

APPENDIX E

Sample Documents to Support Land Use Planning

E-1. Land Use Plan Options. A land use plan can be completed using various methods. Figure E-1 and Figures E-2 and E-3, pages E-2 and E-3, show some of the most common methods used to produce the plan: CADD software, manual drafting, or readily available desktop software.

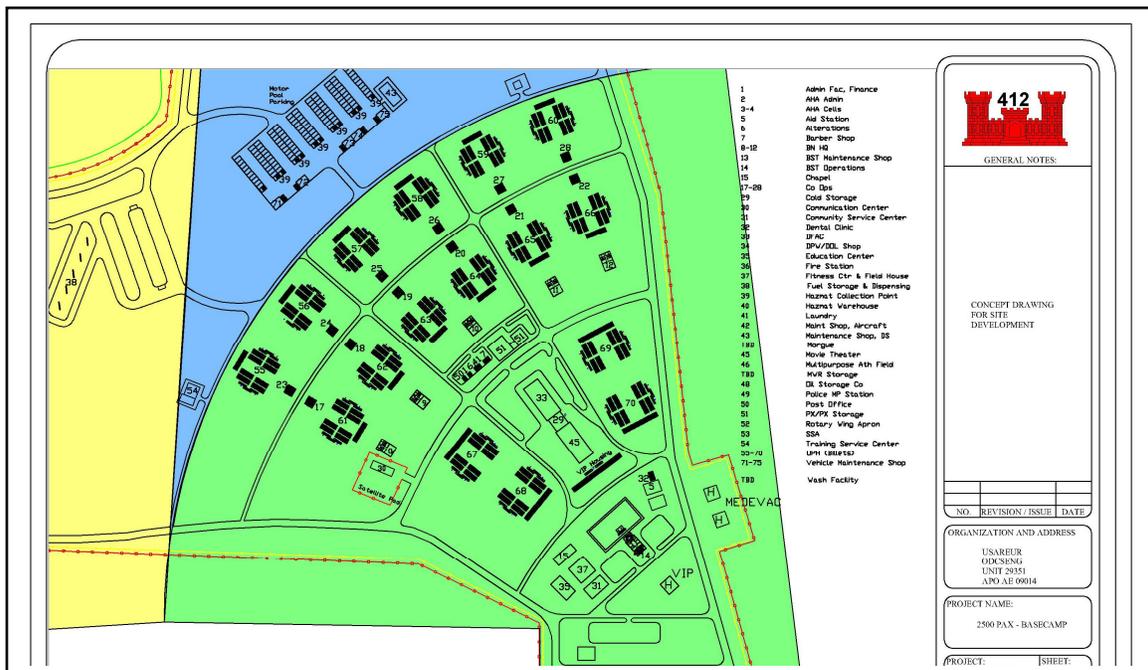


Figure E-1. Land use plan (color-coded, using CADD software)

