

## CHAPTER 6

### Land Use Planning

6-1. Introduction. This chapter defines and describes the land use planning process which is the touchstone of the base camp development planning process (see Figure 6-1). The paragraphs contained herein explain how to prepare and obtain review and approval of the base camp land use plan and how this plan becomes the foundation of the base camp development plan.

a. *Land use planning* is defined as the process of calculating, mapping, and planning the allocation of land areas based on general use categories, mission analysis, functional requirements, functional interrelationships, standards, criteria, and guidelines.

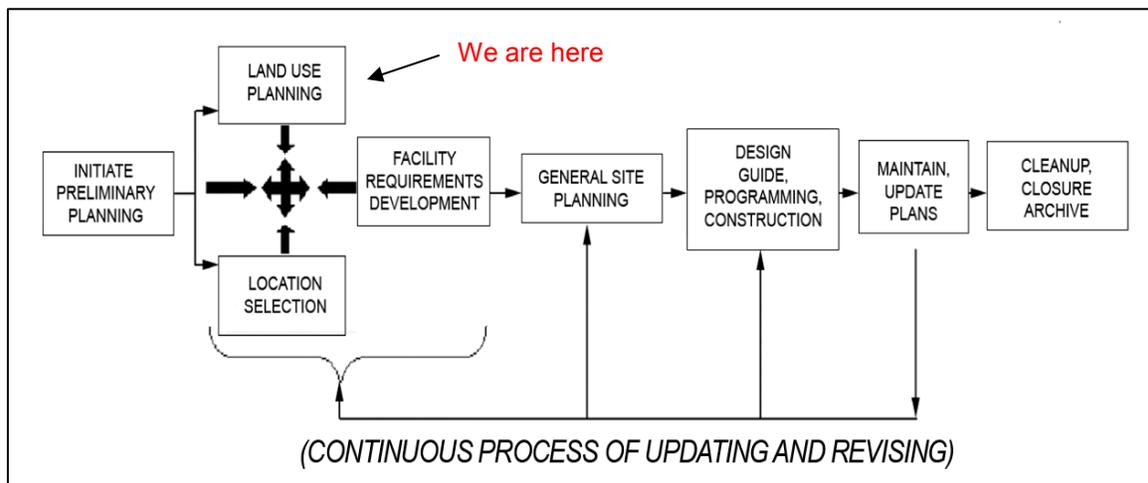


Figure 6-1. The base camp development planning process

b. Land use planning integrates the natural and man-made physical elements of a base camp and the human (military and sociocultural) activities that take place within and around it.

c. The physical appearance of a land use plan resembles an assembled jigsaw puzzle, because each piece of the plan (each representing a land use) is intended to fit together with the others to form a mutually supporting whole. The land use pattern accounts for constraints that cannot be overcome, takes advantage of opportunities that exist, accommodates existing requirements, and allows room for future expansion. Compatible land uses are placed close to each other and incompatible land uses are separated.

d. A land use plan depicts general locations for land use areas in relation to existing development patterns (all natural and man-made forms), forces, and features at the base camp location. They range from fairly elaborate plans to very simple plans, usually depending on resources (time, availability of software, and such) and the situation. See

Appendix E, Figures E-1 through E-3 (pages E-1 through E-3), for example land use plans.

e. A land use plan should show the basic scheme for main vehicular and rail networks and the locations most suitable to support air access. It should designate the most advantageous locations and alignments for the mains, the stations, and the plants associated with the utility systems. More detailed utility system alignments are addressed later in the planning process as part of the general site planning topic presented in Chapter 9.

6-2. The Land Use Planning Process. A land use plan is the product of collecting and analyzing data to include estimating land area requirements, performing environmental and functional analyses, and developing and comparing alternative schemes. Each alternative is a solid, logical solution to satisfying the requirements. After analyzing the alternatives, the planning team decides upon the most advantageous alternative, and then uses it as a basis for developing the proposed land use plan. This plan then becomes the base camp land use plan after command approval. The land use plan is the 'skeleton' upon which, and the 'compartments' within which, the development of the base camp will occur. If a land use plan is based on solid planning information and careful analysis, and is flexible enough to accommodate change and short-range issues, major revisions are rarely needed. (See Appendix E, Table E-1 [pages E-4 and E-5], for a sample land use plan checklist.) Many professional publications are devoted to the subject of land use planning. Here, the process is reduced to a series of twelve pragmatic steps that promote understanding, reduce complexity, and minimize the use of theoretical and technical language. While the process will be discussed in terms of steps, it really should be thought of as a cyclical, not linear, "start-to-finish" process. The process is analogous to a tailor making a suit of clothes for a customer. The tailor goes "back and forth" between the steps of the tailoring process—fitting, marking, altering, and refitting—to achieve a quality result. Later on, if the customer's size should change, the tailor goes back again and alters (but does not totally remake) the suit.

6-3. Steps for Land Use Planning. The steps in the land use planning process are listed below. Each will be discussed in subsequent paragraphs, along with suggested ways to accomplish each step.

- Collect information.
- Set land use goals and objectives.
- Calculate land area requirements.
- Conduct an environmental analysis.
- Prepare an environmental overlay.
- Conduct a functional analysis.
- Produce a functional relationship overlay.
- Develop alternative land use plans.
- Select the best alternative land use plan.
- Obtain the commander's approval.

