property to expand Piñon Canyon became law in the Warner National Defense Authorization Act on October 17, 2006. The Army held public hearings in November 2006 on the Draft PCMS Transformation Environmental Impact Statement. Those hearings were followed by another public comment period, which ended on February 16, 2007. Exhibit 1.

On February 8, 2007 – eight days before the close of the public comment period – the Office of the Secretary of Defense approved the Army's request for a waiver of the moratorium on land acquisition. Despite that approval, the Army issued the Final PCMS Transformation Environmental Impact Statement in June 2007. On August 2, 2007, the Army issued the ROD, authorizing construction of new facilities in the cantonment area, construction of new facilities in the training areas, and an increased use of training areas at the PCMS.

The Army issued the Final PCMS Transformation Environmental Impact Statement in June 2007. On August 2, 2007, the Army issued a Record of Decision ("ROD") to increase the use of the Piñon Canyon Maneuver Site to conduct training of an increased troop population stationed at Fort Carson, Colorado in conformity with the transformation process involving changes in unit organization and training doctrine. The EIS for that ROD proposed construction of new physical facilities to expand support services in an existing cantonment area of about 1660 acres at PCMS to include a brigade support complex, a medical/dental clinic, storage facilities, soldier support facilities (including a chapel, phone center, barbershop, shopping and laundry facilities), a vehicle maintenance facility, motor pools, and upgraded roads and utilities. The FEIS also proposed additional

As we have emphasized consistently throughout this PEIS process, the Army has no intention of pursuing the expansion of Fort Carson or PCMS as part of any of the proposed actions analyzed in this PEIS. As was the case at the time of the 2007 Transformation EIS and the 2009 *Grow the Army* FEIS, despite the extensive study that has been devoted to it, potential expansion remains a proposal that has never matured to the point that NEPA analysis is appropriate. The court decision confirmed this position. Expansion is not part of this proposed action and would require completely independent NEPA analysis. The 2009 *Grow the Army* FEIS at Section 2.1.6 contains a lengthy discussion of why land expansion of PCMS was not included and why it was not necessary for the proposed *Grow the Army* action (which included CAB stationing and training).

training operations of unspecified duration, frequency and intensity to be conducted on the remainder of the 235,000 acres of the PCMS, requiring the addition of a live hand grenade range, an ammunition holding area, a protective equipment testing facility, and upgrades to an existing small-arms range and communications facilities. Exhibit 1.

On April 23, 2008 NIMA! appealed the 2007 PCMS ROD and FEIS to U.S. District Court in Colorado. On September 8, 2009 U.S. District Judge Richard Matsch issued an order finding that the FEIS did not adequately assess the impact on the environment of the increase in the intensity and duration of training operations necessary to meet the Army's stated purposes for its action in violation of NEPA. Exhibit 1.

In reaching this decision, Judge Matsch made the following factual findings:

* The Proposed Action permits the entire site to be used for training purposes every day of the year. Consequently, the Army's conclusion that there would be no significant environmental impacts is counter-intuitive. It is obvious that such intensive use of the PCMS prevents any meaningful mitigation of the resulting environmental impacts.

* The EIS appears to address mitigation but there is no recognition of the need for scheduling training in a manner that permits rest, recovery and restoration of this fragile land.

* The Administrative Record includes a copy of pages from an Army power point presentation entitled "Maneuver Alternatives Analysis," dated April 20, 2006, summarizing an internal analysis of two scenarios – the "PCMS Maximum Support of Training Alternative" and the "PCMS Sustainable Training Alternative." The Army concluded that "[t]o achieve full sustainability at PCMS allows 4.4 months or 20 weeks of maneuver training per year at PCMS." Id. at 0002816. The Final PCMS Transformation EIS ignores this assessment.

* The EIS states that the Army considered training scenarios of lower intensities but did not consider them to be reasonable alternatives to the Proposed Action. By dismissing those scenarios, the Army rejected the sustainable training alternative described in the Maneuver Alternatives Analysis. The EIS acknowledges that increasing the frequency, duration and intensity of training exercises, and particularly an increase in mechanized training exercises, will cause substantial disturbance to soils, vegetation, wildlife habitat and cultural resources at the PCMS, especially in the maneuver training areas. The EIS represents that the continuation of existing land management and environmental programs would provide adequate means for sustainable land management. That conclusion is inconsistent and irreconcilable with the Army's analysis in April 2006.

* The deficiencies of this EIS are apparent when it is compared to the manner in which intensity of use and mitigation were addressed in the EIS for Training Land Acquisition. The Draft EIS for Training Land Acquisition describes detailed Land Use and Management Plans, developed to assess the potential impacts to each of the two sites then under consideration. The Draft EIS describes three scenarios for each parcel: (1) a Balanced Use / Protection Scenario; (2) an Increased Use Scenario; and (3) an Increased Protection Scenario. Id. Seven major variables were evaluated in connection with each scenario. Of the seven factors, "Training Intensity" and "Time of Use" were considered "the key variables and . . . most indicative of potential impacts." Id. "Each parcel was divided into five Management Units for purposes of training control and rotation." Training intensities for all scenarios were projected, based on determinations of the "carrying capacity" of units of land within each site. The Draft EIS for Training Land Acquisition states that "[c]arrying capacities are practical bases for estimating the intensity of military training operations that can be imposed on a land area," and that when land is to be used for military operations, carrying capacity can be assessed by reference to "the vehicle-day, defined as a four hour period of activity per day for a wheeled vehicle." The Final PCMS Transformation EIS does not include any comparable analysis.

* When the Army decided to acquire the Piñon Canyon site, the Army selected the "increased use" scenario of

the Land Use Management Plans described in the Draft EIS. See A.R. 254 at 0013648 (explaining, in response to public comments, that “[t]he Increased Use scenario was selected over the Balanced Use/Protection scenario because it increases available training area by approximately 50% each year with only a 15% increase in carrying capacity consumption.”) Even the Increased Use scenario contemplated that only three of the five management units would be used during any particular year, and that each unit would be allowed to rest for two full years out of every five. In addition, the LUMP designated periods of deferment (i.e., periods of no training exercises) from “15 December – 15 January and 1 April – 30 June,” recognizing that these periods of the year are particularly important for the growth of grasses. The LUMP also stated that training should be deferred “whenever excessively wet soil conditions occur to prevent abnormally severe damage to soil and vegetation.” Id.

* The Final PCMS Transformation EIS states, “Because of the limited quantitative baseline data, not all potential environmental effects resulting from increased training levels can be precisely determined at this time.” That representation lacks candor. From 1985 through 2002, the Army prepared After-Action Reports (“AARs”), summarizing training exercises conducted at the PCMS. These reports show that even those limited training exercises have had severe environmental consequences. The Army produced these reports to the Plaintiffs after the close of the period for public comment on the Draft PCMS Transformation Environmental Impact Statement, in response to Freedom of Information requests. The Army argues that this information is irrelevant. To the contrary, it demonstrates the failure of the EIS to give consideration to foreseeable adverse environmental impacts of the expected increase in training exercises and the adequacy of the plans for mitigation.

* The ROD permits use of the PCMS for unlimited training twenty-four hours per day, seven days per week, 365 days per year. That intense use precludes any meaningful mitigation of the environmental impact of military operations.

* The conclusion that significant environmental impacts of such unlimited use can be avoided through mitigation practices represents a clear error of judgment, and the Army’s authorization of the Proposed Action was arbitrary and capricious. Under these facts, the Army cannot rely on representations about the continuation of existing mitigation efforts to limit its impacts analysis or to limit the alternatives analysis as it did.

* It is noteworthy that the Army rejected the “sustainable training alternative” on the ground that lower intensity training alternatives would not have satisfied the full range of training requirements of the transformation (aka: Future Combat Systems and Army Brigade Combat Team Modernization) programs, yet the training requirements of Fort Carson cannot be met at the PCMS, even if use of that facility is unrestricted. The obvious conflict between the training needs of the troops at Fort Carson and use of the PCMS in an environmentally sustainable manner makes it apparent that the Army’s purposes will not be accomplished without expansion of the PCMS. The decision not to include expansion in the subject EIS does not, in itself, make it deficient. It does expose the inadequacy of the limited effort to plan to mitigate the impact of the ROD. Exhibit 1.

Judge Matsch’s order prevents implementation of the Proposed Action in the Transformation EIS. Accordingly, the Department of Defense may not now use the PCMS more frequently or intensively than it did prior to Judge Matsch’s order.

In light of Judge Matsch’s decision, the Army may not proceed with the current CAB EIS because it has not secured the prerequisite PCMS Transformation EIS. The Army may not commence “transforming” PCMS to meet training requirements until a valid Transformation FEIS and ROD are issued and survive any legal challenges.

In addition, as outlined immediately below, proceeding with the CAB EIS is a direct violation of Judge

Fort Carson is currently preparing NEPA analysis to supplement the June 2007 Final Piñon Canyon Site Transformation Environmental Impact Statement. This supplemental transformation analysis will address the deficiencies discussed in Judge Matsch’s order, including the issues of frequency and duration of training on PCMS.

The 2009 Fort Carson *Grow the Army* FEIS analyzed the impact of stationing and operating

Matsch's order.

Violation of Federal District Court Order

The Army's 2010 Draft CAB PEIS proposes to add approximately 2,800 soldiers to Fort Carson, as well as 120 helicopters—including, 48 AH-64 Apache helicopters, UH-60 Black Hawk helicopters, 12 CH-47 Chinook helicopters and 12 HH-60M Black Hawk helicopters. It is also believed that each CAB will utilize approximately 600 ground vehicles. The draft PEIS admits that the CAB proposal will result in an increase in the duration and intensity of use of PCMS.

For the reasons stated below, implementation of the Army's draft CAB PEIS would amount to a direct violation of Judge Matsch's order:

* Like the invalid PCMS Transformation EIS and ROD, the Proposed Action would permit the entire PCMS site to be used for training purposes every day of the year. Consequently, the Army's conclusion that there would be no significant environmental, cultural or economic impacts is counter-intuitive. It is obvious that any additional duration and intensity or use of PCMS would prevent any meaningful mitigation of the resulting irreparable harm to environmental and cultural resources and the economy of the region.

* Like the invalid PCMS Transformation EIS, the draft CAB EIS fails to recognize, or include objective quantitative metrics, of the need for scheduling training in a manner that permits rest, recovery and restoration of the fragile PCMS land.

* The PCMS Transformation administrative record includes a copy of pages from an Army power point presentation entitled "Maneuver Alternatives Analysis," dated April 20, 2006, summarizing an internal analysis of two scenarios – the "PCMS Maximum Support of Training Alternative" and the "PCMS Sustainable Training Alternative." The Army concluded that "[t]o achieve full sustainability at PCMS allows 4.4 months or 20 weeks of maneuver training per year at PCMS." Id. at 0002816. The Draft CAB PEIS ignores this assessment and fails to incorporate these objective, quantitative metrics into the analysis. Further, the Army's own "after action reports" indicate that PCMS has only used less than two times/year for maneuvers. The intensity of use of PCMS may not exceed this historic use.

* The draft CAB PEIS did not consider any alternative training scenarios of lower intensities. By failing to examine such alternatives, the Army essentially rejected the sustainable training alternative described in the

a CAB at PCMS. Section 2.2 of the *Grow the Army* FEIS explained that its analysis included the possibility of a CAB stationed at Fort Carson and PCMS. Specifically, Section 2.2 proposed "an overall increase in Soldiers who would work, live, and train at Fort Carson and PCMS. Under the Proposed Action, approximately 3,900 Soldiers (a new IBCT plus support units) or approximately 6,700 Soldiers (the new IBCT and support units plus a CAB)" to be potentially stationed at Fort Carson.

As stated in Section 2.11 of this Final PEIS, we would not increase aviation training beyond historically authorized levels until the supplemental transformation NEPA review is completed.

Fort Carson and PCMS have a long history of aviation training. As explained in the response to comment #20, above, the 1980 draft PCMS acquisition EIS anticipated and included aviation training along with ground training at PCMS. Fort Carson has had varying levels of aviation assets over the last 30 years. From 1980 through 1995, when the 4ID headquarters was moved to Fort Hood, there was an aviation brigade. From 1995 through 2007, the 3rd ACR was assigned to Fort Carson and trained with its assigned aircraft.

The transformation EIS analyzed increased levels of training on PCMS. In our opinion, the court order invalidating the transformation Record of Decision did not impact current or historically authorized aviation training levels at PCMS. Again, the proposed action would not increase aviation training beyond these historically authorized levels.

The need for scheduling training in a manner that permits rest, recovery and restoration of PCMS will be included in Fort Carson's NEPA document that will supplement the 2007 Piñon Canon Maneuver Site Transformation EIS.

Fort Carson's PCMS supplemental transformation analysis will include a discussion of the ways in which PCMS can be sustained. It will also address the after action reports. The after action reports were taken into account in the 2009 *Grow the Army* FEIS, which stated: "The data referred to are the After Action Reports (AARs) from 1985 to 2002 which collected environmental damage information with regard to specific training exercises. The information in these AARs was considered and used as each of them was written. Validated conclusions from these reports have been considered over the years as plans and procedures for managing training and natural resources at PCMS have been developed and updated. Thus, the data from these reports was involved generally and indirectly in the analysis in this EIS. However, the specific data from them was considered to be of limited use, and not appropriate as a specific reference for purposes of this EIS, primarily because this data is dated and largely related to equipment and tactics no longer used." [See page I-227, 2009 *Grow the Army* FEIS, Response to LC6-14, which responds to a similar comment made by N1MA! to that EIS.]