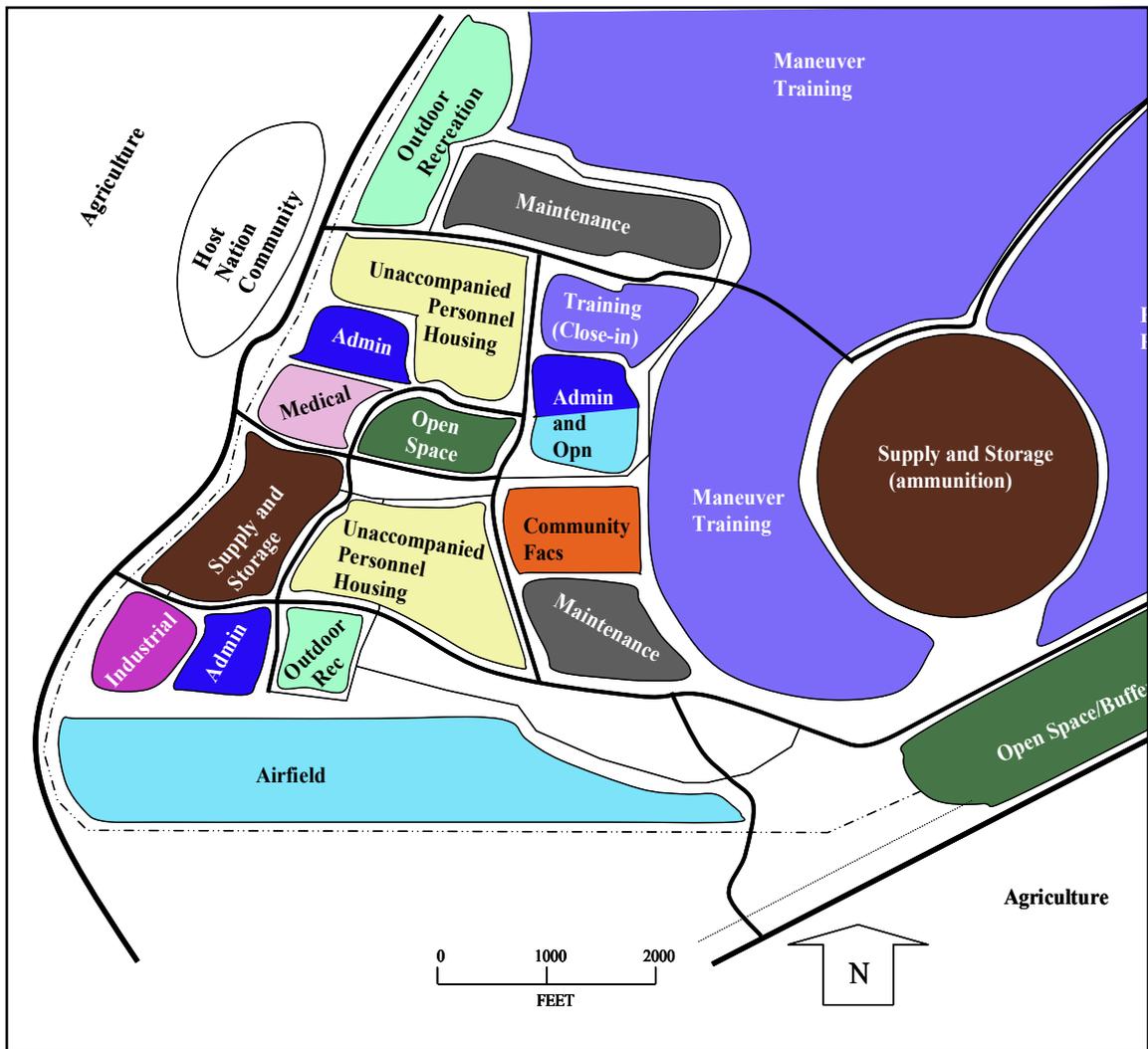


Figure E-2. Land use plan (manual drafting method)