- Obtain higher headquarters approval.
- Implement and maintain the land use plan.

a. Collect information. This step involves the collection and data analysis/evaluation process that was discussed in Chapters 3 and 4. The information essential for the preparation of the land use plan would include the mission, population, and equipment data; an analysis of the HN information; the EBS (and EHSA if available); the TAB; as much imaging and map data about the location as can be obtained; and command and operational planner guidance and preferences (see Figure 6-2). One way to organize the collection task is to group the information into sets of planning factors as follows:

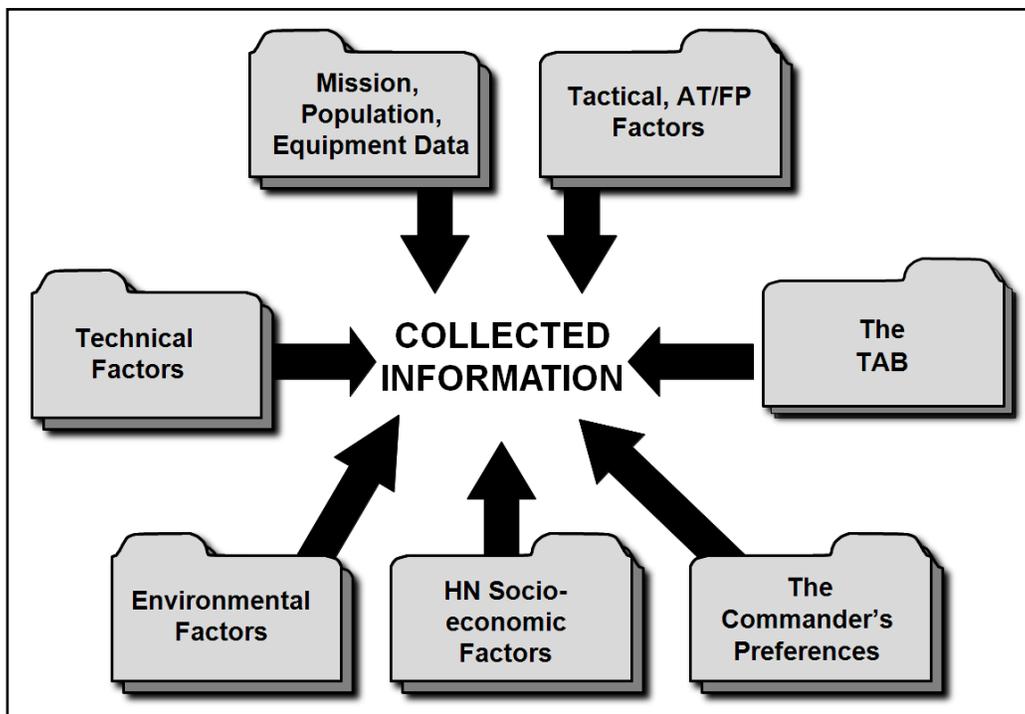


Figure 6-2. Data essential for successful base camp land use planning

(1) *Tactical and AT/FP operational factors.* A civil engineer might recommend a nearly level area as the best land upon which to construct the built-up areas of a base camp. However, if dominating terrain surrounds it, operational planners might determine this land to be tactically vulnerable and would recommend against constructing a base camp in that location.

(2) *Environmental factors.* These factors include both natural and man-made features that affect the location. Environmental factors (depicted on the environmental overlay) are constraints influencing the environmental impact of the development and operation of a base camp. Each constraint varies in impact depending on the land use category. For example, a floodplain area is not suitable for heavily developed uses but

may be used as open space, clearance zones, buffers, or outdoor training and recreation. The noise zones around an airfield are not suitable for housing, but might be used for industrial, maintenance, or noise-producing training activities.

(3) *Technical factors.* Base camp development planning requires the consideration of a vast number of technical factors. Many of these factors are not immediately visible at the time of a ground survey; they include such factors as geologic sinks or weak soil structure, seismic zones, catastrophically severe weather, electromagnetic radiation zones, aircraft flight corridors, and accident potential zones. The need to deal with technical factors could also arise when new, larger, or more lethal weapons systems are introduced if such new weapons would require sustainment training at a base camp's firing ranges.

(4) *Socioeconomic factors.* Socioeconomic factors influence the development of a realistic plan. Social factors include the accommodation of HN laws, regulations, politics, customs, and religious considerations. Economic factors include the amount and availability of U.S. funds to develop the base camp as well as the effect that the U.S. presence has on the HN economy. These may lead to trade-offs between what is most ideal, what is most expedient, what is most realistic, and what is most respectful of the HN preferences. An example of this occurred when a poultry farmer contacted a local commander and complained that low altitude helicopter flights had caused his chickens to stop producing eggs. The command had unknowingly aligned a low altitude flight corridor right over the farm. Realignment of the corridor resolved the complaint and ensured the farmer a continued livelihood.

b. Set land use goals and objectives. This step involves mapping out a strategy for the land use plan. Questions to be answered include—what should the plan accomplish, what opportunities and constraints should be addressed and, most importantly, exactly how will the land use plan support and enhance mission accomplishment. To assist in the task of setting goals and objectives, the following set of definitions applicable to goal setting is provided:

(1) *Goal.* A desired outcome, not necessarily quantifiable; a valuable target for planning.

(2) *Objective.* A more specific component of a goal, usually quantifiable and sometimes linked to a schedule or time line. Objectives are used to measure progress toward a goal. (See Appendix E, Figure E-4 [page E-6], for an example of goals and objectives for a land use plan.)

c. Calculate land area requirements. Calculating land area requirements is a task that establishes the scope or size of the land use plan. Specifically, it estimates the required minimum size of each land use zone based upon the size of the unit, mission, requirements, and other factors identified during the mission analysis. (See Appendix E, Table E-2 [page E-7], for general land use planning factors.) Typically, an expansion

factor to accommodate both known and unknown future expansions of the base camp is added to the applicable zones.

(1) The planning team can use a TAB (see Chapter 7 for more information) as a technique to plan, calculate, and document the estimated land area requirements for each facility requirement.

(2) In the process of calculating land area requirements, one question that the planning team must keep in mind is, "Is there enough area within this land use zone to accommodate everything, plus room for expansion?" The Army changes at a much faster pace than many comparable large organizations in the civilian sector. In a TO situation, the tempo of change is even more accelerated. A sound land use plan must leave room to accommodate such changes for both anticipated and potential contingency missions. The following paragraphs discuss both forms of expansion planning.

(a) *Anticipated expansion.* An individual land use that has been designated by a land use plan should include a portion set aside to accommodate expansion. Base camps should be planned to accommodate expansion beyond current mission and population levels. For example, a two-BCT base camp might leave enough land area to accommodate a third BCT projected for deployment to the base camp at a later time. That additional expansion land may lie initially inside or outside of the established initial perimeter of the base camp depending upon a series of factors such as the availability of and potential for future land lease agreements and/or the likelihood of the additional commitment of forces.