Analysis of this issue is more appropriate for PCMS site-specific NEPA documentation that would look at increases over previously-authorized levels of training.

Analysis of this issue is more appropriate for PCMS site-specific NEPA documentation that would look at increases over previously-authorized levels of training. It is important to

Maneuver Alternatives Analysis. The draft CAB PEIS acknowledges that increasing the frequency, duration and intensity of training exercises, and particularly an increase in mechanized training exercises, will cause substantial disturbance to soils, vegetation, wildlife habitat and cultural resources at the PCMS, especially in the maneuver training areas. The draft CAB PEIS represents that the continuation of existing land management and environmental programs would provide adequate means for sustainable land management. That conclusion is inconsistent and irreconcilable with the Army's analysis in April 2006.

* The deficiencies of this draft CAB PEIS are apparent when it is compared to the manner in which intensity of use and mitigation were addressed in the 1980 PCMS EIS for Training Land Acquisition. The Draft EIS for Training Land Acquisition describes detailed Land Use and Management Plans, developed to assess the potential impacts to each of the two sites then under consideration. The Draft EIS describes three scenarios for each parcel: (1) a Balanced Use/Protection Scenario; (2) an Increased Use Scenario; and (3) an Increased Protection Scenario. Seven major variables were evaluated in connection with each scenario. Of the seven factors, "Training Intensity" and "Time of Use" were considered "the key variables and . . . most indicative of potential impacts." "Each parcel was divided into five Management Units for purposes of training control and rotation." Training intensities for all scenarios were projected, based on determinations of the "carrying capacity" of units of land within each site. The Draft EIS for Training Land Acquisition states that "[c]arrying capacities are practical bases for estimating the intensity of military training operations that can be imposed on a land area," and that when land is to be used for military operations, carrying capacity can be assessed by reference to "the vehicle-day . . . defined as a four hour period of activity per day for a wheeled vehicle." The draft CAB PEIS does not incorporate these standards/metrics, nor does it include any comparable analysis.

* When the Army decided to acquire PCMS in 1980, the Army selected the increased use" scenario of the Land Use Management Plans ("LUMP") described in the Draft EIS (explaining, in response to public comments, that "[t]he Increased Use scenario was selected over the Balanced Use Protection scenario because it increases available training area by approximately 50% each year with only a 15% increase in carrying capacity consumption."). Even the Increased Use scenario contemplated that only three of the five management units would be used during any particular year, and that each unit would be allowed to rest for two full years out of every five. In addition, the LUMP designated periods of deferment (i.e., periods of no training exercises) from "15 December – 15 January and 1 April – 30 June," recognizing that these periods of the year are particularly important for the growth of grasses. The LUMP also stated that training should be deferred "whenever excessively wet soil conditions occur to prevent abnormally severe damage to soil and vegetation." These standards/metrics have not been incorporated into the draft CAB PEIS.

* The Final PCMS Transformation EIS states, "Because of the limited quantitative baseline data, not all potential environmental effects resulting from increased training levels can be precisely determined at this time." Judge Matsch rejected that statement because from 1985 through 2002, the Army prepared After-Action Reports, summarizing training exercises conducted at the PCMS. These reports show that even those limited training exercises have had severe environmental consequences. The Army produced these reports to the Plaintiffs after the close of the period for public comment on the Draft PCMS Transformation Environmental Impact Statement, in response to Freedom of Information requests. These AARs demonstrate the failure of the Draft CAB PEIS to give consideration to foreseeable adverse environmental impacts of the expected increase in training exercises and the adequacy of the plans for mitigation.

* The Draft CAB PEIS does not preclude use of the PCMS for unlimited training twentyfour hours per day, seven days per week, 365 days per year. That intense use precludes any meaningful mitigation of the environmental and cultural resource impacts of military operations.

remember that this PEIS is a programmatic document to support a decision to be made in at Headquarters, Department of the Army. The decision on future management of PCMS, to include whether or not training would be allowed to increase over currently-authorized levels, will be (and should be) made at Fort Carson. That is the nature of the tiering process.

Validated conclusions from these reports have been considered over the years as plans and procedures for managing training and natural resources at PCMS have been developed and updated. Thus, the data from these reports was involved generally and indirectly in the analysis in this PEIS. However, the specific data from them was considered to be of limited use, and not appropriate as a specific reference for purposes of this PEIS, primarily because this data is dated and largely related to equipment and tactics no longer used. See page I-227, 2009 *Grow the Army* FEIS. The Fort Carson analysis of training at PCMS will include more recent reports of training at PCMS that are more accurately keyed to the resources there.

The Draft PEIS stated in Section 2.11 "The stationing of a CAB at Fort Carson or JBLM will not result in a significant increase in use or scheduling of PCMS or YTC. A majority of aviation operations at these maneuver sites will be conducted to support ground operations that will have otherwise occurred without aviation support." We have revised Section 2.11 of this Final PEIS to expressly indicate that training by the CAB would not exceed historically authorized levels until and unless new levels are properly analyzed under NEPA, and authorized by the appropriate decision-maker.

* The Draft CAB PEIS conclusion that significant environmental impacts of such unlimited use can be avoided through mitigation practices represents a clear error of judgment, and any such authorization of the Proposed Action would be arbitrary and capricious. Under these facts, the Army cannot rely on representations about the continuation of existing mitigation efforts to limit its impacts analysis or to limit the alternatives analysis as it did.

* It is noteworthy that the Draft CAB PEIS does not incorporate the “sustainable training alternative” because presumably the lower intensity training alternatives would not satisfy the full range of training requirements of the transformation programs, yet the training requirements cannot be met at the PCMS, even if use of that facility is unrestricted. Accordingly, the Army may not increase the duration or intensity of use of PCMS without violating a federal court order.

Illegal Construction

The Draft CAB PEIS states, “[n]o construction is planned or required at PCMS as part of this proposed alternative.” See, Draft PEIS at p. 5-8. This statement is inconsistent with statements made by the Army to other agencies and with construction activity occurring at PCMS. For example, on April 21, 2010, the Army conducted Section 106 consultation regarding the proposed construction of two Clamshell shelter units for tank and helicopter maintenance within the PCMS cantonment area. See, Exhibit 2 hereto. The April 21, 2010 memo notes “there is no existing facility on the maneuver site capable of providing this type of maintenance, nor are these type of services available in the area to serve this remote location. The current vehicle maintenance facility at the PCMS is small, and maintenance is limited to small wheeled vehicles, it is not large enough to accommodate tanks and other armored vehicles or Army aviation aircraft, i.e. rotary wing.” Exhibit 2, pp. 3-4.

Further, it was observed during recent tours of PCMS that extensive ground disturbances have occurred at various check dams. See, Exhibit 3 hereto (Memo dated November 3, 2010). This construction is described as dam “enhancement” to allow for training maneuvers.

These and other construction activities are directly related to the need to train an additional CAB unit at PCMS. This type of increase in the intensity of use of PCMS is specifically prohibited by the federal court’s invalidation of the PCMS Transformation ROD and FEIS. See, Exhibit 1 hereto. Not 1 More Acre! requests that the Army immediately cease all construction activities at PCMS until such time as the full environmental impacts are analyzed in a valid Transformation FEIS and ROD.

Alternatives

As noted above, the Draft CAB PEIS does not include any PCMS training alternatives. The Army must address this issue and the public should be given the opportunity to comment on such alternatives.

Not 1 More Acre! requests that the Army provide a more detailed description of each alternative including what

This PEIS does not state that there would be “unlimited use.”

The reason this programmatic EIS does not include specific impacts at PCMS is that it assumes the level of training will be limited to what is currently authorized. It recognizes that site-specific analysis of CAB training at PCMS would be necessary.

We believe that the statement that no construction is required at PCMS as part of this proposed action is not inconsistent with construction activity occurring at PCMS. There is an ongoing need for construction at PCMS that is required for its use as a training site. This construction would be necessary regardless of whether a CAB were to be assigned or whether the transformation programs were implemented. When construction is required at PCMS, Fort Carson conducts the necessary NEPA analysis, as appropriate. Both of the examples cited by the commenter fit these criteria.

A Record of Environmental Consideration (REC) was completed on the Clamshell project in July 2010, which documents use of the Army’s categorical exclusion for minor construction, in accordance with 32 C.F.R. 651(c)(1). Mechanized vehicles and aircraft have been used for training at PCMS from its inception, and these vehicles and aircraft need on-site maintenance. The Clamshell shelters simply provide a better facility in which to provide that maintenance.

Similarly, the check dams are a part of the Sustainable Range Program, which has long been in effect at both Fort Carson and PCMS, as mentioned in Section 5.8.1 of this PEIS. Construction of erosion control features were analyzed in the 1998 erosion control environmental assessment, and included dams, which remediate and prevent erosion resulting from training, regardless of what unit is training or how often the training may occur.

Judge Matsch’s order did not disallow all projects or sustainment activities at PCMS. The 2007 transformation EIS had analyzed several specific construction projects for PCMS. These construction projects have not been built. As discussed above, training intensity changes are not within the scope of the programmatic EIS.

Section 5.4.2 of this Final PEIS states unequivocally that no construction is planned or

construction activities will take place at each affected location, an estimate of the increase in activity at the PCMS, the levels of growth expected in each affected area, and the impacts expected at each affected location. See Draft PEIS pages F-16 through F-22 (EPA comments). The Draft PEIS is vague or internally inconsistent on what construction activities will occur at PCMS and fails to provide an accurate estimate of the increase in all activity at PCMS.

For example, the Draft PEIS states that no construction activity will occur at the PCMS. See, Draft CAB PEIS at p. 5-8. This is in contrast with the extensive upgrades needed at the cantonment area identified in the 2007 PCMS transformation EIS which was vacated by the federal district court of Colorado. The draft CAB PEIS should identify any construction or improvements that have occurred at the cantonment area since Judge Matsch's order. If none such activity has occurred, the draft CAB PEIS must analyze how the increase in duration and intensity of use of PCMS can be accommodated without the necessary improvements identified in the PCMS Transformation EIS/ROD.

Moreover, the Draft PEIS infers that no construction will take place elsewhere on PCMS. However, the Draft PEIS identifies two new proposed Combat Assault Landings Strips that presumably will be constructed on PCMS. See, Draft PEIS at p. B-30. Have these landing strips been constructed? If so, when. Were the environmental impacts evaluated? If so, please identify the NEPA approval evaluating the environmental impacts associated with construction of these landing strips.

Failure to quantify baseline conditions at PCMS

The Draft CAB PEIS fails to adequately quantify baseline conditions for soils, vegetation, wildlife, cultural resources and other conditions at PCMS. This issue was identified by EPA in its October 12, 2010 scoping comment letter. See Draft PEIS pages F-16 through F-22. More specifically, the EPA noted:

The Draft EIS should identify a baseline condition which will be used to develop and assess the effectiveness of mitigation measures. If impacts from reasonably foreseeable future actions (RFFAs) are expected, the current condition may not [b]e [sic] the baseline condition best suited to capture the incremental effect of the project. A no-action alternative may be more appropriate. If a baseline other than current conditions will be used, the Draft EIS should clearly explain and support its basis. Regardless of what condition the baseline represents, we encourage the use of quantified resource-specific characterizations when possible. Id.

Despite identification of this issue by EPA during scoping, the Draft CAB PEIS fails to quantify baseline conditions for soils, vegetation, waterways, wildlife and cultural resources on PCMS.

As noted above, the Army admitted in the PCMS Transformation EIS/ROD that there is a lack of baseline data for PCMS. Not 1More Acre! is aware that from 1985 through 2002, the Army prepared After-Action Reports summarizing training exercises conducted at the PCMS. These reports show that even those limited training exercises have had severe environmental consequences. These AARs demonstrate the failure of the draft PEIS to give consideration to foreseeable adverse environmental impacts of the expected increase in training exercises and the adequacy of the plans for mitigation. Accordingly, we request that the Army disclose all AARs from 1985-the present in an Appendix to the Draft CAB PEIS. Not 1More Acre! also requests that all baseline data and information from the 1980 PCMS EIS for Training Land Acquisition be included in an Appendix to the Draft CAB PEIS. N1MA! requests that the Army re-issue the Draft CAB PEIS and allow the public to comment on the baseline conditions, the impacts of the Army's historic training activities at PCMS, and the effectiveness of its mitigation efforts to date.

Finally, we also incorporate by reference all baseline issues raised in our October 8, 2007 comment letter.

Failure to identify quantitative metrics to judge actions/mitigation

required at PCMS [as part of the proposed action]. Therefore, no detailed description of construction activities is possible.

The upgrades in the 2007 transformation EIS did not support CAB stationing at Fort Carson or CAB training at PCMS. These upgrades were not analyzed until the 2009 *Grow the Army* FEIS. Since no construction at PCMS to support CAB stationing is planned or required, there is no analysis of specific construction projects required associated with the proposed action at PCMS.

The proposed Combat Assault Landing Strips that appear in the noise analysis in Appendix B at page B-18 and B-30 of this PEIS were proposals that were under consideration at the time of the drafting of that analysis. These projects were not, and are not, associated with the proposed action in the CAB PEIS. The Combat Assault Landing Strips would have been utilized by Air Force C-130 fixed wing aircraft. These projects are no longer under consideration. Section 5.6.1 of this Final PEIS has been updated to make this clear.