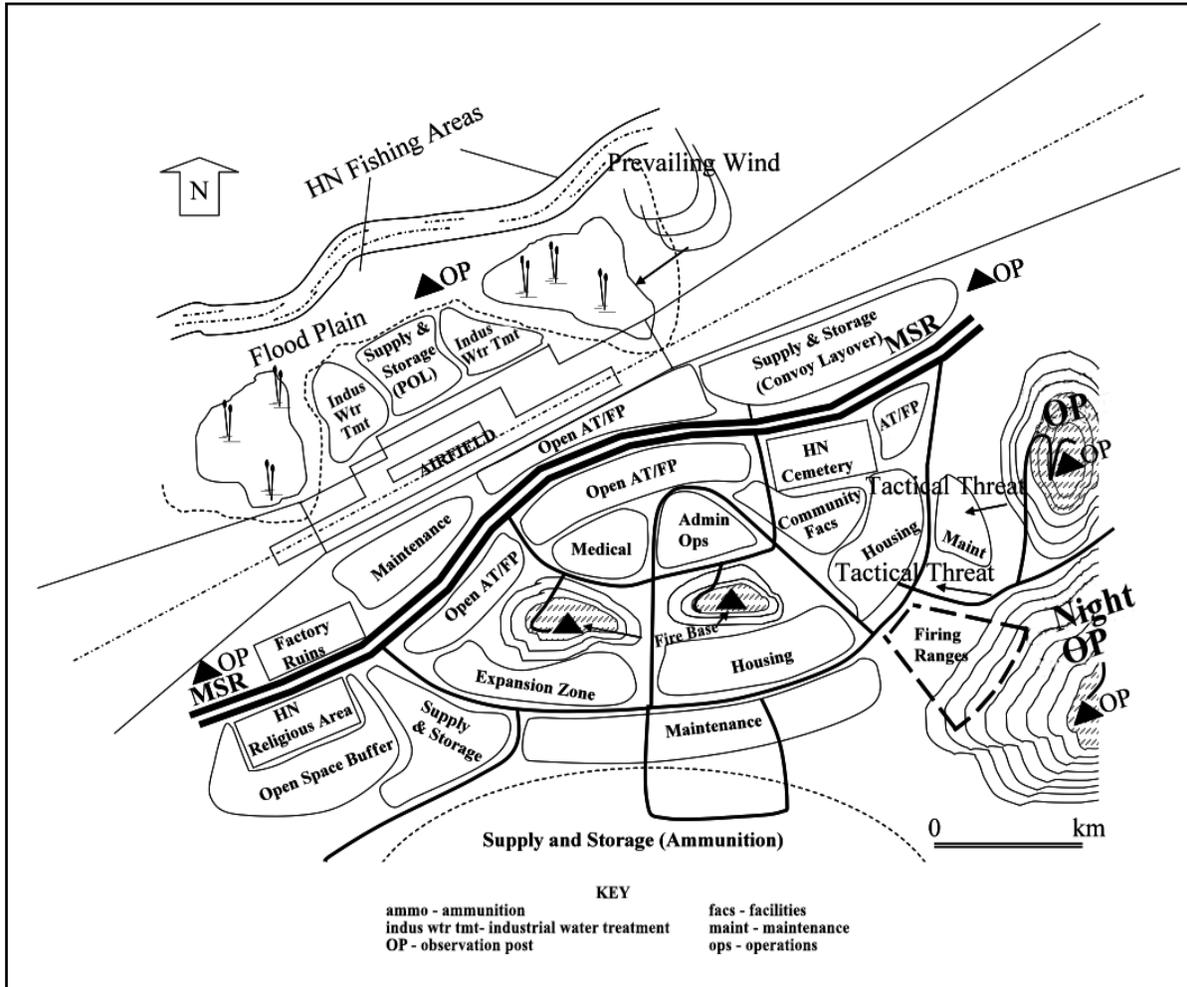


Figure E-3. Land use plan (desktop graphic software)

E-2. Land Use Plan Checklist. The land use plan checklist shown in Table E-1 provides some basic parameters that should be considered to optimize the land use plan.

Table E-1. Sample land use plan checklist

Land Use Parameter	Analyze the COA To Ensure That—	Initial
FOR THE EVALUATION OF EACH COA FOR LAND USE		
1. Size	The (total) land area is of adequate size and dimensions, including expansion capability, to support the current mission and both anticipated and unforeseen expansions.	
2. Associations	Other land uses essential to the efficient functioning of activities or facilities associated with a particular land use have been addressed in the planning.	
3. Interactions	The nature of the interactions (kind, frequency, importance of flow) between the different land uses has been researched and incorporated. Command guidance and preferences have likewise been incorporated.	
4. Adverse Influences	External effects associated with a land use that would adversely affect another adjacent use have been identified and mitigating actions recommended. For example, heavy vehicular traffic into one land use area might cause this traffic to flow through an adjacent land area where it would create a disturbance and a safety problem. Rerouting this traffic around the second area would mitigate the potential problem.	
5. Location	Land uses that are "footloose" in terms of dependencies on other land use areas have been located in relatively independent areas. Land uses have been identified which have a specific location requirement relative to site suitability.	
6. Challenges and Opportunities	The functional relationships overlay has been examined to see if related land uses or similar activities are located too far from each other, where compatible activities can be consolidated, and where "stray" individual functions may be located too far away from the functional area most closely related to them. Proper use of prominent terrain features offers the opportunity for increased tactical capability, AT/FP, and potential site locations for prominent facilities; for example, major unit or base camp headquarters, or recreational facilities.	
7. Security	Safety, personnel and property security, and AT/FP considerations have been included.	
8. Combination	Land use zones will facilitate a combination of functionally related or compatible uses into single structures or complexes, where feasible.	

Table E-1. Sample land use plan checklist

Land Use Parameter	Analyze the COA To Ensure That—	Initial
9. Disposal	The plan is organized so that base camp cleanup and closure (or turnover to the HN) can proceed in an orderly, sequential, incremental, or concentric fashion when the U.S. mission is completed.	
10. Environmental	The recommended COA accommodates constraints imposed by environmental factors. Areas that should not be developed are clearly delineated.	
11. Conservation and Preservation	The important characteristics of the base camp and its resources that should be taken advantage of, or preserved, have been considered.	
12. Infrastructure	Transportation and, possibly, main utility considerations are delineated on the plan.	
FOR THE EVALUATION OF THE SELECTED “BEST” COA		
Parameter	The Selected Plan Provides—	Initial
13. Open Space	Maintenance of open areas outside the built-up area for training activities, maneuvers, and required operational and AT/FP setbacks and clearances.	
14. Separation	Separation of uses with different intensities of activity and separation of functions requiring special security considerations.	
15. Grouping	Grouping of compatible functions in areas intended for multiple uses.	
16. Adjacency	Land uses with important functional relationships have adjacent locations.	
17. Clearances	Conformity to operational safety clearances and noise criteria.	
18. Expansion	Allowance for anticipated and unanticipated expansion within land use areas.	
19. Use of Positive Natural Features	Use of natural features and terrain to provide an attractive setting for living areas, recreational areas, and other community functions.	
20. Access	Convenient access to troop support and community facilities.	
21. Road Access	Accessibility to primary roads for land uses generating high traffic volumes.	

E-3. Goals and Objectives Statements for a Land Use Plan. Figure E-4 shows an example of goals and supporting objectives statements to assist the planner in developing a comprehensive strategy for a land use plan.

Goal 1. Provide real property support for successful accomplishment of assigned base camp missions.