(b) *Contingency expansion.* Land use zones should include sufficient area for expansion that might be required to support a new mission as well as unanticipated changes to the current mission. For example, a base camp may potentially have the mission to house large numbers of displaced persons. A degree of imagination and a solid mission analysis are used to anticipate the unexpected situations that can come to fruition in the future. Likewise, utilities and infrastructure support planned to accommodate the present mission should be slightly oversized to allow for expansion.

(3) Allow for anticipated and unanticipated expansion within land use areas. A commonly used rule of thumb in calculating land use area requirements is to first estimate the known facility and infrastructure requirements and mathematically compute the area; for example, acres or hectares, required to accommodate them. Then, add an arbitrary percentage to the result to arrive at the land use area requirement, including the expansion zone (see Figure 6-3, page 6-6).

(4) An example of visionary planning regarding contingency expansion occurred at a base camp that did not initially have an aviation mission assigned to it. However, the planning staff designated a large, open area, as "airfield" on the land use plan. Initially, the planners at higher headquarters questioned this apportionment of land, stating that no aviation mission had been assigned. The local planners responded with, "Yes, but we

know that many U.S. operations eventually requires aviation support." The higher headquarters allowed the "airfield" land use designation to remain on the plan. Soon after, the operational tempo increased dramatically and the base camp was ordered to construct a C-130-capable airstrip and provide the supporting facilities.

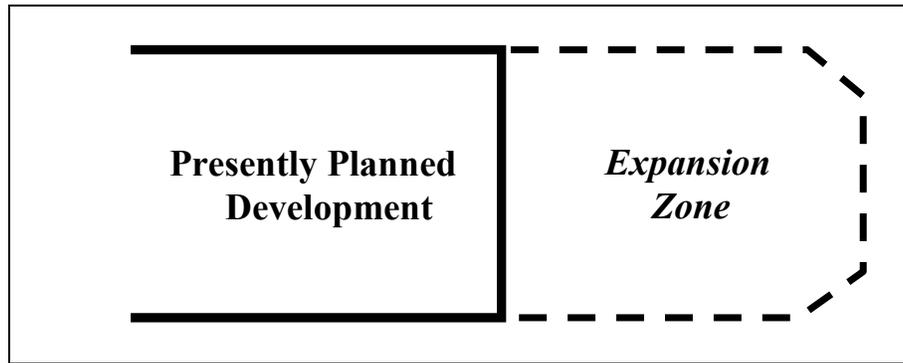


Figure 6-3. Planning for expansion

d. Conduct an environmental analysis. The environmental professional on the planning team, assisted by other members, should make a careful reconnaissance of the land area proposed for the base camp using the EBS (and ideally the associated EHSA) that was generated during the location selection step. This, along with other information, will be available in the location selection record. If appropriate, request the participation of knowledgeable HN government representatives, private citizens, and landowners.

(1) The objective of this analysis is to define the magnitude, significance, locations, and boundaries of all environmentally, socioculturally, or historically sensitive areas within or near the boundaries of the base camp. The written portion of this analysis will be added to the base camp development record. The graphic portion will be discussed in paragraph 6-3.e.

(2) Some of the environmental attributes and factors that the planning team should look for and analyze include—

- Safety and AT/FP clearance zones.
- Restricted areas.
- Airfield clearance zones.
- Noise.
- Topography.
- Floodplains.
- Wetlands.
- Soils.
- Threatened or endangered species.
- Contaminated sites, landfills, and hazardous/toxic waste.
- Water and wastewater treatment facilities.
- Surface water and groundwater (aquifer recharge areas).

- Electromagnetic transmission zones.
- Historical, archeological, cultural, and religious sites.
- Wind patterns and air pollution.
- Underground storage tank sites.
- Adjacent landowners and occupants.
- Open space/buffer areas.
- Seasonal constraints/restrictions.

e. Prepare an environmental overlay. Using a topographic map and the information taken from the environmental analysis, prepare a map overlay or computer-aided drafting and design (CADD) layer that graphically depicts the identified environmentally-sensitive attributes or factors. Mark these by labeling, boundary denoting, and location marking. It is especially important to mark the boundaries of those areas that, regardless of the reason, should not be considered for any development. Preparation of the overlay should, ideally, include contact with the HN government. The HN can help to determine if there are any concerns about environmental resources or political, archeological, cultural, historic, or religious considerations, and uncover any aspects of the base camp location or surrounding region that may affect the HN's ability to develop and manage the land in the future. An example of an environmental overlay is provided in Appendix E, Figure E-5 (page E-8).

f. Conduct a functional analysis. This step in the land use planning process relies on the mission and force structure documents, the land area requirements estimate, and the principles and practices discussed in this section. The analysis is an iterative process and will involve several attempts before an acceptable solution is reached.

(1) Different planning organizations have different lists and names for land use categories. In other words, there is no single standard set of categories and titles for land use categories. They can range from just a few categories to hundreds.

(2) In the interest of simplifying the BCDP process, the land use categorizations presented in this first method are reduced to just a few that are functional in nature, have a common purpose, and denote major and significant land uses. The categories listed below are broad in function and used for land use planning. Refinements to primary uses will be made in a later step. These categories include—

- Airfield.
- Operational.
- Maintenance.
- Industrial.
- Supply/storage.
- Administration.
- Community facilities.
- Training areas, facilities, and ranges.
- Ammunition/explosives storage.

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- Housing (unaccompanied/other).
- Recreation (indoor/outdoor).
- Medical.
- Open space (safety and AT/FP buffers).

(3) Having acquired an understanding of land use categorization, it is possible to make the functional analysis. The following two techniques demonstrate reliable methods that can be used to verify the affinity relationships and to determine the most efficient flow of functions between and among the major functional land use categories.

(a) *The land use matrix method.* This method of analysis is useful when most members of the planning team are not experienced with graphic techniques and have a limited ability to use map overlays, sketches, or other drawings. The matrix method, when simplified to as few land use categories as possible, is useful also for explaining land use affinity to members of the base camp command group and representatives of assigned units. The matrix uses a "crosswalk" methodology in which each use area is duplicated on both axes and clearly shows land use compatibilities and incompatibilities. See an example of a land use matrix in Appendix E, Table E-3 (page E-9).