Chapter 4 of Fort Carson's 2009 *Grow the Army* FEIS includes extensive information about the affected environment at PCMS. This Final PEIS incorporates and updates (as necessary) that information.

As explained in the response to EPA (comment #32), we have added information on baseline conditions in Section 3.4 of this PEIS to explain no action impact ratings and how they were derived. Furthermore, a table summarizing impact ratings for baseline conditions of the no action alternative has been added to Section 4.3 of this PEIS.

The after action reports (AARs) are discussed above.

The AARs were discussed in the 2009 *Grow the Army* FEIS, which is incorporated by reference in this analysis. Therefore it will not be necessary for them to be discussed again in this document.

We have not received comments that present significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts that would require the PEIS to be reissued for a second comment period.

The Army's Appendix A to the Draft CAB PEIS (Valued Environmental Components (VEC) General) is inadequate because it fails to identify and incorporate quantitative objective criteria governing impacts to land, water, air, cultural resources and other media. For example, Appendix A fails to incorporate such metrics created during the 1980 PCMS EIS for impacts to lands and soils. These metrics were specifically developed to determine whether there were adverse impacts to lands/soils and whether mitigation was effective.

Appendix A also ignores important quantitative objective water quality standards developed for surface waters in Colorado. For example, the Draft CAB PEIS fails to identify water quality standards for selenium, e coli, and other important pollutant in Fountain Creek, the Arkansas River, the Purgatoire and Apishapa rivers. The Draft PEIS also fails to evaluate waterbodies that are listed on the State's current 303(d) list that could potentially be affected by the project and whether a water quality restoration plan (Total Maximum Daily Load) has been developed for the waterbodies and the pollutants of concern. See Draft PEIS, page F-16-F22. Section 303(d) prohibits a new point source discharge of impairing pollutants into a segment already impaired for that pollutant. 40 C.F.R. 122(i)(4). *Friends of Pinto Creek v. EPA*, 504 F.3d 1007 (9th Cir. 2007). Finally, Colorado also has a degradation standard preventing any new or increase discharge from adding 15% or more pollution to the assimilative capacity of each stream segments. See Colorado Basic Standard Regulation 31.8, 5 CCR 31.8. These standards also apply to stormwater.

Appendix A also fails to identify criteria for determining when a "take" of an endangered species has occurred under the federal Endangered Species Act or Migratory Bird Act.

Appendix A also fails to analyze whether the Proposed Action will cause or contribute to a violation of EPA's proposed regulation for the eight-hour National Ambient Air Quality Standard for ozone. EPA will be adopting the final regulation in July 2011-prior to the implementation of the Proposed Action. The Army must analyze whether it's proposed action will cause or contribute to a violation of the eight-hour ozone NAAQS throughout the range of alternatives being considered by EPA.

Illegal Segmentation

Not 1 More Acre! has previously informed the Army that it is illegally segmenting major federal actions at Piñon Canyon Maneuver Site and vicinity. More specifically, Not 1 More Acre! submitted a scoping comment letter to the Army on May 20, 2008 regarding the Grow the Army EIS raising illegal segmentation issues and failure to analyze cumulative impacts of its actions. On October 8, 2007, Not 1 More Acre! also submitted a comment letter on a Draft EIS for the Army Growth and Force Structure Realignment raising the illegal segmentation issues and the Army's failure to consider cumulative impacts. All issues raised in the October 8, 2007 and May 20, 2008 comment letters are incorporated herein by reference. The Department of Defense also recently announced that it is also taking comments on proposed Low Altitude Tactical Navigation ("LATN") to conduct low altitude navigation using C-130 air planes and CV-22 Ospreys in the airshed over PCMS, and vicinity. We continue to ask that all federal actions proposed by the military for PCMS and vicinity be incorporated into a single EIS so that the combined and cumulative impacts of these actions can be fully assessed in a single document, rather than segmented among numerous separate EISs and EAs.

As noted above, the Army also appears to be undertaking construction activities at PCMS (landing strips, clamshell maintenance facilities, check dams) without analyzing the cumulative impacts in a single EIS. The Army is either failing to analyze these construction impacts under NEPA or is illegally segmenting each construction project to avoid a cumulative impact analysis.

Archeological/cultural resources

The Army must fully catalog all archeological/cultural resources at Piñon Canyon Maneuver Site. The Army must also identify mitigation measures for preventing any damage to these resources from its proposed action. The archeological and cultural resources at PCMS may require imposition of training restrictions and increased operational delays, as well as associated costs.

As stated in Section 4.2.2, both quantitative and qualitative analyses have been used in this PEIS or in supporting EIS analyses to determine whether thresholds of significance are exceeded. Some of these thresholds are based on regulatory requirements, while others reflect discretionary judgment on the part of the Army. The Army has re-categorized some impacts, where necessary, to ensure a consistent comparison of environmental impacts is presented in this PEIS despite use of different impact terminology in past EIS analyses.

Section 4.6 of the 2009 *Grow the Army* FEIS includes an extensive discussion of water quality in water bodies on or near PCMS, and includes quantitative water quality data and standards. Specifically, Section 4.6.1.2.2 analyzes impacts to Colorado's 303(d) listed waters. Follow-on site-specific NEPA analysis would address water quality impacts in greater detail, if Fort Carson were selected for CAB stationing.

This term is defined in applicable laws. For instance, 16 USC §1532 defines "take" for purposes of the Endangered Species Act.

As discussed in our response to the EPA's comments on air quality at Fort Carson (comment #32), a complete air emissions and inventory analysis was included in Fort Carson's 2009 *Grow the Army* PEIS. The results of this analysis did not indicate that the proposed action would cause or contribute to a violation of the eight-hour ozone NAAQS.

We strongly disagree with the assertion that the proposed action constitutes illegal segmentation. The Army must constantly adapt to evolving contingencies overseas, which drive continually changing training and stationing requirements at home. In the face of this constant change, the Army must conduct appropriate NEPA analysis to the best of our ability, in light of the facts known at the time. Please also see page I-10 of the 2009 *Grow the Army* FEIS for our response to similar segmentation comments received in the course of that analysis.

The Air Force's LATN proposal is an independent project, with no relation to the proposed action analyzed within this PEIS. The LATN proposal is, however, included in cumulative impacts analysis of this PEIS.

Because this action does not require construction at PCMS, it does not represent the point at which the Army would undertake a cumulative analysis of construction projects at PCMS.

Section 5.10.1 of this PEIS has been revised to update this information and Section 4.5 has been revised to include proposed cultural resources mitigation measures.

Tribal consultation is also required for implementation of the proposed action and any additional training, housing or stationing activity at PCMS.

In addition, we also incorporate by reference all archeological, cultural and paleontological issues raised in our October 8, 2007 comment letter.

Noise

EPA's October 12, 2010 scoping comments state, "the Draft PEIS should describe the impacts of noise to human and wildlife health and behavior, as well as measures that will be employed to mitigate those impacts, such as physical controls, operations plans, and flight corridors. Noise analysis methodologies should be explained and the single-event and cumulative noise metrics utilized in the analysis should be defined." There is no indication in the draft CAB PEIS that this analysis was conducted.

Threatened and Endangered species

Additional soldiers and development at Fort Carson might impact threatened and endangered species at PCMS. Mexican spotted owl (federally listed as threatened) habitat, burrowing owl, mountain plover, ferruginous hawk and swift fox are present PCMS. A full inventory of threatened and endangered species must be performed prior to implementation of the proposed action. Moreover, the Army must prevent any "taking" of a threatened or endangered species at PCMS by developing mitigation that precludes any killing of such a species or adverse impacts to their habitat.

In addition, we also incorporate by reference all threatened and endangered species issues raised in our October 8, 2007 comment letter.

Bald and Golden Eagle Protection Act

Bald and golden eagle nests and habitat exist at the Piñon Canyon Maneuver Site. The Army must comply with 16 U.S.C. 668-668c.

Wildlife and fish

Migratory birds and other wildlife exist on PCMS. The Army must inventory all wildlife species and prepare mitigation measures to protect wildlife and the habitat they depend upon.

In addition, we also incorporate by reference all wildlife and migratory bird issues raised in our October 8, 2007 comment letter.

EPA's October 12, 2010 scoping comments state, "The Draft PEIS should describe the current quality and potential capacity of habitat, its use by fish, marine mammal, and terrestrial wildlife on and near the proposed project areas, and identify known corridors, migration routes, and areas of seasonal congregation. Habitat descriptions should include habitat type, aquatic and terrestrial species, functional values, and integrity. These resources may experience varying degrees of impacts and alteration of their habitat and hydrologic functions, and project encroachment may degrade habitat for fish, other aquatic biota, and other wildlife (e.g. birds). The Draft PEIS should evaluate effects on these species and populations from habitat removal and alteration, habitat fragmentation caused by infrastructure, land use, and management activities, and human activity. Effects on plant species and populations should be included. Impacts to resources should be evaluated in terms of the acreage to be impacted and by the functions they perform. For any impacts that cannot be avoided through siting and design, the EIS document should, at a minimum, describe the types, location, and estimated effectiveness of best management practices applied to minimize and mitigate impacts to aquatic resources." There is no indication in the Draft CAB PEIS that this analysis was performed for PCMS.

Water quality and quantity

All appropriate tribal consultation for operation of the CAB on PCMS would be conducted as part of Fort Carson's follow-on, site-specific NEPA analysis should Fort Carson be selected for CAB stationing.

See our response to EPA's comments on noise (comment #32). Noise analysis in this PEIS is based on noise analysis from the 2009 Fort Carson *Grow the Army* FEIS. It utilized C-weighted day-night sound level (CDNL) for large caliber weapons and A-weighted day-night sound level (ADNL) for small arms and aircraft activity.

As stated in Section 4.7.1.3.1 of the 2009 *Grow the Army* FEIS and in Section 5.9.1 of this PEIS, no species currently listed as endangered or threatened under the ESA are known to occur on PCMS. Section 5.9.2 of this PEIS has been revised to state that mitigation for federally protected and sensitive species will be determined in consultation with the FWS if Fort Carson is selected for CAB stationing and will be developed as part of site-specific NEPA following this PEIS and Record of Decision.

The Act is discussed at paragraph A.6 in Appendix A. Section 5.9 discusses both bird species.

Section 5.9 has been extensively revised and proposed mitigation measures added to Section 4.5 of this PEIS. For further details, see responses to EPA comments (comment #32).

The Nationwide Rivers Inventory has identified 117 miles of the Purgatoire River, part of which runs through the PCMS, as having outstanding scenic, geological, fish, wildlife and cultural values and as eligible for special protection. The PEIS must catalog these special features of the Purgatoire River and develop mitigation measures to prevent any adverse impacts that would prevent designation as a wild and scenic river.

Portions of Fort Carson are in the Fountain Creek watershed. Fountain Creek, a tributary of the Arkansas River, is currently impaired for e coil, selenium, and other pollutants. Accordingly, the Army may not take any action that will further exacerbate these water quality impairments. The Army must research all water quality impairments in the Fort Carson and PCMS watersheds, also tributaries to the Arkansas River, and determine whether the proposed actions may exacerbate these impairments or otherwise adversely impact water quality.

It has been reported that significant mitigation measures will be needed to reduce impacts to water quality and achieve US EPA water quality standards resulting from the proposed action. It has been reported that these water quality environmental costs may exceed \$1 million.

In addition, we also incorporate by reference all water quantity and quality issues raised in our October 8, 2007 comment letter.

In its October 12, 2010 scoping comment letter EPA states, “The proposed project should be evaluated for its potential to alter stream discharge and degrade riparian and water quality. The introduction of sediments to stream systems can alter thermal processes, consequently degrading water quality, and impacting fish and their habitat. Section 303(d) of the Clean Water Act (CWA) requires the States of Washington and Colorado to identify those waterbodies that are not meeting or not likely to meet State water quality standards. Project planning should evaluate which waterbodies that are listed on the State’s current 303(d) list that could potentially be affected by the project and whether a water quality restoration plan (Total Maximum Daily Load) has been developed for the waterbodies and the pollutants of concern. If a Total Maximum Daily Load (TMDL) has not been established for those waterbodies on the 303(d) list, then in the interim until one is established, the project should demonstrate that there will be no net degradation of water quality to these listed waters. In Colorado, the section of the Purgatoire River from I-25 to its confluence with the Arkansas River is identified on the 303(d) list of impaired waters for selenium. This same segment is also identified on Colorado’s Monitoring and Evaluation List for sediment. Selenium is naturally occurring within sediments of this region of Colorado. Activities which disturb the soil in the PCMS have the potential to contribute both selenium and sediment to the Purgatoire River. EPA recommends that the Draft PEIS specifically address potential impacts to the Purgatoire River, as well as mitigation for those impacts. The Draft CAB PEIS should furthermore analyze the capacity of the existing waste water treatment facilities to meet limits for effluent discharges given the additional waste load.” There is no indication in the Draft CAB PEIS that these analyses were performed.