(a) Objective. Ensure that sufficient training ranges, facilities, and maneuver areas are available on a continuing basis, having them operational by 1 February 20xx.

(b) Objective. Develop and implement a Range and Training Land Program Development Plan not later than 15 November 20xx.

(c) Objective. Support and assist assigned units in achieving their sustainment training goals on a continuing basis; complete development of a classroom and a close-in nonfiring training area by 30 September 20xx.

Goal 2. Set aside sufficient land area for expansion to support both anticipated and unforeseen missions and other changes.

(a) Objective. Provide sufficient expansion area to house two additional interim brigade combat team combined arms battalions projected to arrive on or about 31 December 20xx; ensure that the plan is complete and approved by 31 August 20xx.

(b) Objective. Unstable conditions in _____ may lead to a large number of refugees crossing the border into the vicinity of Camp X-Ray. This mission has not been assigned to Camp X-Ray at present, but it is anticipated. Therefore, ensure sufficient land area to house a displaced persons camp for 5,000 persons in the current land use plan; ensure that the plan is completed and approved by 31 August 20xx.

(c) Objective. Analyze and plan for presently undefined force structure and mission changes, leaving room for expansion within individual land use allocations in the current land use plan; ensure that the plan is completed and approved by 31 August 20xx.

Figure E-4. Example of goals and objectives statements for a land use plan

E-4. Land Use Planning Factors. Table E-2 provides some initial planning factors to assist the planner with calculating land area requirements for an HBCT-sized element.

Table E-2. General Base Camp Land Use Planning Factors

Land Use	Area (in acres)	Suggested Range (in acres)	Facilities Included	Remarks
Industrial	155	150-160	Wastewater treatment, electrical generation, incinerator, vehicle maintenance	
Community/ Administrative	99	90-110	Medical, fire and rescue, postal, dining, headquarters, briefing/chapel, parade field	
Troop Housing	230	225-250	Housing, showers, latrines, bunkers	Includes expansion capability (surge areas).
Supply/Storage	453	430-460	Military vehicle parking, wash racks, ammunition storage, open storage	
Morale/Welfare/ Recreation	65	50-75		
Heliport Facilities	129	110-130	Heliport aprons, tie-down area, maintenance hangar, operations, control tower, available fuel storage and truck parking, radar site	This is for a heliport of 12 helipads. If only one helipad is needed, less land would be required.
Open Space/Buffer	703	650-850	ECPs, guard towers, AT/FP buffers	Includes 350 acres of clear space outside the security fence.
Contractor Area	108	75-150		

E-5. Environmental Overlay. Figure E-5 depicts a basic example of an environmental overlay used to supplement the land use plan.