(b) *The affinity relationships diagram method.* The commonly used term for this method is bubble diagramming. It is most useful when members of the planning team are trained in and oriented to the use of maps, graphics, sketches, and other drawings. To refine their analysis, some planners go a bit further and draw the bubbles in various sizes to indicate the relative amount of land that must be apportioned for each use. See an example of an affinity relationships diagram in Appendix E, Figure E-6 (page E-10).

g. Produce a functional relationship overlay. Preparing a functional relationship map overlay promotes an understanding of land use dynamics by placing the land area estimate and the functional analysis in the context of the actual base camp location. It consists of a series of alternative trial overlays. The overlay shows the required land use categories by sketching them as "bubbles" over a topographic map of land allocated for the base camp. See Appendix E, Figure E-7 (page E-11), for an example of a functional relationship overlay. Land uses of adjacent areas beyond the camp boundaries are also shown.

(1) This procedure has the following three basic objectives:

- To develop a product that will assist in developing a plan for locating all facilities identified for inclusion by the analysis in a manner that promotes interaction between related, compatible activities while separating incompatible or conflicting ones.
- To preserve and protect significant natural, cultural, and environmental features. Solid land use analysis and site development promotes efficient mission accomplishment, protects and improves living and working

conditions at the base camp and, eventually, contributes to its effective cleanup and closure.

- To ensure that each land use area (and eventually each proposed site within each land use area) has ample space to accommodate both anticipated and unforeseen expansion.

(2) The planning team accomplishes the map analysis as follows:

- Obtain a topographic map or a digital topographic map and refer to the land area requirements estimate. Secure any additional maps and inventories relating to existing buildings, infrastructure, and other real property facilities. Additional supporting materials include a TAB (if applicable and available), an environmental overlay, and the functional analysis bubble diagram or land use matrix. Ideally, topographic maps would show existing facilities. If they do not, these facilities should be sketched onto the map. Label the existing facilities and structures and annotate their status (retain or demolish).
- Analyze and diagram the circulation systems. The ground transportation system is the "spine" of a land use plan. Circulation determines the accessibility and efficiency of flows between one land use and another. Show the major and minor circulation routes and identify potential locations for primary and secondary ECPs for vehicles and pedestrians by relating them to the existing major transportation corridors serving the location. In some instances, heavily used low altitude aircraft corridors should be shown. See Appendix E, Figure E-8 (page E-12), for an example of a circulation systems analysis.
- Analyze the buildable areas. The planning team should consult the location selection record and the environmental overlay and, if necessary, perform additional field reconnaissance of the base camp location. An analysis is made of the land area to verify which land areas will support construction, which are marginal in that respect, and which will not support construction. See Appendix E, Figure E-9 (page E-13), for an example of a buildable areas analysis.
- Identify and analyze major activities and structures. Identify major activities and existing structures, and highlight those facilities that can be used to enhance mission support. For example, there may be a prominent, well-sited building that would serve very well as the base camp's headquarters. Analyze what activities must take place inside each land use category in order to identify the facilities within them that will have heavy activity flows between them such as the activity flow between a maintenance area and an industrial area, or an activity flow into and out of a community center. This analysis may indicate opportunities for consolidating related, compatible activities that are dependent on each other within a single structure or complex. See Appendix E, Figure E-10 (page E-14), for an example 'snapshot' of a major activities and structures analysis.

- Perform additional analyses. Special circumstances may warrant additional map analyses. Examples include analyses of AT/FP and personal/property security, cultural and religious locations, and historical buildings and places.
- Prepare the functional relationship map overlay. After completing a sufficient number of map analyses to rule out any major mistakes and omissions in land use planning, and to unequivocally delineate where development could occur and where it definitely should not occur, the functional relationships map overlay is prepared. If these analyses and the foregoing functional analysis step have been done thoroughly, preparation of the functional relationships overlay will require only a few tries before it presents a reasonably sound planning approach. In essence, this overlay can be thought of as the transfer of the bubble diagram to the analyzed realities of the base camp's land area.

h. Develop alternative land use plans. It is especially important to acquire land and organize and place structures on it, because it directly enhances (or detracts from) mission accomplishment and base camp quality of life. A land use plan is the broad framework within which all subsequent planning will occur. Properly sized land use zones and categories are the compartments within which, and between which development, human habitation, interaction, and expansion will occur.

(1) Land use planning involves questioning, analyzing, and inserting the results of that process into a plan capable of being implemented. In the process of questioning and analyzing, two of the most important questions that planners must keep asking themselves are: "Is there enough area within this land use zone or category to accommodate everything, plus room for development and/or expansion?" And, "Am I cutting off any future options or reducing flexibility by configuring a land use zone or category this way?"

(2) The land use planning physical process is accomplished through the following steps:

(a) The planning team, assisted by representatives of the base camp users if possible, returns to the topographic map discussed earlier and the environmental overlay, and refers to the functional analysis map overlay. If using automated drafting equipment, this would mean referring to the base layer with all topographic and physical features layers, the environmental overlay layer, and a layer containing the functional analysis.

(b) The team begins by sketching or plotting in the boundaries of the various land use zones. If reasonable, the team can be divided into smaller groups and tasked to develop a land use plan. The most effective way to accomplish this is for each group to locate and establish boundaries around the largest and most problematic land use zones or categories first, then work through the smaller and less problematic land use zones and finally, address the land uses, such as buffer zones and nonfiring outdoor training, that are the least dependent on other uses.

(c) Each land use should be individually evaluated for its size adequacy according to the land area requirements estimate. The evaluation should focus on any critical dimensions or clearances (in accordance with the standards and criteria documents) and compatibility with other lands uses (according to the functional analysis).

(d) The groups should reevaluate and adjust their respective copies of the functional analysis map overlay to account for new ideas and insights.