Wetlands

EPA’s October 12, 2010 scoping comment letter states, “[b]ased upon review of the National Wetlands Inventory, areas within and adjacent to Fort Carson and Joint Base Lewis-McChord contain wetlands. Discharge of dredged or fill material into waters of the United States, including wetlands, are regulated under Section 404 of the Clean Water Act (CWA). This permit program is administered jointly by the U.S. Army Corps of Engineers (Corps) and EPA. Please consult with the Corps to determine the applicability of CWA Section 404 permit requirements to this project. Additionally, Executive Order (EO) 11990 directs Federal Agencies to ‘take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency’s responsibilities.’ The Draft EIS should describe how the project would address the wetland protection goals in EO 11990, if applicable. EPA suggests a mitigation commitment that indirect draining of, or direct disturbance of, wetland areas will be avoided if at all possible.” There is no indication in the draft CAB PEIS that this analysis was performed for PCMS. A full and complete wetlands baseline delineation must be performed for the draft CAB PEIS in order to document any impacts to wetlands from the Preferred Alternative.

Sections 4.6 and 3.6 of the 2009 *Grow the Army* FEIS have extensive discussions of these issues. This 2009 FEIS is incorporated by reference in this PEIS.

See the response to EPA’s comments on water quality (comment #32) for further information.

The Army is aware of EPA’s stringent water quality standards, and the sensitivity of Fort Carson and PCMS watersheds. The Army’s proposed mitigation measures are discussed in the expanded Section 4.5. In addition, Section 5.8.1 explains the techniques used by the Army to control sediment production from PCMS tributaries.

See response to EPA comment above. These issues were discussed extensively in the 2009 *Grow the Army* FEIS; in particular, see Section 4.6.1.2.2.

Wetlands are discussed in both the 2009 *Grow the Army* FEIS and this PEIS. This Final PEIS now makes clear that no wetlands occur within the footprint of construction proposed for CAB facilities.

The Final PEIS has been revised to include the following: At PCMS, few direct impacts to wetlands occur from ongoing training activities and no construction would occur at PCMS as part of the proposed CAB stationing. Training an additional CAB could result in indirect impacts to wetlands from erosion and sedimentation processes in drainages upstream of man-made erosion control dams. Sediments could silt in these small wetlands, changing their nature or converting them to upland habitats if erosion-control dams are not properly maintained. Wetland and riparian area buffers are generally protected from vehicular and mechanized training on Fort Carson and PCMS due to the surrounding topography, which makes these areas unsuitable for this type of training. Because of avoidance and

Air Quality

The Army must evaluate air pollution impacts resulting from the proposed action. These include air pollution resulting from growth and development, increased traffic, the addition of 120 more helicopters, the addition of 600 more wheeled vehicles, and dust emissions from increased training at both Fort Carson and PCMS. In addition, the cumulative impacts of DOD’s proposed LATN must also be analyzed.

In addition, we also incorporate by reference all air quality issues raised in our October 8, 2007 comment letter.

Soils

Additional training at PCMS will result in additional disturbance of soils. Loss of topsoil, erosion, sedimentation, and other soil issues must be analyzed in the PEIS.

In addition, we also incorporate by reference all soil issues raised in our October 8, 2007 comment letter.

Vegetation

Impacts to vegetation will occur as a result of the proposed activity. The PEIS must evaluate the adverse impacts to vegetation resulting from construction activity at Piñon Canyon Maneuver Site and increased training, housing and other activities at PCMS.

The Army must catalog all threatened and endangered plant species at PCMS. Moreover, the Army must prevent any “taking” of a threatened or endangered species at PCMS by developing mitigation that precludes any killing of such a species or adverse impacts to their habitat.

Helicopters can also have impacts on short grass prairie. It takes less than an 1/8” of dust to kill shortgrass. PCMS abuts the Comanche National Grasslands, which is a recovery unit from the Dust Bowl era. Also, surrounding ranchlands are potentially economically impacted by dust created by destruction of soils on the PCMS. These adverse impacts must be analyzed in the PEIS.

In addition, we also incorporate by reference all vegetation issues raised in our October 8, 2007 comment letter.

Airspace

The draft CAB PEIS fails to analyze the cumulative impacts to airspace when combined with the Army’s LATN proposal.

Traffic

The increase in traffic must be analyzed in the Piñon Canyon area resulting from the sudden addition of up to 2,800 new soldiers. Traffic infrastructure near Piñon Canyon Maneuver Site must be studied and any deficiencies remedied prior to relocation of a CAB at Fort Carson.

Socioeconomic

The CAB is temporarily being housed at Fort Hood. Realignment of the CAB from Fort Hood would result in a

minimization efforts Fort Carson and PCMS currently implements as part of its INRMP and ITAM procedures, direct effects to wetlands would be limited. Erosion control measures are protective of surface water, including wetlands and riparian areas. From 1996 to 1997, a Legacy grant was used to study wetland community constituents and their distribution as well as various physical parameters at 10 sites on Fort Carson and five sites on PCMS. No decline was noted in representative wetlands, and no statistically significant increases in measured constituents were identified. Because training does not seem degrade wetlands quality in any significant way, impacts to wetlands as a result of CAB stationing are predicted to be negligible.

This Final PEIS contains a full discussion of air impacts, and Section 5.5.3 has been updated to include the Air Force’s proposed LATN project in its cumulative impacts section on air quality. Our understanding is that the LATN project is still in scoping; detailed information on potential cumulative impacts is not possible at this time.

This PEIS and the 2009 *Grow the Army* FEIS have a full discussion of this issue. As appropriate, Fort Carson would provide further site-specific NEPA analysis on CAB stationing implementation impacts on soils, if Fort Carson is selected for CAB stationing.

This PEIS and the 2009 *Grow the Army* FEIS have a full discussion of this issue. As appropriate, Fort Carson would provide further site-specific NEPA analysis on CAB stationing implementation impacts on vegetation, if Fort Carson is selected for CAB stationing.

This PEIS and the 2009 *Grow the Army* FEIS have a full discussion of this issue. Army actions are subject to the requirements for consultation under §7 of the Endangered Species Act.

As described in the 2009 *Grow the Army* FEIS, Fort Carson’s fugitive dust control plan is followed as a BMP to minimize dust impacts to air quality. Subject to available funds and how much PCMS is anticipated to be used in a particular year, chemical dust suppression is applied to unpaved areas in the cantonment area and the most highly used tank trails. Other measures to control fugitive dust are also implemented as part of the plan. Fugitive dust impacts are also discussed in Section 5.5.2 of this PEIS.

Section 5.12.3 of the Final PEIS has been updated to include discussion of the Air Force’s LATN proposal in its cumulative impacts section on airspace.

Traffic impacts are discussed at Section 5.1.2.2.

A realigned CAB would consist of elements of various existing aviation units currently not

loss of personnel due to the relocation of approximately 4,100 soldiers based on 2005 data. The local Fort Hood community has embraced the CAB and did not consider this unit as temporarily stationed at Fort Hood. Soldiers have already purchased homes and integrated into the community at Fort Hood. The Fort Hood community fears housing prices will drop and soldiers forced to sell homes will experience significant financial losses. Also, the Fort Hood community responded to the so-called temporary increase in soldiers with increased housing, police, fire and municipal services. They argued that realigning Fort Hood, leaving only five Brigade Combat Teams (BCTs) permanently stationed there, would forego important existing training facilities and create 15 percent excess capacity. Fort Hood has requested retention of 6 BCTs at Fort Hood, believing the base has the capacity to train and support up to 50,000 soldiers and their families.

Finally, we also incorporate by reference all socioeconomic issues raised in our October 8, 2007 comment letter.

Hazardous materials

The risks posed by the additional use of hazardous materials at PCMS must be analyzed in the PEIS. This includes the additional fuel needed for 120 helicopters and ground vehicles, hazardous material used to maintain these vehicles, and addition weaponry, ordinances, and other hazardous materials in training exercises at Fort Carson and PCMS.

Finally, we also incorporate by reference all hazardous materials issues raised in our October 8, 2007 comment letter.

Greenhouse Gas Emissions and Climate

The Army's proposed action will result in an increase of emission of greenhouse gases ("GHG"). The source of electrical power to serve an addition 2,800 soldiers and the corresponding GHG emissions must be analyzed. In addition, the emission of GHG from 120 additional helicopters and 300 additional ground vehicles must be analyzed. The emissions from new construction at Piñon Canyon Maneuver Site must be analyzed.

In addition, it is predicted that climate change will increase drought in the PCMS region. An increase in drought will make PCMS more vulnerable to impacts. The impacts of climate change and the proposed action on PCMS must be analyzed in the Draft CAB PEIS.

Public Lands

PCMS is bordered by the Comanche National Grasslands, Apishapa State Wildlife Area, Picket Wire Canyonlands, State School Board lands and county roads are adjacent to PCMS. The National Grasslands were created to remediate dust bowl era impacts. Impacts to surface waters, groundwaters, vegetation, soils, cultural resources, wildlife, and other resources in these public lands must be analyzed in the draft CAB PEIS. For example, increased training maneuvers at PCMS will cause destruction of habitat and corresponding displacement of wildlife. This wildlife will be displaced to adjacent public lands. The Draft CAB PEIS should analyze how the habitat destruction and wildlife displacement will alter wildlife carrying capacities and the ecosystems of neighboring public lands.

For example, during oral argument in the Colorado U.S. District Court lawsuit, Judge Matsch stated: "but I'm concerned as to whether there's an adequate assessment of what the impact is on not only the flora and fauna, but everything else, including adjacent property when you're talking about being out there all the time." See, Oral Hearing Transcript, Page 30.

When the After Action Reports are reviewed, the validity of Judge Match's concerns are realized. The 14-January-16 February 1991 AAR states:

assigned to CABs, as explained in Section 3.4 of this PEIS. These units would come from various installations across the Army. The proposed consolidated CAB is not temporarily stationed at Fort Hood, as suggested in the comment; in fact, it does not currently exist. It is true that some of the existing aviation elements that may be considered for realignment are currently stationed at Fort Hood.

This PEIS states that CAB operations and training at Fort Carson and PCMS will result in an increase in the use of hazardous materials, use of petroleum-based products, and disposal of hazardous waste, therefore the increased potential for spills. Due to extensive outreach and training efforts on spill prevention, major site contamination and cleanup or other special hazards resulting from increases in personnel, construction activities, and training activities will not be anticipated. This combined with Fort Carson's (and PCMS's) comprehensive program to address the management of hazardous waste, hazardous materials, and toxic substances, effects from a CAB stationing related to hazardous waste, hazardous materials, and toxic substances is anticipated to be less than significant.

We have revised Section 5.5.2 of this PEIS to include discussion of GHG emissions, as well as the possibility of increased drought to recognize that PCMS could end up drier than its current state due to changing patterns of precipitation that could accompany climate change.

This PEIS has been updated to include discussion of disturbance effects to wildlife. Section 4.5 includes additional proposed mitigation measures to reduce these disturbance effects. In addition, Fort Carson would implement measures contained in the installation's fugitive dust control plan. These mitigations would help to reduce wildlife displacement and other impacts to PCMS and adjacent public lands.

“Cumulative impacts from areas of significant disturbance could result in significantly negative alterations of the hydrology of the PCMS and surrounding lands. These impacted areas, when considered cumulatively will act to increase sediment yield into the Purgatoire River. If disturbance such as this continues on a large scale, the potential impacts are very substantial. Once these effects are carried to the Purgatoire, downstream users may become more vocal (once again seek legal compensation) as to the impact of military training on their decreed use of water from the River.”

These public lands impacts must be analyzed in the CAB PEIS.

Coordination with Tribal Governments

As EPA noted in its October 12, 2010 scoping comment letter, “the Draft PEIS should describe the process and outcomes of government-to-government consultation between the Department of Defense and each of the tribal governments that would be affected by the project, issues that were raised, if any, and how those issues were addressed. EO 13175, Consultation and Coordination with Indian Tribal Governments (November 6, 2000), was issued in order to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, and to strengthen the U.S. government-to-government relationships with Indian tribes.” There is no indication in the draft CAB PEIS that this consultation was performed.

Environmental Justice:

As EPA noted in its October 12, 2010 scoping comment letter, “[s]ince the proposed action is in an area that has potential Environmental Justice (EJ) populations, the Draft PEIS should determine whether any EJ communities are present within the area and, if so, analyze the impacts this action will have on these communities. According to the Council on Environmental Quality NEPA/Environmental Justice Guidance, Federal agencies are to make the achievement of environmental justice part of their mission by identifying and addressing as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations, and allowing all portions of the population a meaningful opportunity to participate in the development of, compliance with, enforcement of Federal laws, regulations, and policies affecting human health or the environment regardless of race, color, national origin or income.

In the memorandum to heads of departments and agencies that accompanied EO 12898, the President specifically recognized the importance of procedures under NEPA for identifying and addressing environmental justice concerns. The memorandum states “each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by NEPA.” There is no indication in the draft CAB PEIS that this analysis was adequately performed.

Cumulative Impacts

As EPA noted in its October 12, 2010 scoping comment letter, “[i]n order to assess cumulative impacts, the Draft PEIS should characterize the current and post-project conditions, including reasonably foreseeable future actions (RFFAs), and identify a baseline. EPA recommends the Draft PEIS analyze effects on air impacts, water quality, wetlands with quantitative measures when possible and qualitative measures otherwise.” There is no indication in the draft CAB PEIS that this analysis was performed for PCMS.

Moreover, it is believed that military organizations other than the Army utilize PCMS. For example, it is believed that the Colorado National Guard performs training at PCMS. The cumulative impacts of all uses of PCMS must be analyzed in the draft CAB PEIS.