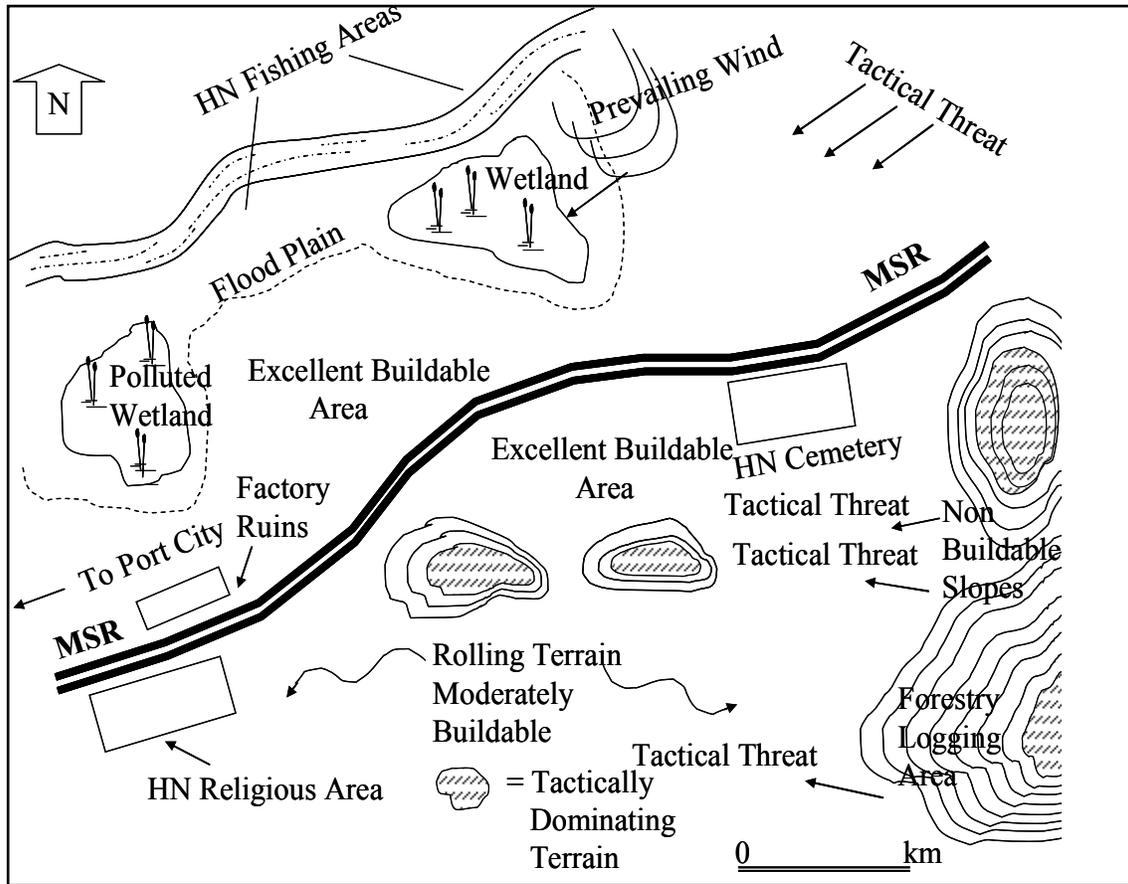


Figure E-5. Example of an environmental overlay

E-6. Land Use Compatibility. Table E-3 and Figure E-6, page E-10, show two methods the planner can use to assist in determining or verifying the compatibility of land use functions.

Table E-3. Example land use matrix

Land Use Categories Evaluated	Administration	Commercial Services	Community Facilities	Family Housing	Maintenance	Manufacturing and Production	Medical/Dental	Operations	Recreation	Research/Development/Testing	Research Land/Buffer	Supply Storage	Training	Troop Housing	Utilities	Water Areas	Wetlands
Administration																	
Commercial Services	O																
Community Facilities	O	O															
Family Housing	■	▲	O														
Maintenance	■	■	■	■													
Manufacturing and Production	■	■	■	■	O												
Medical/Dental	▲	O	▲	▲	■	■											
Operations	■	■	■	■	O	O	■										
Recreation	O	O	O	O	■	■	O	■									
Research/Development/Testing	▲	O	■	■	O	O	▲	■	▲								
Research Land/Buffer	O	O	O	O	O	O	O	O	O	O							
Supply Storage	▲	■	■	■	O	O	■	■	▲	▲	O						
Training	■	■	■	■	■	▲	■	■	▲	■	O	▲					
Troop Housing	▲	O	O	■	■	■	▲	■	O	■	O	■	■				
Utilities	▲	▲	▲	■	O	O	■	▲	▲	▲	O	O	■	■			
Water Areas	O	O	O	O	▲	▲	▲	▲	O	■	O	■	■	O	■		
Wetlands	■	■	■	■	■	■	■	■	O	■	O	■	■	■	■	O	
O Compatible ▲ Neutral ■ Incompatible																	

E-7. Functional Relationship Overlay. To confirm the compatibility of functional areas of a land use plan, the planner can develop a functional relationship overlay like the one shown in Figure E-7. A comparison of the overlay with the land use matrix or affinity relationships diagram will assist the planner in identifying noncompatible uses.