(e) Numerous attempts might be necessary before the groups are satisfied with their land use planning solutions. As each trial land use plan is prepared, the following tests will help evaluate the merits of each proposal. A written record should be kept as each is being tested. The following attributes would be tested:

- Functional relationships among land uses. A relationship exists when the activities that comprise two or more land uses are interdependent. Conversely, some land uses allow greater flexibility in location.
- Dependencies among land uses. Dependencies are evident by the flows of materiel, information, units and people, energy, support services, and administrative services. Expediting flows between two interdependent land uses can best be achieved by locating them next to each other. Flows may be in one or both directions. In a one-directional flow, for example, food from a central rations issue facility moves to DFACs throughout the base camp, implying a one-way dependency in which only one of the functions is the recipient. The best location for the central rations issue facility is influenced by the respective locations of the DFACs it supports. In a two-directional flow, there is a flow in both directions, whereby activities in two different land uses benefit by the flows between them. For example, unaccompanied personnel benefit by living close to retail troop support and MWR facilities because they depend on these facilities. Reciprocally, these facilities are successful because unaccompanied personnel are close by.

(f) Land uses may be linked by organizational relationships and compatibilities of their component activities and equipment. Some examples include—

- A FEST may park and maintain its vehicles in a central motor pool in a nearby location even though the motor pool is operated and controlled by the S-4.
- The organizational vehicle maintenance and parking facilities of the battalions assigned to a BCT can be located near each other and reasonably close to the brigade headquarters and the brigade's subordinate units.
- Units with tracked vehicles operate much differently than wheeled vehicles and have a far greater impact on road surfaces. Separate roads and trails should be provided for them if possible. Tracked-vehicle maintenance and parking areas should be located on the outside edge of built-up areas.

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(g) Performance analysis. This test would ensure that each trial land use plan (COA) conforms to the tenets stated in subparagraph 6-3.h. and in the land use planning checklist in Appendix E, Table E-1 (pages E-4 and E-5).

(h) End-state analysis. Each alternative land use plan (COA) must envision the eventual termination of the U.S. mission. The base camp must be effectively cleaned up and closed (see Chapter 10).

(i) Important tenets of land use planning. The land use planning process is defined by various tenets, but planners must keep in mind that there is no "ideal" plan. Each mission, force structure, and available land area is unique. Furthermore, missions, doctrines, needs, and technologies may change with the passage of time. Some common sense rules can be applied in relation to "what belongs next to what." Additionally, most TO facilities designs contain recommended base camp layouts. These recommended layouts can be "site adapted" if there is simply no time to execute the planning process. However, an "ideal land use arrangement" that appears to work well in one place cannot automatically be assumed to work well in another. A few of the more important tenets are discussed in the following paragraphs:

- Adjacent communities. In HNs with functional governmental and civic infrastructure, coordinating with local communities and government activities to shape the land use plan and to resolve differences strengthens the planning process. Toward this objective, a land use plan should, if possible, depict the existing and proposed land uses in areas surrounding the base camp.
- Mixed-use concept. Land use planning is more than just grouping all uses or categories and/or facilities of similar type together in large mass. Each land use area should be a mixture of compatible activities that allow them to function efficiently. For example, housing areas, although shown as a single land use category, usually contain a wide range of troop support facilities and recreational areas, and they may include real property maintenance and repair facilities. Airfields not only contain the operational facilities associated with aircraft; they may also contain housing, dining, and vehicle maintenance facilities for the personnel and units assigned to the airfield. Another way to think of the mixed-use land use planning concept is that the land use structure of a base camp is anchored on a framework of nodes or centers that are concentrations of compatible, interrelated activities (see Figure 6-4) with larger, more predominant and specialized activities, in the largest nodes. The nodes have functional linkages, both within and among nodes. An analogy might be that of a headquarters having subordinate activities in a number of remote locations, all working together to accomplish the mission. The following diagram illustrates the nodes concept as it would apply to Army and Air Force Exchange Service (AAFES) retail operations.

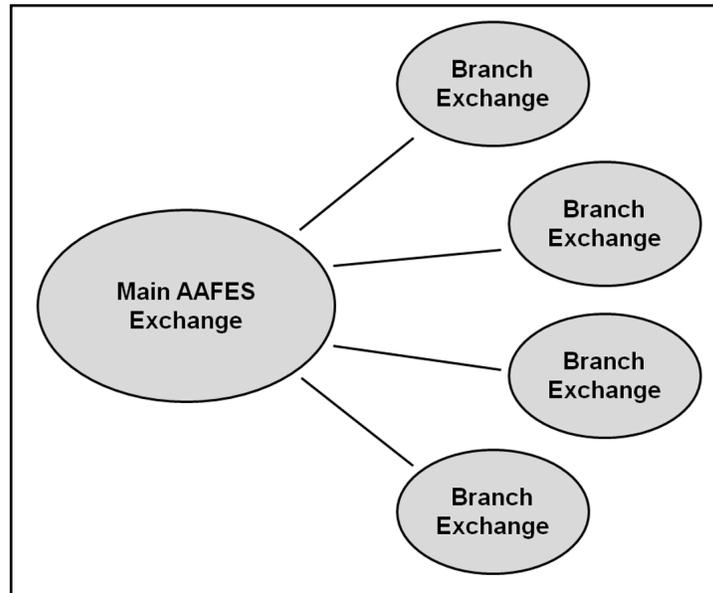


Figure 6-4. Example of main and satellite nodes

- Utilities. The most advantageous general alignment or location of utility system mains, stations, and plants should also be shown (a detailed layout of utility systems occurs later in the planning process).
- Arrange land uses compactly in a built-up area, if threat conditions do not require dispersal.
- Establish open areas outside the built-up areas for training activities; maneuver; and required AT/FP, safety, noise, and operational clearances. A myriad of regulations, criteria, and rules of thumb govern the dimensions, area requirements, safety, isolation, and clearance distances and boundaries related to the configuration and placement of land uses. Many of them require open space to meet standards. Additionally, if U.S. forces are deployed more than several months and are not engaged in active combat, they must conduct sustainment training. This generates the requirement for an array of training facilities, including firing ranges and maneuver training areas (see Figure 6-5, page 6-14).