Adaptive Management and Mitigation

NIMA! opposes the use of adaptive management as a purported method of mitigating impacts. Adaptive

Since no construction is anticipated under the proposed action, we do not anticipate any significant disturbance or alterations to the hydrology of PCMS and surrounding lands. As noted in Section 5.8.2 of this PEIS, the USGS found that the largest correlation to sedimentation of the waters of the Purgatoire River is the number of large storm events received in the vicinity of PCMS, not the frequency of use of PCMS by the military. Furthermore, Fort Carson implements an aggressive erosion and sediment control program and utilizes the ITAM program to reduce erosion and sedimentation impacts to water bodies on and surrounding PCMS.

No new construction or training beyond what has been historically analyzed will occur as a result of the proposed action in this programmatic analysis, such that tribal consultation is required. If selected for CAB stationing, Fort Carson would conduct all appropriate tribal consultation as part of its follow-on, site specific NEPA analysis.

See response to EPA comment on environmental justice (comment #32).

We have responded to the EPA’s comments (comment #32) and revised the PEIS accordingly. As discussed in Section 4.1 of this PEIS, the 2009 *Grow the Army* FEIS provides additional context and more detailed discussions of the current conditions of the affected environment, from which impact ratings for implementation of this proposed action were derived.

This issue is more appropriate for analysis in follow-on site-specific NEPA analysis, which

management is a reactive methodology that only attempts to address impacts after they have occurred. Rather, NIMA! advocates that proactive methodologies be employed that prevent impacts before they occur.

However, in the event the Army intends to rely on adaptive management, we request that you address EPA's scoping comments which state,

"The Draft PEIS should identify the features of an effective adaptive management plan, including:

A decision tree with clear objectives to guide future decisions;

Specific decision thresholds with identified indicators for each impacted resource;

Targets that specify a desired future condition;

Trends specifying a desired change relative to the baseline condition;

A monitoring plan with protocols to assess whether thresholds are being met; and,

Firm commitment to use monitoring results to modify management actions if necessary."

The Draft PEIS should describe how and with what resources the Army will conduct monitoring necessary under an adaptive management plan to ensure the project is meeting objectives and mitigating impacts as predicted."

There is no indication in the Draft CAB PEIS addresses these comments.

Sikes Act

The Sikes Act states, "the Secretary of each military department shall prepare and implement an integrated natural resources management plan for each military installation in the United States under the jurisdiction of the Secretary..." 16 U.S.C. §670a(a)(B). The Sikes Act further states that, "each integrated natural resources management plan prepared under subsection (a)--

(1) shall, where appropriate and applicable, provide for--

(A) fish and wildlife management, land management, forest management, and fish and wildlife-oriented recreation;

(B) fish and wildlife habitat enhancement or modifications;

(C) wetland protection, enhancement, and restoration, where necessary for support of fish or wildlife;

(D) integration of, and consistency among, the various activities conducted under the plan;

(E) establishment of specific natural resource management objectives and time frames for proposed action;

(F) sustained use by the public of natural resources to the extent such use is not inconsistent with the needs of fish and wildlife resources management;

(G) public access to the military installation that is necessary or appropriate for the use described in subparagraph (F), subject to requirements necessary to ensure safety and military security;

(H) enforcement of natural resource laws and regulations;

(I) no net loss in the capability of military installation lands to support the military mission of the installation; and

(J) such other activities as the Secretary of the military department considers appropriate; U.S.C. §670a(b)(1).

The Draft CAB PEIS references a Fort Carson Integrated Natural Resource Management Plan (INRMP) 2007a. See, Draft CAB PEIS at p. 5-24. The Draft CAB PEIS also appears to indicate that the Fort Carson INRMP includes information on PCMS. See, Draft CAB PEIS at p. 5-27. However, the Draft CAB PEIS fails to include a link to the Fort Carson INRMP 2007a. Not 1 More Acre! conducted a thorough internet search for the Fort Carson INRMP 2007a and was unable to locate the document. Not 1 More Acre! requests that the Army produce a copy of the Fort Carson INRMP 2007a and allow the public an opportunity to comment on whether the INRMP adequately addresses PCMS and whether the Draft CAB PEIS is consistent with the INRMP.

will be prepared by Fort Carson if it is selected as a CAB stationing location under this programmatic decision.

Fort Carson's INRMP contains analysis of PCMS.

Fort Carson's INRMP can be obtained by contacting their Directorate of Public Works (DPW), Environmental Division, contact information for which appears on their website: <http://www.carson.army.mil/DPW/>.

Failure to establish compliance with range management guidelines

The Army has established range management guidelines for protecting range resources. <http://aec.army.mil/usaec/range/sustainment00.html>. The Draft CAB PEIS fails to demonstrate that the proposed alternative would comply with range standards and guidelines at PCMS. Please amend and reissue a Draft CAB PEIS demonstrating compliance with such standards and guidelines.

Thank you for the opportunity to submit comments on the Draft CAB PEIS. Please incorporate these comments into your decision-making. If you have any questions, don't hesitate to contact me.

In accordance with Army Regulation 350-19, the Army implements its Sustainable Range Program (SRP) through various mechanisms, in particular, the Integrated Training Area Management (ITAM) program. ITAM is referenced several times throughout this PEIS. For example, use of ITAM to reduce impacts to soils is discussed in Section 5.7.2. The SRP has long been in effect at Fort Carson and PCMS. Section 3.13 of Fort Carson' 2009 *Grow the Army* FEIS provides additional information on Fort Carson's implementation of the SRP program.

This comment does not present significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts that would require the Draft PEIS to be reissued for a second comment period.

We appreciate your continued interest in this important project.

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLORADO
Senior District Judge Richard P. Matsch

Civil Action No. 08-CV-00828-RPM

NOT 1 MORE ACRE!, a Colorado non-profit corporation,
JEAN AGUERRE,
MACK LOUDON, and
JAMES E. HERRELL,

Plaintiffs,

v.

UNITED STATES DEPARTMENT OF THE ARMY,
ROBERT M. GATES, United States Secretary of Defense,
PETER GEREN, Secretary of the United States Department of the Army, and
CRAIG E. COLLEGE, United States Army Deputy Assistant Chief of Staff for Installation
Management,

Defendants.

MEMORANDUM OPINION AND ORDER

On August 2, 2007, the United States Department of the Army (“Army”) issued a Record of Decision (“ROD”) to increase the use of its Pinon Canyon Maneuver Site (“PCMS”) in southeastern Colorado to conduct training of an increased troop population stationed at Fort Carson, Colorado in conformity with a transformation process involving changes in unit organization and training doctrine. As required by the National Environmental Policy Act of 1969 (“NEPA”), 42 U.S.C. § 4321, et seq., the Army’s decision was made after consideration of the matters addressed in the **Final Pinon Canyon Site Transformation Environmental Impact Statement, dated June 2007 (“EIS”)**. There are two aspects to that document. **First, it describes proposed construction of new physical facilities to expand support services in an existing**

cantonment area of about 1660 acres to include a brigade support complex, a medical/dental clinic, storage facilities, soldier support facilities (including a chapel, phone center, barbershop, shopping and laundry facilities), a vehicle maintenance facility, motor pools, and upgraded roads and utilities.

Second, it refers to training operations of unspecified duration, frequency and intensity to be conducted on the remainder of the 235,000 acres of the PCMS, requiring the addition of a live hand grenade range, an ammunition holding area, a protective equipment testing facility, and upgrades to an existing small-arms range and communications facilities.

Because the EIS does not adequately assess the impact on the environment of the increase in the intensity and duration of training operations necessary to meet the Army's stated purposes for its action, the Army's reliance on it makes the ROD an arbitrary and capricious action, an abuse of discretion and a decision not in accordance with NEPA, requiring the intervention of this Court under the Administrative Procedure Act ("APA"), 5 U.S.C. §§ 701-706.

The PCMS is a Department of Defense ("DOD") installation located in southeastern Colorado in Las Animas County, approximately 150 miles southeast of Fort Carson and Colorado Springs, Colorado. A.R. 10 at 0000036.¹ No soldiers are permanently stationed at the PCMS. Its primary mission is to support maneuver training exercises for soldiers stationed at Fort Carson. *Id.* at 0000037.

¹The Final PCMS Transformation Environmental Impact Statement is found in the Administrative Record at Document Number 10, pages 0000032-0000932. References to the Administrative Record (A.R.) are designated by document number and bate stamp page number(s), i.e. A.R. 1 at 0000001.

The Army acquired the PCMS in the early 1980s. Previously the land had been used mainly for large grazing operations. *Id.* at 0000191. The PCMS is located along the western margin of the Great Plains. Adjacent private land is zoned for agricultural uses and used for dryland grazing. *Id.* at 0000102 & 0000117. The terrain includes wooded hills, volcanic formations, grassy plains, mesas, dissected plateaus and deep canyons. *Id.* The climate is moderate and dry, with average precipitation of approximately 13 inches per year. *Id.* at 0000099.

When the Army proposed to acquire land in southeastern Colorado for combat maneuver training, it prepared an EIS for Training Land Acquisition to assess the environmental impacts associated with such use. *See* A.R. 254 & 282. The Army selected the Pinon Canyon site even though it was “slightly more fragile” than the alternative Huerfano River site. A.R. 254 at 0013593. The Draft EIS for Training Land Acquisition recognized that land in semi-arid southeastern Colorado cannot accommodate perpetual use for maneuver training. A.R. 282 at 0019768. Accordingly, the amount of land to be acquired must be large enough “to allow for rest and recovery of the land on a rotating basis.” *Id.* In assessing the variables to be considered in a Land Use and Management Plan (LUMP), the Army identified Training Intensity and Time of Use as the key variables. *Id.* at 0019769.

Military training operations began at the PCMS in 1985. Since then, the PCMS has been used for training exercises, on average, approximately 4 months per year. A.R. 10 at 0000191.

The Army is undergoing a restructuring process, referred to as “Transformation,” to respond to the challenges of the 21st century. *Id.* at 0000057. Three programs are relevant to the Proposed Action addressed in the Final PCMS Transformation EIS:

(1) Army Modular Force (“AMF”) is a program for changing the size of Army units by reorganizing forces into Brigade Combat Teams. All Fort Carson soldiers are being organized into Brigade Combat Teams. *Id.* at 0000059-60. The AMF initiative changes Army training doctrine. *Id.*

(2) Base Realignment and Closure (“BRAC”), governed by the Base Realignment and Closure Act of 1990 as amended, is “a process by which military installations are closed or realigned to meet the infrastructure, training and force structure requirements of the military and save taxpayers’ money.” *Id.* at 0000058. Recommendations of the 2005 Base Closure and Realignment Commission became law in November 2005. One of those recommendations was to relocate a Division Headquarters and a Heavy Brigade Combat Team and other support units from Fort Hood, Texas to Fort Carson. *Id.*

(3) Integrated Global Presence and Basing Strategy (“IGPBS”) is a program for assessing the size, character, and location of the military’s overseas presence. *Id.* at 0000058-59. As part of that effort, some forces currently based overseas are being returned to the United States over a period of years. The Army has determined that an Infantry Brigade Combat Team from Korea will be stationed at Fort Carson. *Id.*

The combined effect of these programs increases the troop population of Fort Carson to approximately 23,000 soldiers. *Id.* at 0000088. The increased population and the changes in training doctrine compel a corresponding increase in the need for combat training facilities and the environmental impact on the PCMS to meet that need is the subject of the EIS.

The Army's projections of the total maneuver training requirements of the Brigade Combat Teams to be stationed at Fort Carson exceed the capacity of the PCMS. *Id.* at 0000093-94 & Table 2-2. An area expansion has been under consideration for several years.

A moratorium on major land acquisitions by military departments has been in effect since 1990. A waiver of the moratorium for any land acquisition involving more than 1,000 acres or costing more than \$1.0 million requires approval by the Office of the Secretary of Defense.

An Analysis of Alternatives Study, dated May 6, 2004, concluded that the PCMS has a maneuver area shortfall and recommended the acquisition of additional training land adjacent to the PCMS. A.R. 172 at 0007295. The "Piñon Vision Operations Order 05-09," dated December 22, 2004, describes a plan for implementing "the long-term expansion of [PCMS] in order to obtain adequate training areas and ranges to support current and future Army and Joint force mobilization, mission rehearsal and training requirements." AR 276 at 0019157.² A second Analysis of Alternatives Study and a Land Use Requirements Study, both dated April 12, 2005, addressed expansion. *See* A.R. 153 & A.R. 154.

In November 2005, the Army published in the Federal Register a notice of intent to prepare an environmental impact statement for the purpose of examining the impacts to the PCMS resulting from the recommendations of the 2005 Base Closure and Realignment Commission. A.R. 142. In April, 2006, the Army conducted public hearings regarding the issues to be addressed in the PCMS Transformation EIS.

²A revised version of the Piñon Vision 05-09, was published in January 2006, entitled "Piñon Vision OPLAN 05-18." A.R. 275.

In July 2006, the Army submitted a formal request to the Deputy Under Secretary of Defense, seeking approval to acquire up to 418,577 acres of land in and around the PCMS. A.R. 274.

In apparent recognition of the legal and political complexity of acquiring more land to increase the size of the PCMS, the Army decided to proceed with an assessment of the environmental impacts of increased use of the present facility. Accordingly, on October 13, 2006, the Army published a Draft PCMS Transformation Environmental Impact Statement, identifying the proposed action as (1) increased frequency, duration and intensity of training exercises at the PCMS; (2) construction of new facilities in the cantonment, and (3) construction of new facilities in the training areas (“the Proposed Action”). A.R. 38 at 0001244.