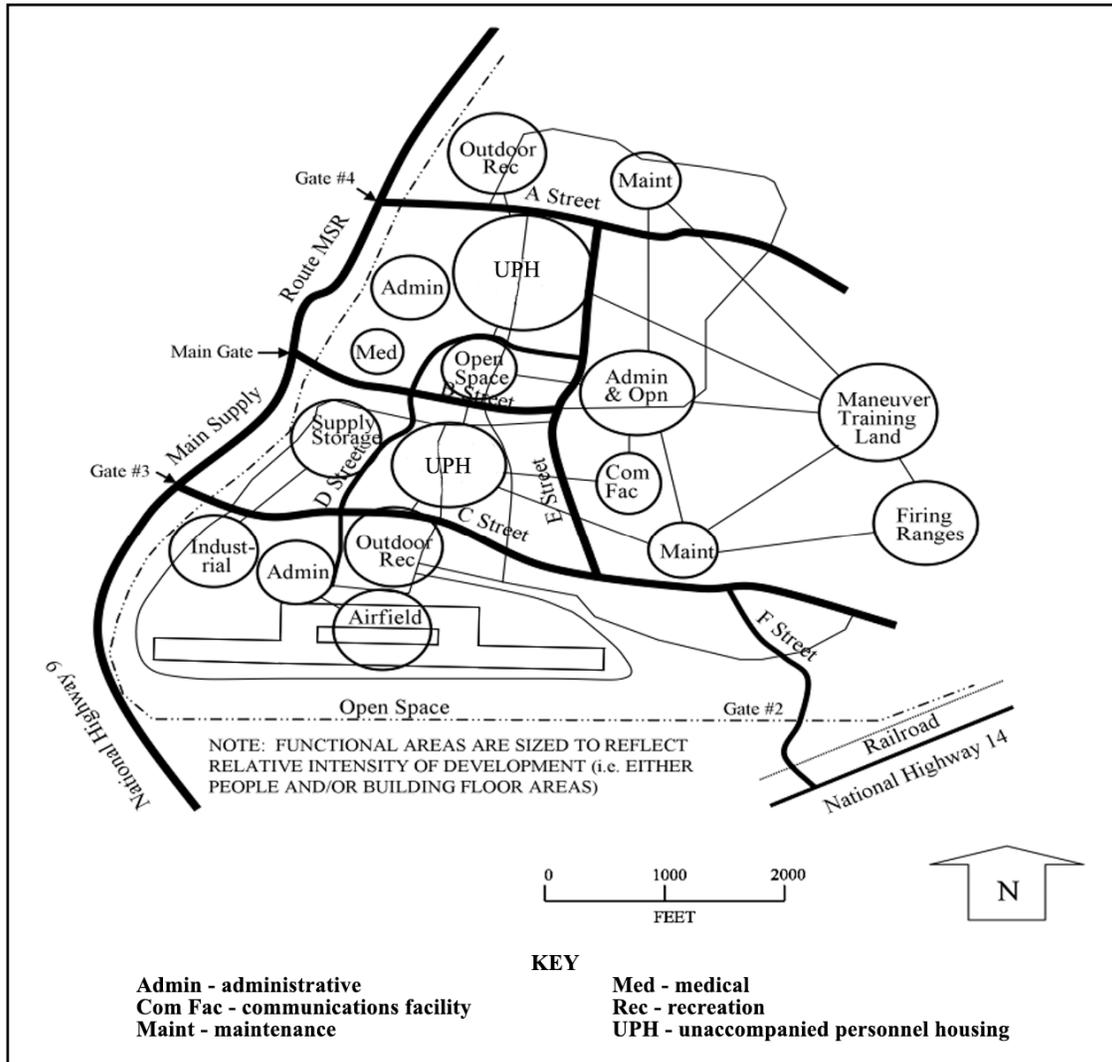


Figure E-7. Example functional relationship overlay

E-8. Analysis Overlays. Figures E-8 and E-9 and Figure E-10, page E-14, show the most common overlays designed to assist with the various analyses that are necessary to develop a successful land use plan.