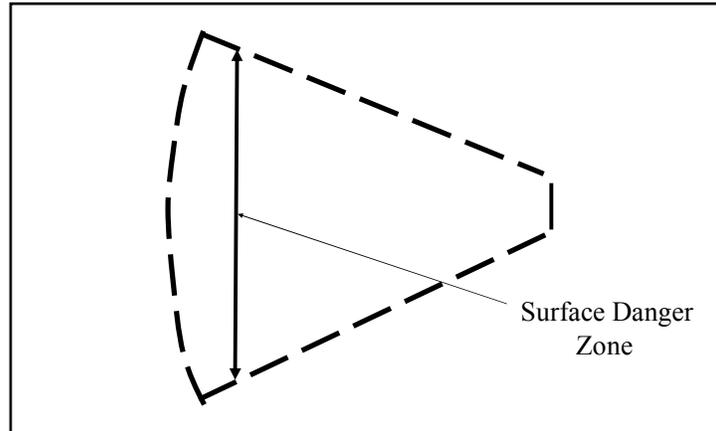


Figure 6-5. Example of safety clearance zone for a firing range

- Designate different land uses for different activity types and intensities. For example, planners would not locate a medical land use adjacent to a busy community center or near a noisy airfield. If using the nodes concept, small clinics and dispensaries might be located in these more active, noisy zones (see Figure 6-6).

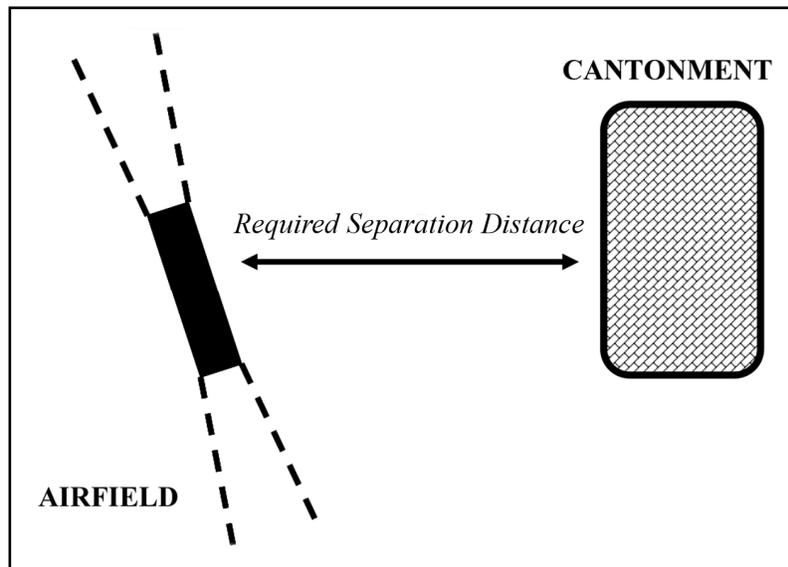


Figure 6-6. Example of required separation distance

- Separate those functions that require special AT/FP, health, safety, or security arrangements. For example, many activities require separation for safety reasons. The quantity safety distance governing the development and operation of ammunition supply points (ASPs), which is shown in Figure 6-7, is a requirement that is widely understood and obeyed. However, one that isn't

very well known is the 0.25-mile (0.4-km) isolation distance and downwind location that is required for sewage and industrial waste treatment facilities.

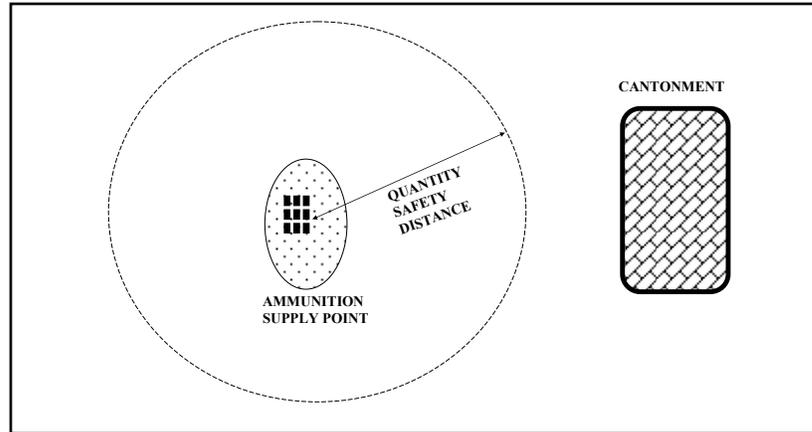


Figure 6-7. Example of quantity safety distance for munitions storage and handling

- Locate land use areas adjacent to each other that have strong functional interrelationships. Troop housing located within convenient walking distance of dining, recreational, or retail facilities is an example of beneficial adjacency (see Figure 6-8).

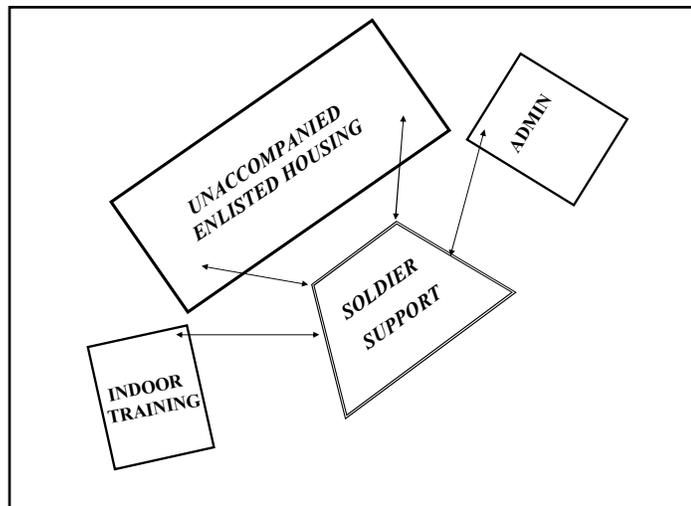


Figure 6-8. Example of convenient walking distance

- Locate mixed, compatible uses within one major area (see Figure 6-9, page 6-16). Group compatible land use functions together in multiple use areas. Surrounding each node, described previously as a part of the mixed-use concept, is a "density" of interaction that declines with increased distance from the center. Distance influences the distribution of activities and the level of activity at any location. A proven rule of thumb that applies to Americans

is that they consider convenient walking distance to be any distance of 0.25 mile (0.4 km) or less.