The Army held public hearings in November 2006 on the Draft PCMS Transformation Environmental Impact Statement. Those hearings were followed by another public comment period, which ended on February 16, 2007.

On February 8, 2007 – eight days before the close of the public comment period, the Office of the Secretary of Defense approved the Army’s request for a waiver of the moratorium on land acquisition. A.R. 13. Despite that approval, the Army issued the Final PCMS Transformation Environmental Impact Statement in June, 2007. On August 2, 2007, the Army issued the ROD, authorizing construction of new facilities in the cantonment area, construction of new facilities in the training areas, and an increased use of training areas at the PCMS. A.R. 3.

On April 23, 2008, Plaintiffs Not 1 More Acre!, Jean Aguerre, Mack Loudon, and James E. Herrell initiated this action under the APA and NEPA, challenging the sufficiency of the Final

PCMS Transformation EIS. Not 1 More Acre! is a Colorado non-profit corporation formed to promote the ecological and economic welfare of southeastern Colorado. The individual Plaintiffs are residents of southeastern Colorado who are interested in preserving the agricultural, scientific, cultural, and economic resources of the region and protecting the land within and surrounding the PCMS. The Plaintiffs' standing to pursue this action is not challenged.

NEPA requires federal agencies to prepare an environmental impact statement before taking any "major Federal actions significantly affecting the quality of the human environment" 42 U.S.C. § 4332(2)(C); 40 C.F.R. pt. 1501. An environmental impact statement must discuss the purpose and need for the proposed action, environmental impacts resulting from the action, unavoidable adverse environmental impacts, alternatives to the proposed action, the relationship between short-term uses and long-term productivity, and the amount of resources that must be devoted to the proposed action. 42 U.S.C. § 4332(2)(C)(i)-(v); 40 C.F.R. § 1502.10.

The judicial review provisions of the APA govern this suit. *Utah Shared Access Alliance v. Carpenter*, 463 F.3d 1125, 1134 (10th Cir. 2006), *cert. denied*, 127 S. Ct. 2100 (2007). The question is whether the challenged agency action is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law" or "without observance of procedure required by law." 5 U.S.C. § 706(2)(A), (D). "Because NEPA imposes procedural rather than substantive requirements, the role of the courts in reviewing compliance with NEPA is simply to ensure that the agency has adequately considered and disclosed the environmental impact of its actions and that its decision is not arbitrary and capricious." *Lee v. U.S. Air Force*, 354 F.3d 1229, 1237 (10th Cir. 2004)(quotation marks and citation omitted). "Under this standard, [the reviewing court] must consider whether 'the [agency's] decision was based on a consideration of the

relevant factors and whether there has been a clear error of judgment.” *Utah Envtl. Cong. v. Richmond*, 483 F.3d 1127, 1134 (10th Cir. 2007) (quoting *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 416 (1971)). “An agency action is arbitrary and capricious ‘if the agency . . . entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or [if the decision] is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.’” *Utah Envtl. Congress*, 483 F.3d at 1134 (quoting *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983)).

The focus of review in an APA action is the administrative record. *Camp v. Pitts*, 411 U.S. 138, 142 (1973).

In the first claim for relief, the Plaintiffs allege that the EIS is deficient because it does not address the Army’s plan to acquire more land to expand the PCMS. The Plaintiffs contend that the Final PCMS Transformation EIS is improperly narrow in scope, arguing that the proposed territorial expansion must be considered as a cumulative impact, a connected action, or other similar action.

“Scope consists of the range of actions, alternatives, and impacts to be considered in an environmental impact statement.” 40 C.F.R. § 1508.25. Proposals or parts of proposals that are “related to each other closely enough to be, in effect, a single course of action” must be evaluated in a single environmental impact statement. 40 C.F.R. § 1502.4(a). An agency must consider “connected actions,” “cumulative actions,” and “similar actions.” 40 C.F.R. §§ 1502.4(a) & 1508.25.

Actions are considered connected if they: “(i) Automatically trigger other actions which may require environmental impact statements; (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously; or (iii) Are interdependent parts of a larger action and depend on the larger action for their justification.” 40 C.F.R. § 1508.25(a)(1)(i)-(iii). The Tenth Circuit Court of Appeals has recognized that projects that have independent utility are not connected actions under 40 C.F.R. § 1508.25(a)(1)(iii). *See Custer County Action Ass'n v. Garvey*, 256 F.3d 1024, 1037(10th Cir. 2001).

Cumulative actions are those which have cumulatively significant impacts when viewed with other proposed actions. 40 C.F.R. § 1508.25(a)(2). A cumulative impact is “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” 40 C.F.R. § 1508.7. The test for whether particular actions should be considered cumulative impacts of the proposed action is “whether the actions are ‘so interdependent that it would be unwise or irrational to complete one without the others.’” *Airport Neighbors Alliance, Inc. v. United States*, 90 F.3d 426, 430 (10th Cir. 1996) (quoting *Park County Res. Council, Inc. v. U. S. Dep’t of Agric.*, 817 F.2d 609, 623 (10th Cir. 1987)).

Similar actions are ones “which when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography.” 40 C.F.R. § 1508.25(a)(3).

“To determine the appropriate scope for an EIS, courts have considered factors such as whether the proposed segment (1) has logical termini, (2) has substantial independent utility,

(3) does not foreclose the opportunity to consider alternatives, and (4) does not irretrievably commit federal funds for closely related projects.” *Utahns for Better Transp. v. U.S. Dep’t of Transp.*, 305 F.3d 1152, 1183 (10th Cir. 2002), *modified*, 319 F.3d 1207 (10th Cir. 2003). An environmental impact statement does not need to include an assessment of future action that is uncertain or speculative. *See, e.g., Airport Neighbors Alliance, Inc. v. United States*, 90 F.3d 426, 431 (10th Cir. 1996) (“[R]equiring a cumulative EIS analyzing possible future actions postulated in a twenty-year Master Plan that are far from certain would result in a gross misallocation of resources, would trivialize NEPA and would diminish its utility in providing useful environmental analysis for major federal actions that truly affect the environment.” (quotation marks and citation omitted)).

The Final PCMS Transformation EIS addresses the relationship between the Proposed Action and potential future expansion. The EIS states:

The transformation Proposed Action incorporates modifications to training requirements in ways that best meet training needs (see Section 2.2.4.2) and can be implemented as a stand-alone action (i.e., troop realignment, training, and construction) that does not require expanding the PCMS boundaries. That is, land acquisition is not necessary or proposed to implement the Proposed Action in the PCMS Transformation [Final] EIS.

Id. at 0000077. The EIS explains:

The Army has not made any irretrievable commitment of resources for expansion; transformation can and should occur independent of expansion (i.e., it has independent utility and, as noted previously, the needs for transformation are immediate), expansion is not dependent on transformation, and approval of transformation will not force expansion to occur.

Id. at 0000453. *See also* Section 1.3.3, “Potential Future Expansion of the PCMS” (*id.* at 0000065-67).

The Plaintiffs' first claim for relief fails. In November 2005, when the Army moved forward with that NEPA process for the Proposed Action, there were no developed plans for territorial expansion that would permit assessment or evaluation under NEPA.³

In the second claim for relief, the Plaintiffs claim that the Final PCMS Transformation EIS is deficient for failing to consider an adequate range of alternatives. The focus of this claim is that aspect of the Proposed Action relating to increased frequency, duration and intensity of training exercises at the PCMS.

The Defendants argue that the Plaintiffs waived any argument with respect to whether the EIS should have considered different training intensities at the PCMS, asserting that the Plaintiffs failed to address the issue in their comments on the Draft EIS. That objection is without merit. When the Plaintiffs submitted comments on the Draft EIS, they faulted the Army for failing to provide sufficient details about the expected level of use and for limiting the range of alternatives considered. *See* A.R. 271 at 0018485 – 502. Among other comments, the Plaintiffs stated:

In the absence of reliable information about anticipated use, agency officials and the public lack a sound basis for distinguishing among the various alternatives and thereby making a reasoned choice of action. The failure to disclose expected use

³Documents in the court record indicate that the Army's plans to expand the territorial boundaries of the PCMS have not progressed as originally planned, due to political opposition and budgetary restraints. A GAO report dated January 13, 2009 states, "After reassessing its initial plans, the Army reported that it now identifies a potential acquisition of 100,000 acres rather than the previously identified 418,577 acres for a variety of reasons including budgetary restraints, concerns about historic and culturally sensitive sites, and that a smaller expansion would affect a fewer number of landowners." (Pl.'s reply, Ex. 12.) Congress enacted budgetary restrictions in 2008 and 2009 that preclude the Army from expending military construction appropriations on the expansion of the PCMS and require the Army to submit reports to the congressional defense committees on the need for additional training land and related issues. (Def.'s surreply at 12-13.)

levels in the DEIS is a critical flaw that prevents the public from understanding the extent of potential significant environmental impacts. As a result, the Army relies upon vague or generalized assertions describing the expected impacts to resource values.

Id. at 0018496. The Army was fairly informed of the Plaintiffs' challenge to the EIS.⁴

At the hearing on June 3, 2008, the Court questioned the sufficiency of the EIS's impacts analysis. The Defendants objected to consideration of this issue, arguing that it was outside the scope of the pleadings. At the Defendants' request, supplemental briefing was permitted.

There is no prejudice to the Defendants in analyzing this issue.

The Tenth Circuit Court of Appeals has instructed that when an agency makes an informed decision that the environmental impacts will be small, a less extensive search for reasonable alternatives is required. *See Greater Yellowstone Coal. v. Flowers*, 359 F.3d 1257, 1278-79 (10th Cir. 2004) (referring to "the sliding scale by which we must measure an agency's obligations"). Conversely, when the environmental impacts would be significant, a more rigorous alternatives analysis is required. Accordingly, the Plaintiff's challenge to the EIS's alternatives analysis necessarily requires review of the Army's conclusions about the anticipated environmental impacts associated with the Proposed Action and the plan for mitigation.

The EIS evaluated two alternatives – the Preferred Alternative and the No Action Alternative. The Army determined that other alternatives, such as training troops at other locales or varying training schedules, were not reasonable alternatives because such alternatives would unduly restrict the Army's ability to implement transformation. Only the Preferred Alternative and the No Action Alternative were carried forward for detailed analysis in the EIS. The Army

⁴Others, such as the Colorado Department of Wildlife and the Sierra Club, made similar comments. *See* A.R. 10 at 0000832 & 0000930-931.

concluded that the No Action alternative was not feasible because troop realignment at Fort Carson has been mandated by Congress. The Army also concluded that “with implementation of mitigation and best management practices . . . there would be no significant environmental impacts associated with the selected action.” A.R. 3 at 0000007; A.R. 10 at 0000200.

A major flaw of the EIS is that it contains only vague descriptions of the anticipated increase in use. The EIS states, “training under the Proposed Action may or may not be conducted 52 weeks per year.” *Id.* at 0000156. The Proposed Action “includes the potential that an intensive level of training could occur over broad geographic areas or not at all.” *Id.* at 0000456. The EIS states that “the Transformation Proposed Action was developed to accommodate maximum flexibility for implementation, even if installation commanders do not adopt the most intensive mission training strategy available to them.” *Id.* at 0000455. The Army asserts that “[a]ctual use will be scheduled according to varying training needs and land condition, and is projected to be greater than the historical use and less than the total need.” *Id.* at 0000725. These statements fail to provide any meaningful description of the anticipated intensity and frequency of the additional training activities to be conducted on this land and the consequences to the environment.

The Proposed Action permits the entire site to be used for training purposes every day of the year. *See* A.R. 10 at 0000156. Consequently, the Army’s conclusion that there would be no significant environmental impacts is counter-intuitive. It is obvious that such intensive use of the PCMS prevents any meaningful mitigation of the resulting environmental impacts.

NEPA requires the agency to provide a detailed statement of “any adverse environmental effects which cannot be avoided should the proposal be implemented.” 42 U.S.C. § 4332(C)(ii).

Accordingly, an EIS must address appropriate means for mitigating adverse environmental effects. Mitigation measures are relevant to the scope of the EIS, 40 C.F.R. § 1508.25(b); the alternatives to the proposed action, 40 C.F.R. § 1502.14(f), and the consequences of the proposed action, 40 C.F.R. 1502.16(h). The record of decision must address “whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not.” 40 C.F.R. 1505.2(c). The Final PCMS Transformation EIS addresses mitigation in Section 3.0, along with the discussion of impacts on specific resource areas. Table 3-24 of the EIS (included in Section 3.14) summarizes anticipated environmental impacts and means for mitigation. A.R. 10 at 0000193-200. Section 6.0 of the ROD addresses mitigation. A.R. 3 at 0000009-12.

The EIS appears to address mitigation but there is no recognition of the need for scheduling training in a manner that permits rest, recovery and restoration of this fragile land.

The Administrative Record includes a copy of pages from an Army power point presentation entitled “Maneuver Alternatives Analysis,” dated April 20, 2006, summarizing an internal analysis of two scenarios – the “PCMS Maximum Support of Training Alternative” and the “PCMS Sustainable Training Alternative.” A.R. 108. The Army concluded that “[t]o achieve full sustainability at PCMS allows 4.4 months or 20 weeks of maneuver training per year at PCMS.” *Id.* at 0002816. The Final PCMS Transformation EIS ignores this assessment.