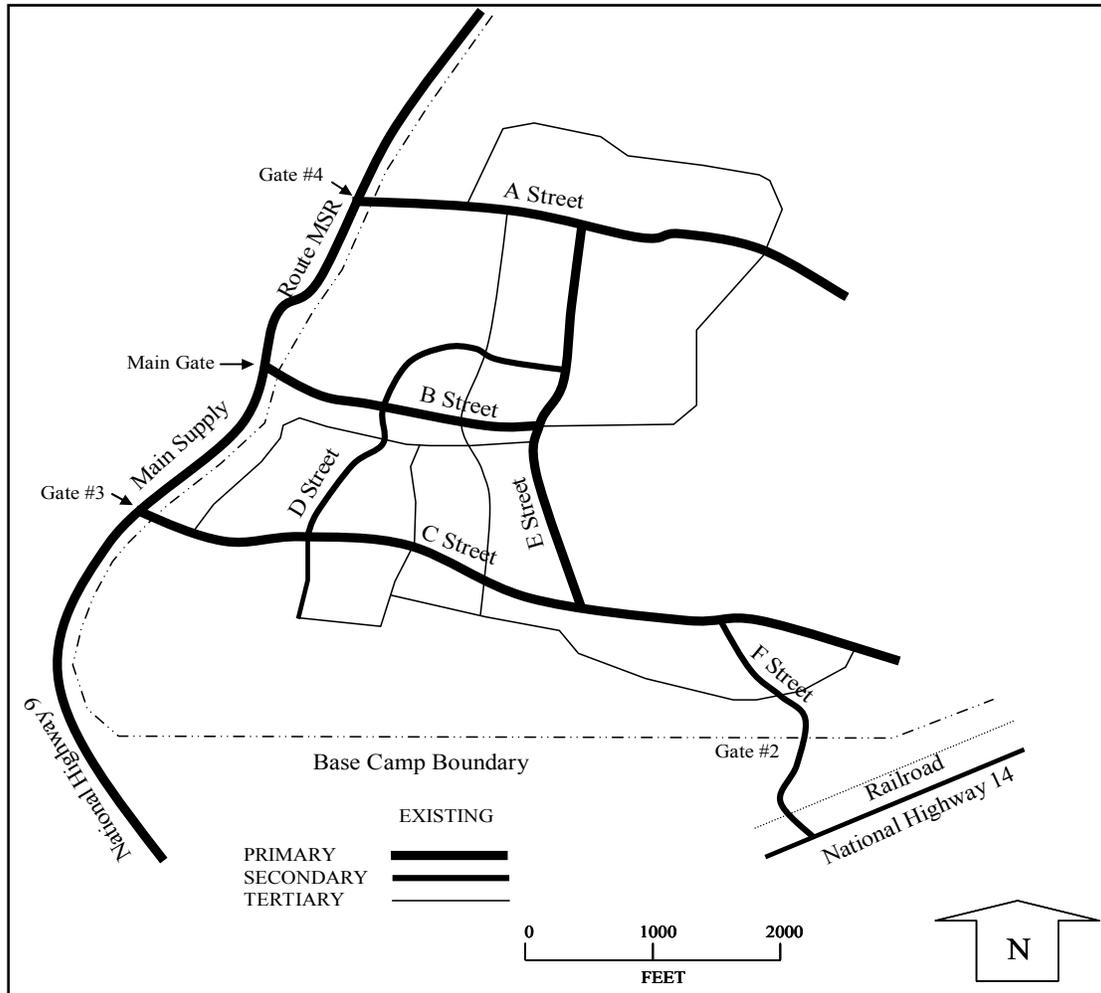


Figure E-8. Example circulation systems analysis

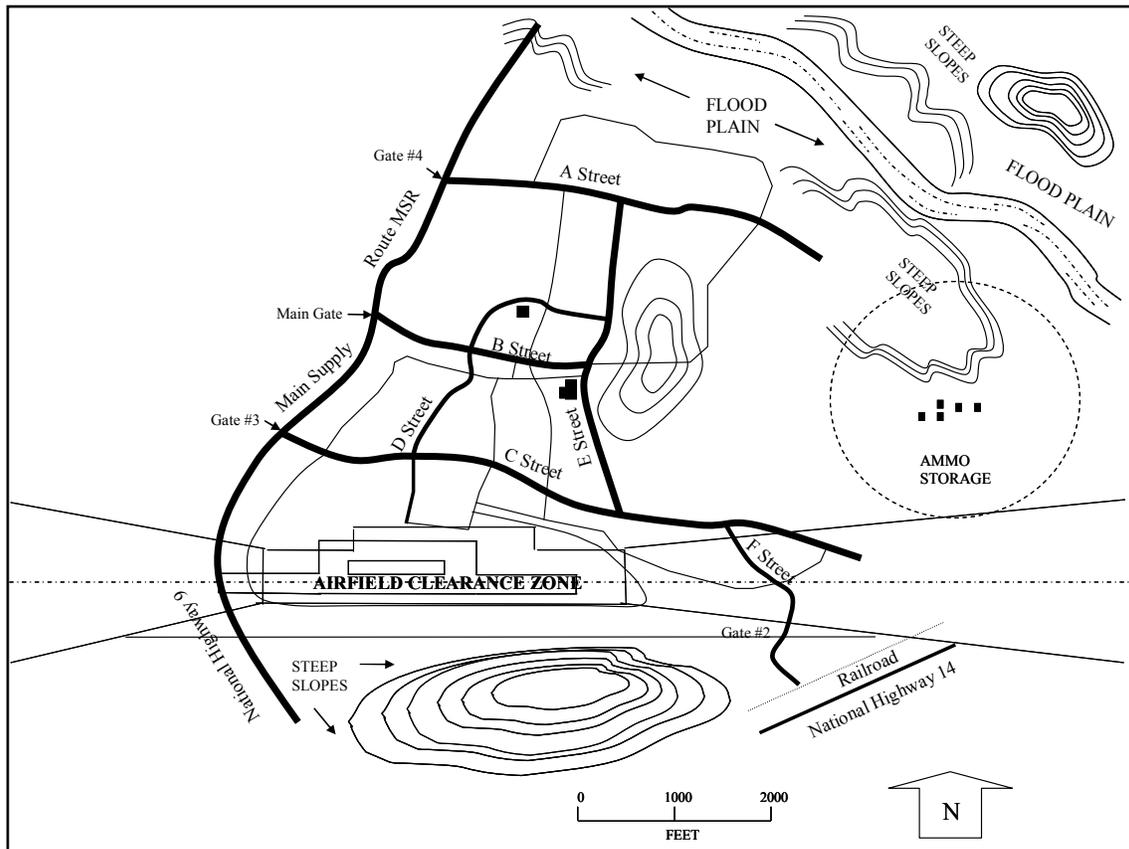


Figure E-9. Example buildable areas analysis

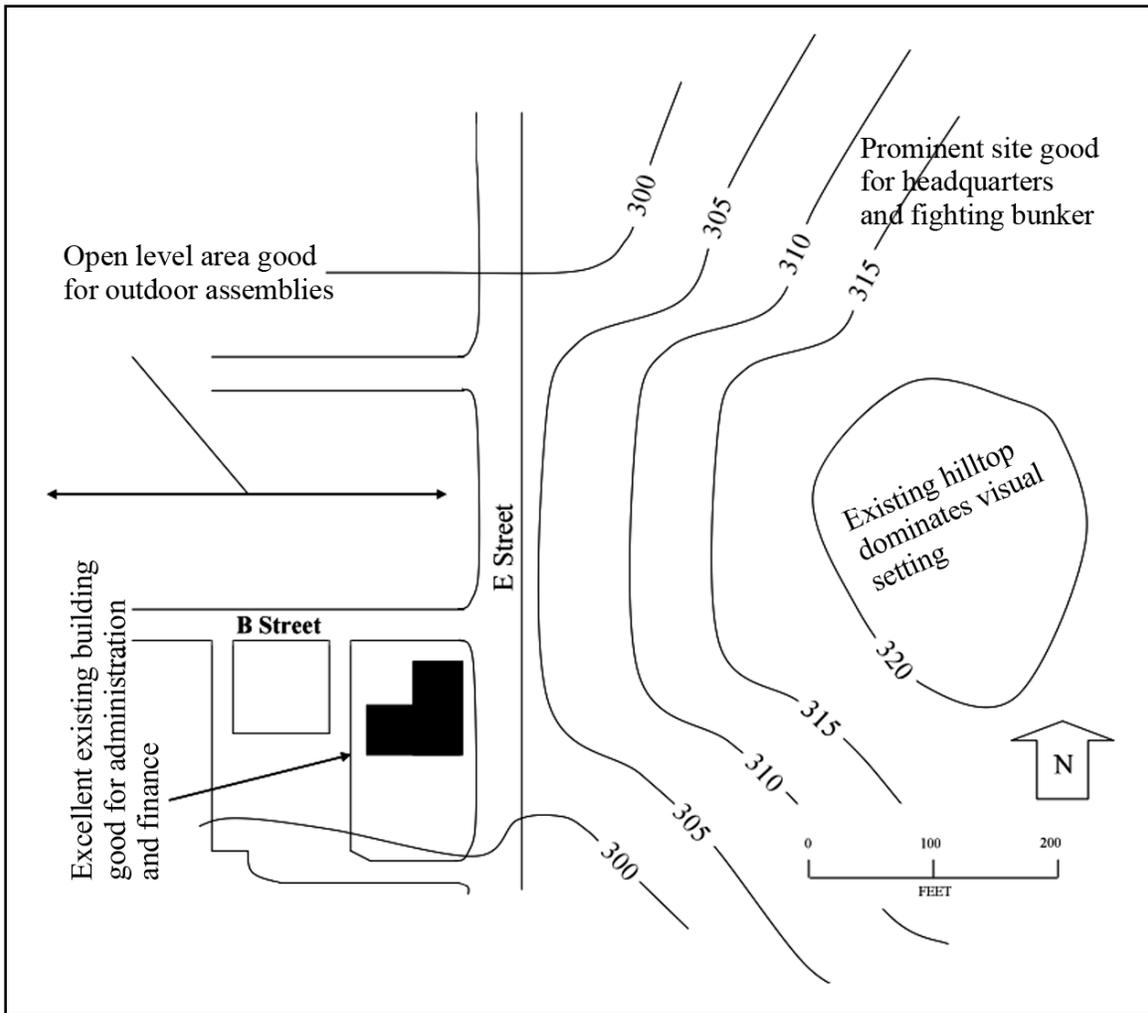


Figure E-10. Example major activities and structures analysis

E-9. Selected Land Use Policies. Land use policies are an inherent part of a viable land use plan. Table E-4 shows examples of policies that should be part of the land use plan.

Table E-4. Example of selected land use policies

Policy Type	Description
Expansion Policy	<p>Reserve an area for construction of additional unaccompanied enlisted housing "above and beyond" current projected military strength levels.</p> <p>Action 1: Dispose of HN storage sheds in Area "Z" to free up land for one additional battalion-sized complex and—</p> <p>Action 2: Remove tents and containers in Area "L" to free up land for one more additional battalion-sized complex.</p>
Displaced Persons Expansion Policy	<p>Provide an expansion zone area for contingency development of a displaced persons camp in the event of instability in _____.</p> <p>Action: Provide 20% expansion factors in the utility lines planned to serve development in Area "A." The displaced persons camp would be buffered from the U.S. portion of the installation, but utilities would extend from Area "A."</p>
AT/FP Policy	<p>All land use zones and subdivisions thereof will provide for a setback distance of at least 45 meters between the building lines of primary gathering places and the edge of major streets and roads. Land area will be provided for construction of protective berms, fences, and other barriers. Standoff buffers will be provided between and around all land use zones.</p>
<p>NOTE: Land use goals and objectives developed during the identification phase will be the basis for developing more specific measures for implementing them. Each base camp will have to develop its own set of policies and actions to implement these policies. These can be very specific.</p>	