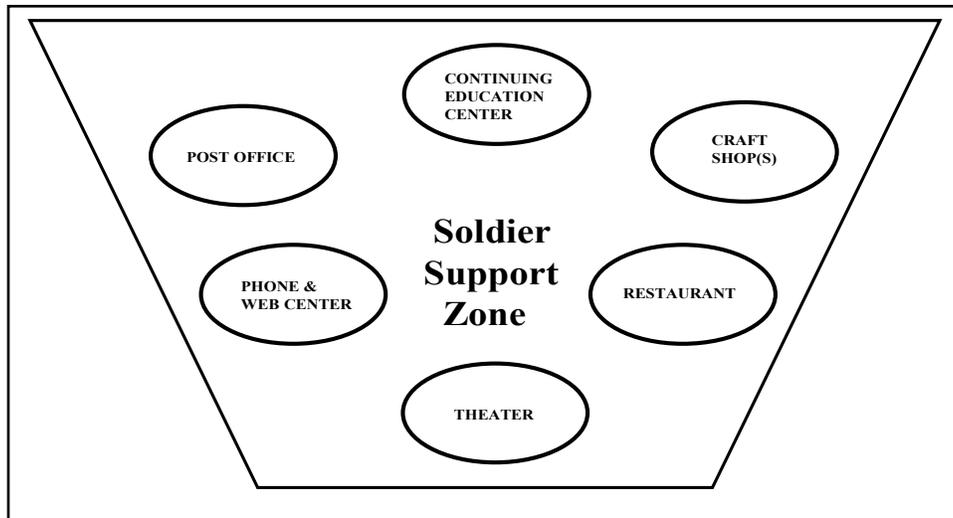


Figure 6-9. Example of mixed and combined uses

- Use the existing traffic circulation and utility systems to serve high activity land use areas. An example might be to locate supply facilities that are subject to heavy truck and rail traffic close to the main traffic artery or rail spurs (see Figure 6-10).

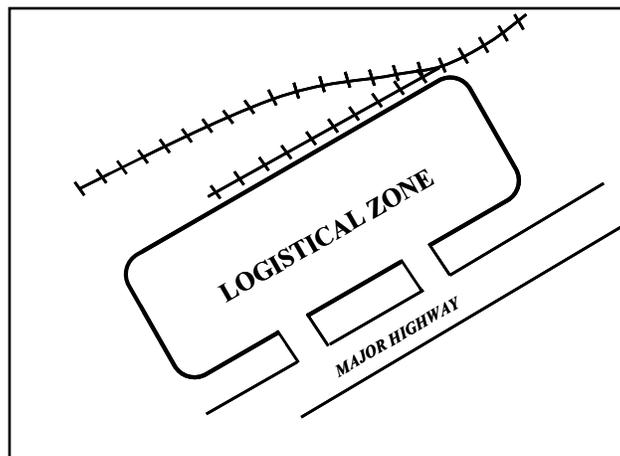


Figure 6-10. Example of high activity area and planned circulation system

- Use natural features and terrain to provide an attractive setting for living areas and other community functions. The use of existing vegetation and terrain features can make a base camp a pleasant place to live and work. For example, recreational facilities located on prominent terrain features can provide

patrons with attractive views of the surrounding countryside, providing a relaxing, calming atmosphere (see Figure 6-11).

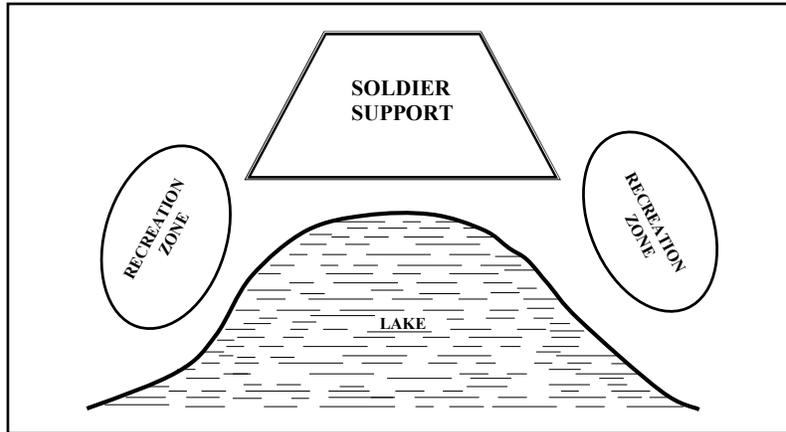


Figure 6-11. Example of using attractive natural features

- Arrange for convenient access to community facilities for the base camp population. On a large base camp, the use of the nodes concept would provide a community center for main troop support facilities as well as satellite retail and recreational facilities within convenient walking distance in the troop housing areas. The distance influence in the nodes concept is shown in Figure 6-12, page 6-18, using an AAFES as an example.