The EIS states that the Army considered training scenarios of lower intensities but did not consider them to be reasonable alternatives to the Proposed Action. A.R. 10 at 0000096. By dismissing those scenarios, the Army rejected the sustainable training alternative described in the Maneuver Alternatives Analysis. The EIS acknowledges that increasing the frequency, duration

and intensity of training exercises, and particularly an increase in mechanized training exercises, will cause substantial disturbance to soils, vegetation, wildlife habitat and cultural resources at the PCMS, especially in the maneuver training areas. *Id.* at 0000201. The EIS represents that the continuation of existing land management and environmental programs would provide adequate means for sustainable land management. *Id.* at 0000193. That conclusion is inconsistent and irreconcilable with the Army's analysis in April 2006.

The deficiencies of this EIS are apparent when it is compared to the manner in which intensity of use and mitigation were addressed in the EIS for Training Land Acquisition. The Draft EIS for Training Land Acquisition describes detailed Land Use and Management Plans, developed to assess the potential impacts to each of the two sites then under consideration. A.R. 282 at 0019769. The Draft EIS describes three scenarios for each parcel: (1) a Balanced Use/Protection Scenario; (2) an Increased Use Scenario; and (3) an Increased Protection Scenario. *Id.* Seven major variables were evaluated in connection with each scenario. Of the seven factors, "Training Intensity" and "Time of Use" were considered "the key variables and . . . most indicative of potential impacts." *Id.* "Each parcel was divided into five Management Units for purposes of training control and rotation." *Id.* at 0019770. Training intensities for all scenarios were projected, based on determinations of the "carrying capacity" of units of land within each site. *Id.* The Draft EIS for Training Land Acquisition states that "[c]arrying capacities are practical bases for estimating the intensity of military training operations that can be imposed on a land area," and that when land is to be used for military operations, carrying capacity can be assessed by reference to "the vehicle-day . . . defined as a four hour period of

activity per day for a wheeled vehicle.” *Id.* 0019807. The Final PCMS Transformation EIS does not include any comparable analysis.

When the Army decided to acquire the Pinon Canyon site, the Army selected the “increased use” scenario of the Land Use Management Plans (“LUMP”) described in the Draft EIS. *See* A.R. 254 at 0013648 (explaining, in response to public comments, that “[t]he Increased Use scenario was selected over the Balanced Use/Protection scenario because it increases available training area by approximately 50% each year with only a 15% increase in carrying capacity consumption.”) Even the Increased Use scenario contemplated that only three of the five management units would be used during any particular year, and that each unit would be allowed to rest for two full years out of every five. *See* Figure 2-9, A.R. 282 at 0019827. In addition, the LUMP designated periods of deferment (i.e., periods of no training exercises) from “15 December – 15 January and 1 April – 30 June,” recognizing that these periods of the year are particularly important for the growth of grasses. *Id.* at 0019770. The LUMP also stated that training should be deferred “whenever excessively wet soil conditions occur to prevent abnormally severe damage to soil and vegetation.” *Id.*

The Final PCMS Transformation EIS states, “Because of the limited quantitative baseline data, not all potential environmental effects resulting from increased training levels can be precisely determined at this time.” A.R. 10 at 0000156. That representation lacks candor. From 1985 through 2002, the Army prepared After-Action Reports (“AARs”), summarizing training exercises conducted at the PCMS. These reports show that even those limited training exercises have had severe environmental consequences. The Army produced these reports to the Plaintiffs after the close of the period for public comment on the Draft PCMS Transformation

Environmental Impact Statement, in response to Freedom of Information requests. The Army argues that this information is irrelevant. To the contrary, it demonstrates the failure of the EIS to give consideration to foreseeable adverse environmental impacts of the expected increase in training exercises and the adequacy of the plans for mitigation.

The ROD permits use of the PCMS for unlimited training twenty-four hours per day, seven days per week, 365 days per year. That intense use precludes any meaningful mitigation of the environmental impact of military operations.

The conclusion that significant environmental impacts of such unlimited use can be avoided through mitigation practices represents a clear error of judgment, and the Army's authorization of the Proposed Action was arbitrary and capricious. Under these facts, the Army cannot rely on representations about the continuation of existing mitigation efforts to limit its impacts analysis or to limit the alternatives analysis as it did.

It is noteworthy that the Army rejected the "sustainable training alternative" on the ground that lower intensity training alternatives would not have satisfied the full range of training requirements of the transformation programs, yet the training requirements of Fort Carson cannot be met at the PCMS, even if use of that facility is unrestricted. The obvious conflict between the training needs of the troops at Fort Carson and use of the PCMS in an environmentally sustainable manner makes it apparent that the Army's purposes will not be accomplished without expansion of the PCMS. The decision not to include expansion in the subject EIS does not, in itself, make it deficient. It does expose the inadequacy of the limited effort to plan to mitigate the impact of the ROD.

“[I]t is well established that NEPA does not mandate particular results, . . . nor does it require agencies to elevate environmental concerns over other valid concerns.” *Lee*, 354 F.3d at 1237 (quotation marks and citations omitted). The standard for judicial review under the APA is a “deferential one,” *Lee*, 354 F.3d at 1236, particularly in matters involving military affairs. *See also Custer County Action Ass’n*, 256 F.3d at 1031 (“[C]ourts afford . . . a high degree of deference in the area of military affairs . . .”). An agency's alternatives analysis is subject to review under the “rule of reason.” *Custer County Action Ass’n*, 256 F.3d at 1040. While NEPA does not guarantee a particular outcome, NEPA does require the Army to give more careful consideration to the consequences of its proposed action than what appears in this EIS.

Accordingly, it is

ORDERED that judgment will enter vacating the Record of Decision dated August 2, 2007, authorizing the Proposed Action described in the Final Pinon Canyon Maneuver Site Transformation Environmental Impact Statement dated June 2007.

Dated: September 8, 2009

BY THE COURT:

s/Richard P. Matsch

Richard P. Matsch, Senior District Judge



DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT CARSON
1626 ELLIS STREET, SUITE 200
FORT CARSON, CO 80913

REPLY TO
ATTENTION OF

[Please note that your return correspondence should be addressed to the undersigned at 1626 O'Connell Street, Building 813, Fort Carson, Colorado, 80913.]

April 21, 2010

RECEIVED
APR 26 2010

Directorate of Public Works

BY:.....

Subject: Section 106 Consultation on a Proposed Plan to Construct Two Clamshell Shelters On or Adjacent to the Cantonment Area on the Pinon Canyon Maneuver Site (PCMS)

Ms. Jean Hinkle
Otero County Commissioners
P.O. Box 511
La Junta, Colorado 81050

Certified Mail Receipt No.:
7009 1410 0001 7922 6836

Dear Commissioners:

The purpose of this letter is to initiate Section 106 consultation for the proposed action to construct two clamshell shelters for use as maintenance facilities on or adjacent to the Cantonment area of the Pinon Canyon Maneuver Site (PCMS). The Fort Carson Cultural Resources Manager (CRM) has determined that this proposed action constitutes an undertaking in accordance with Section 106 (36 CFR 800.16[y]) of the National Historic Preservation Act (NHPA).

The attached report contains background information regarding this undertaking and subsequent review of the Area of Potential Effect (APE) by Fort Carson Cultural Resources personnel, as well as maps of the proposed location. As a result of our internal review and evaluation, the Fort Carson CRM proposes a determination of "*no historic properties affected*" in accordance with Section 106 (36 CFR 800.4(d)(1)) of the NHPA for the actions encompassed by this undertaking.

Should potential impacts to historic properties be identified in the future due to a change in the submitted scope of work and/or proposed location, or should activities be proposed beyond the scope of this undertaking, additional Section 106 consultation will be initiated as required. In the event that subsurface cultural materials are encountered during the construction monitoring phase of the project, Fort Carson's Inadvertent Discovery of Archaeological Resources or Burials Standard Operating Procedures will be implemented and Section 106 consultation initiated.

Enclosure 3. Photographs of proposed and alternate clamshell locations.



Primary Tracked Vehicle Clamshell Location (1)



Primary Tracked Vehicle Clamshell Location (2)



Alternate Tracked Vehicle Clamshell Location



Primary Aircraft Clamshell Location



Alternate Aircraft Clamshell Location

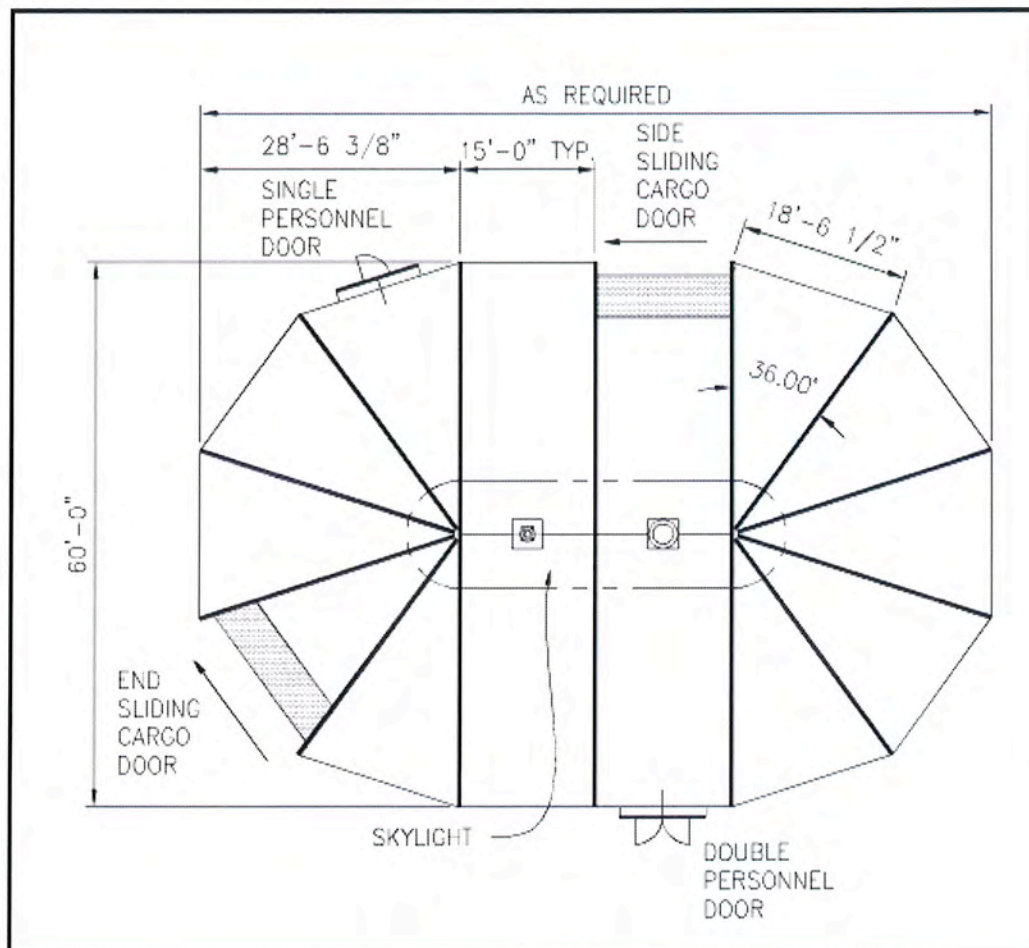
Enclosure 4. Photographs of proposed clamshell units and schematic drawings.

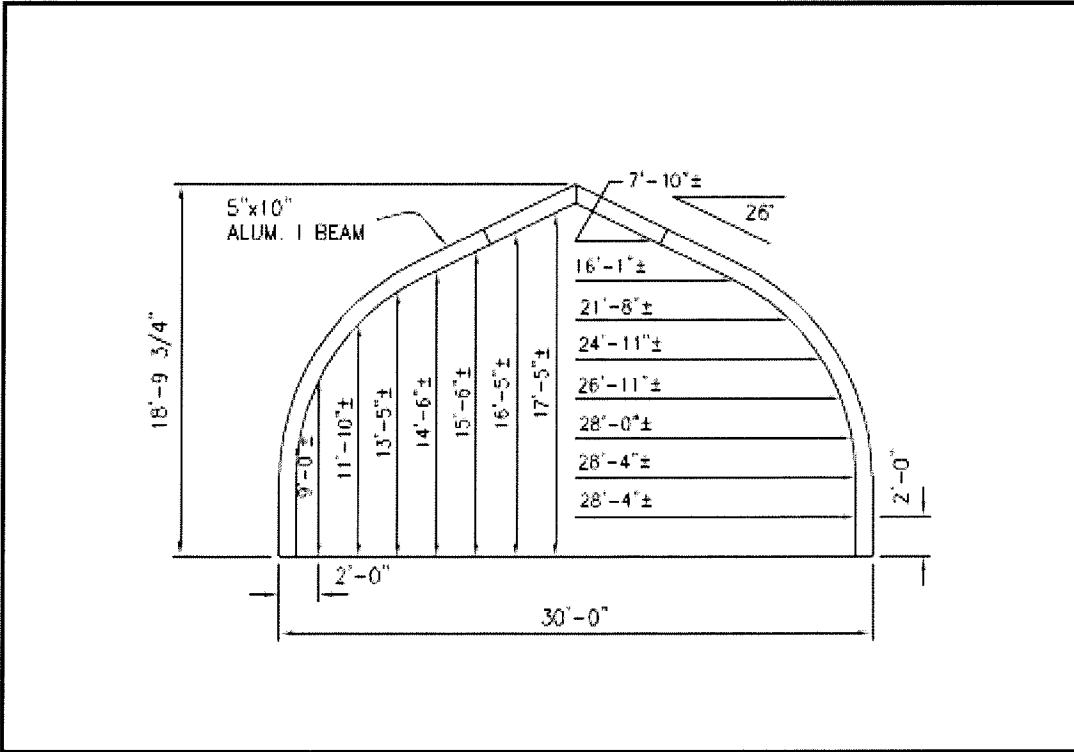
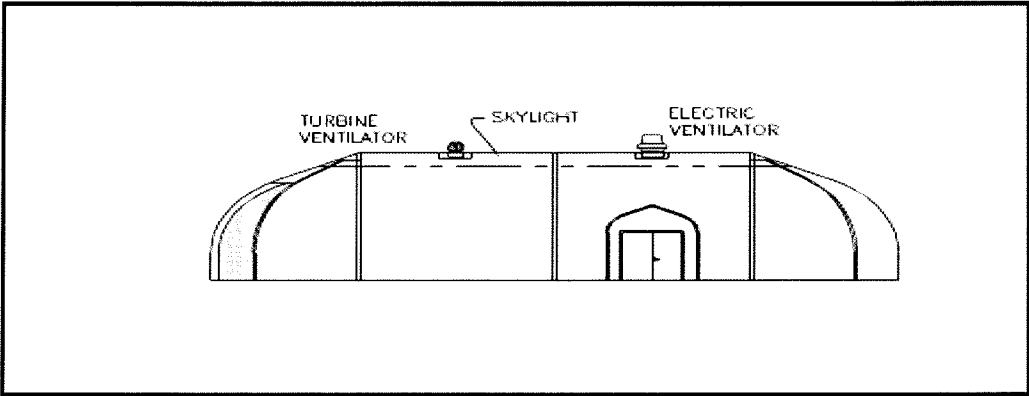




Photo of the clamshell membranes for this project showing the tan color of each unit.

(Schematic drawings below are intended as visual examples only – the actual measurements of the PCMS shelters will be as indicated in the “Description of Proposed Undertaking.”)





Enclosure 5. References.

Andrefsky, William.

- 1990 *An Introduction to the Archaeology of Pinon Canyon, Southeastern Colorado*. 6 vols. Prepared for National Park Service, Rocky Mountain Regional Office, Denver, Colorado, by Larson-Tibesar Associates, Inc., Laramie, Wyoming, and Centennial Archaeology, Inc., Fort Collins, Colorado.

Haynes, Robin A. and Beverly E. Bastian

- 1987 *Historical Architectural Evaluation of 49 Sites in the Pinon Canyon Maneuver Site (PCMS) for National Register of Historic Places Eligibility, Las Animas County, Colorado*. Prepared for United States Department of Interior, National Park Service, Rocky Mountain Regional Office, Denver, Colorado by Gilbert/Commonwealth Inc., Jackson, Michigan.

Owens, Mark

- 2010 Memorandum for Record: 2010 Resurvey of PCMS Cantonment Area (CF2010-010). Fort Carson Cultural Resources Management Program Document.

**Fort Carson Cultural Resources Management Program
Review and Evaluation of the Proposed 2011-026 Land Rehabilitation and
Management (LRAM) Projects on the Pinon Canyon Maneuver Site (PCMS)**

November 3, 2010

List of Supplemental Enclosures:

1. Map showing the location of the LRAM projects on the PCMS.
2. LRAM Project Location Photographs.
3. Maps showing previously recorded archaeological sites/isolates and surveyed areas around PCMS LRAM project APEs.
4. Table listing isolated finds/sites near the LRAM APEs.
5. References.

Description of Undertaking:

The proposed undertaking consists of 3 LRAM (Land Rehabilitation and Management) projects (Enclosure 1) that are as follows:

1. Task 11-101 – PCMS Dam 442 Enhancement.
2. Task 11-108 – PCMS Dam Spillway Reductions (Dams 230, 235, 264, 447, and 467).
3. Task 11-117 – PCMS Dam 432 Enhancement.

Project 1: Task 11-101 – PCMS Dam 442 Enhancement:

An erosion control dam at the PCMS has lost much of its capacity, thus creating a safety hazard as it will blow out soon (Enclosure 2). In order to remediate this hazard, the erosion control dam will be widened to 25 feet using material excavated from its basin. A culvert will also be installed in the profile of the dam.

UTM Grid Location (WGS 1984)

Description	Easting	Northing
Center Point	580566	4149533

Area of Potential Effects (APE) for Project 1 and Determination of Affect:

Fort Carson's Cultural Resources Management Program (CRMP) personnel have completed review of this undertaking. The Area of Potential Effects (APE) for Project 1 was established in accordance with 36 CFR 800.16[d], and incorporates a 50 meter buffer to allow for the equipment necessary for all enhancement activities. Previously recorded cultural materials are located in close proximity but outside of the project APE (Enclosure 3).

5LA3499: Evaluated as "Eligible" in the field: This prehistoric camp and historic trash scatter locale is 240 meters outside of the Project 1 APE. The resource has also been fenced for protection during training. As such, Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA3499.

5LA5685: Evaluated as "Needs Data" in the field: This prehistoric camp is 25 meters west of, and outside, the Project 1 APE. Although evaluated as "Needs Data" the CRMP continues to manage "Needs Data" sites as being "Eligible" for the NRHP. The resource is also located 50 meters north of the western access road to the dam, providing sufficient maneuverability for heavy machinery to access the work location. As such, Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA5685.

5LA5686: Evaluated as "Not Eligible" in the field: This prehistoric open lithic scatter is located 15 meters to the north and outside of the Project 1 APE. As such, Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA5686.

5LA5687: Evaluated as "Not Eligible" in the field: This prehistoric camp is 200 meters south of the Project 1 APE. As such, Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA5687.

As a result of this internal review, the Fort Carson CRM proposes a determination of "*no adverse effect to historic properties*" in accordance with Section 106 (36 CFR 800.5[b]) of the National Historic Preservation Act (NHPA) for the actions proposed for Project 1.

Should potential impacts to historic properties be identified in the future due to a change in the submitted scope of work, proposed location, or due to activities proposed beyond the scope of this undertaking, additional Section 106 consultation will be initiated as required. In the event that subsurface cultural materials are encountered during construction activities, Fort Carson's Inadvertent Discovery of Archaeological Resources or Burials Standard Operating Procedures will be implemented and Section 106 consultation initiated.

Project 2: Task 11-108 – PCMS Dam Spillway Reductions:

The LRAM program is proposing the rehabilitation of several dams whose final capacity is larger than it should be. The proposed project work consists of retrofitting erosion control dams with lower spillways to assure that each dam retains no more than 2 acre feet of water. Spillways will be excavated using heavy equipment, and each will be covered with erosion control fabric and 5-12 inch rip rap. Specific dams and their locations are as follows:

UTM Grid Location (WGS 1984)

Description	Easting	Northing
Dam 230	580281	4147755
Dam 235	580731	4147225
Dam 264	584061	4146205
Dam 447	579701	4147185
Dam 467	583011	4143555

Area of Potential Effects (APE) for Project 2 and Determination of Affect:

Fort Carson's Cultural Resources Management Program (CRMP) personnel have completed review of this undertaking. The Area of Potential Effects (APE) for Project 2 was established in accordance with 36 CFR 800.16[d], and incorporates a 50 meter buffer to allow for the equipment necessary for all activities to occur at each dam. Previously recorded cultural materials exist in or near many APEs (Enclosure 3).

5LA3437: Evaluated as "Not Eligible" in the field: This multicomponent site consisting of a small prehistoric lithic scatter and historic trash scatter is 300 meters outside of the 11-108 Dam 235

APE. The site was also reevaluated by current CRMP personnel in 2003. Required reevaluation forms are attached as Enclosure 6. As such, Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA3437.

5LA3439: Evaluated as "Not Eligible" in the field: This small prehistoric lithic scatter is within the western edge of the 11-108 Dam 235 APE. The site will be monitored by CRMP personnel during the project in the unlikely event that the inadvertent discovery of cultural materials occurs. As such, Fort Carson's Cultural Resources Manager has determined that the subject undertaking poses no immediate or future adverse threat to Site 5LA3439.

5LA4061: "Not Eligible" (Isolated Find): This rock cairn is located 105 meters outside of the 11-108 Dam 230 APE to the east. As such, Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA4061.

5LA4358: "Not Eligible" (Isolated Find): This single chalcedony flake is located 169 meters outside of the 11-108 Dam 235 APE. As such, Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA43580.

5LA8154: "Not Eligible" (Isolated Find): This lone argillite flake is located 270 meters north of the Task 11-108 Dam 467 APE. As such, Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA8154.

5LA8282: Officially "Not Eligible": This multicomponent prehistoric lithic scatter and historic trash scatter is 80 meters outside of the Task 11-108 Dam 447 APE. As such, Fort Carson's Cultural Resources Manager has determined that the subject undertaking poses no immediate or future adverse threat to Site 5LA8282.

5LA8627: "Not Eligible" (Isolated Find): This single sandstone mano fragment is located within the 11-108 Dam 447 APE on its northern edge. The site will be monitored by CRMP personnel during the project in the unlikely event that the inadvertent discovery of cultural materials occurs. As such, Fort Carson's Cultural Resources Manager has determined that the subject undertaking poses no immediate or future adverse threat to Site 5LA8627.

As a result of this internal review, the Fort Carson Cultural Resources Manager proposes a determination of "*no adverse effect to historic properties*" in accordance with Section 106 (36 CFR 800.5[b]) of the National Historic Preservation Act (NHPA) for the actions proposed for Project 6.

Should potential impacts to historic properties be identified in the future due to a change in the submitted scope of work, proposed location, or due to activities proposed beyond the scope of this undertaking, additional Section 106 consultation will be initiated as required. In the event that subsurface cultural materials are encountered during the proposed project work, Fort Carson's Inadvertent Discovery of Archaeological Resources or Burials Standard Operating Procedures will be implemented and Section 106 consultation initiated.

Project 3: Task 11-117 – Dam 432 Enhancement:

PCMS TA 7 Dam 432 (Enclosure 2) has become a safety hazard for training maneuvers. In order to remediate the hazard, the proposed work will entail expansion of the top of the erosion control dam to 25 feet wide and bank sloping, not to exceed 25%.

UTM Grid Location (WGS 1984)

Description	Easting	Northing
Center Point	591890	4139139

Area of Potential Effects (APE) for Project 3 and Determination of Affect:

Fort Carson's Cultural Resources Management Program (CRMP) personnel have completed review of this undertaking. The Area of Potential Effects (APE) for Project 3 was established in accordance with 36 CFR 800.16[d], and incorporates a 50 meter buffer to allow for the equipment necessary for all dam enhancement activities. The APE falls within a 2007 Fort Carson Cultural Resources Management Program survey area (Walkenhorst, report in progress). No cultural materials exist within or near the APE (Enclosure 3).

As a result of this internal review, the Fort Carson CRM proposes a determination of "*no historic properties affected*" in accordance with Section 106 (36 CFR 800.4[d][1]) of the National Historic Preservation Act (NHPA) for the actions proposed for Project 3.

Should potential impacts to historic properties be identified in the future due to a change in the submitted scope of work, proposed location, or due to activities proposed beyond the scope of this undertaking, additional Section 106 consultation will be initiated as required. In the event that subsurface cultural materials are encountered during construction activities, Fort Carson's Inadvertent Discovery of Archaeological Resources or Burials Standard Operating Procedures will be implemented and Section 106 consultation initiated.

Direct, Indirect, and Cumulative Effects of the Proposed Undertaking:

The cumulative impact to cultural resources consists of past, present, and reasonably foreseeable future actions which affect archeological resources or historic resources or their viewsheds on and near Fort Carson. As is true of cultural and historic resources world-wide, impacts to such places are tied to land use; i.e., a particular culture's view of the landscape it occupies and the societal functions that the land fulfills for that group. Each subsequent population or activity that occupies a landscape produces an impact to past land use practices and cultural remains. The foundation of archaeological and anthropological investigation was formed within these tenets of human progress in order to understand the past, present, and future. Landscapes with repeated use tend to contain high site densities, as human populations are drawn to natural resources, such as water, arable land, minerals, and climates hospitable for game and crops. Repeated land use also means re-use of both natural and man-made materials, such as is seen in the remnants of numerous stone structures scattered throughout Colorado.

It is anticipated that this proposed undertaking would not result in significant adverse cumulative impacts due to the historic use of this area and the continued cultural resource management program and policies in place. Procedures and processes that Fort Carson implements to protect cultural resources are discussed in further detail below.

As mandated by federal law, it is current Fort Carson practice to conduct archaeological and historic building inventories and evaluations on resource areas prior to use by impact-generating activities, whether those activities be military training, construction, or other land management actions, such as erosion control and re-seeding efforts. For archaeological sites, once identified, each site is recorded, evaluated for eligibility on the National Register, and the cultural landscape is analyzed. If applicable, significant sites are set apart using a variety of site protection methods. In this way, the information gained ensures that the cultural characteristics and lifeways of those who have come before us is not lost to history, but rather contributes to it.

The information acquired is used for future land management, and is also made available to qualified researchers for professional purposes and used in the Cultural Resources Management Program's considerable educational outreach efforts.