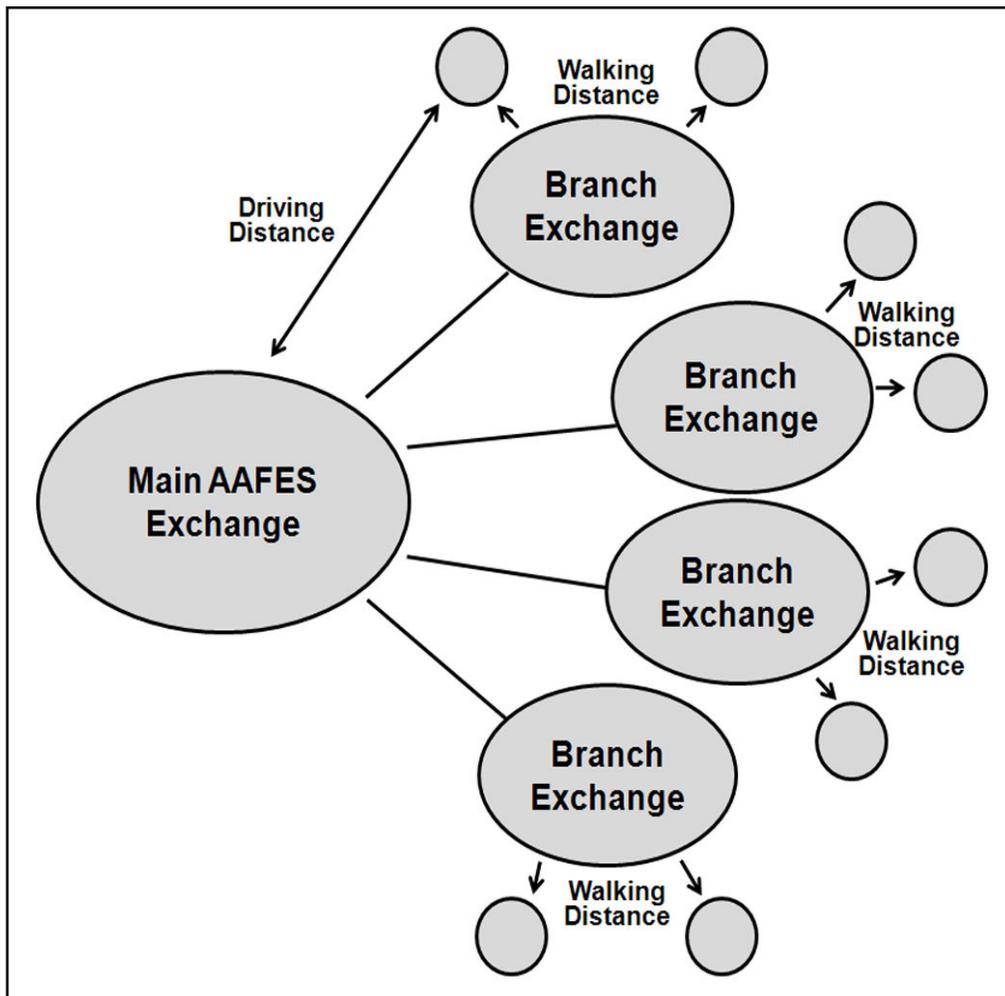


Figure 6-12. Example of the use of nodes to facilitate convenient walking distances

i. Select the best alternative or COA land use plan or take the best from each alternative or COA for a new *best plan*. If the planning team has been separated into groups, each group should have tested its trial plans and arrived at its own best effort. At this point, the entire team comes together and compares each of the planning solutions (see Figure 6-13). Each of the solutions should represent a good, solid alternative or COA land use plan and should be included in the base camp development records. After reviewing all the alternatives, the team has the following two options to select or develop the best alternative or COA:

(1) Choose one of the alternative plans as being superior over the others to recommend to the commander or—

(2) Take the strongest points from each of the alternative plans and arrive at a new “best alternative” land use plan to recommend to the commander.

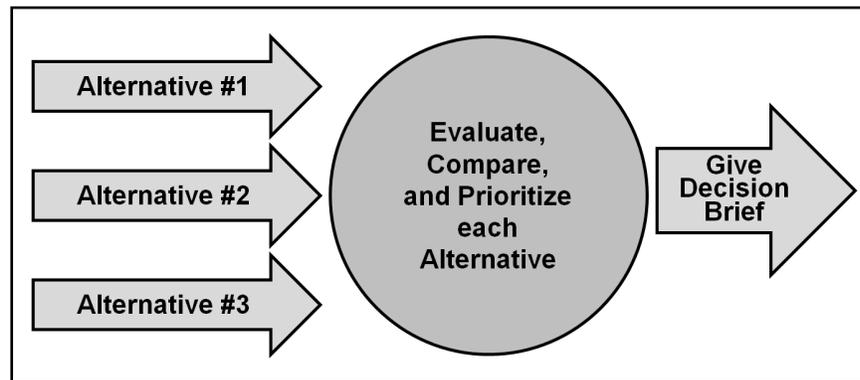


Figure 6-13. The alternatives analysis process

j. Obtain the commander's approval. The planning team carefully consolidates its notes and prepares, schedules, and rehearses a decision briefing to obtain the commander's approval of the recommended land use plan.

(1) It is advantageous to present the functional analysis overlay and the alternative land use plans or COAs during this briefing and discuss the advantages and disadvantages of each. Sometimes it aids comprehension to characterize each of the alternatives with a title, such as "The Disbursed Development," "The Line of Clusters," "The Concentric Rings," and so forth.

(2) A member of the planning team not presenting the briefing should listen carefully and write down the comments and responses of the commander and the staff. The command group will offer valuable guidance and insights that must be incorporated into the finalized land use plan.

(3) In addition to the graphic portion of the land use plan, a set of written companion policies should be discussed and approved. These policies will impact the land use goals and objectives and will be implemented to sustain the land use plan throughout the life of the base camp. The policies would be the rough equivalent of the zoning laws and ordinances that govern the development of most U.S. cities and many counties. They define what can and cannot be constructed, modified, or placed within each land use zone. Without these policies and their enforcement, facility and infrastructure development can become, knowingly or unknowingly, a hodgepodge of incompatible, unsecured, unsafe, unattractive, and inconveniently located facilities. Once the policies are approved and put in place, observance of them becomes a collaborative effort of the base camp command group, the base camp planning board, all units, and the individuals residing on the base camp. Appendix E, Table E-4 (page E-15), shows an example of land use policies. These policies should apply to all levels of subsequent planning.

k. Obtain higher headquarters approval. The review and approval process for the base camp land use plan may vary, based on the uniqueness of each base camp mission.

However, in a typical situation, the review and approval chain likely would proceed from the base camp to the appropriate intermediate headquarters, to the theater command headquarters, and perhaps to HQDA. Special reviews and approvals, such as those required for aviation, munitions, and ranges and training facilities, would likely be obtained, or be underway, before submitting the requirements document through the command approval chain. A typical flow of TO reviews and approval is shown in Figure 5-5, page 5-25.

(1) Once the land use plan is approved by the appropriate command authority, it becomes the centerpiece of the objective land use arrangement. It provides the starting point for all the subsequent steps of the planning, programming, design, and construction processes that result in a complete and useable base camp.

(2) The intervals and requirements for the submittal of formal updates to a base camp's land use plan are established by the theater command. Generally, a major revision of a land use plan represents a very significant planning action. The bulk of the land use planning process may need to be repeated. Examples include—

(a) A base camp that was originally planned as a logistical facility was assigned a new mission to house tactical units, including organic and supporting aviation assets, firing ranges, and maneuver training areas. This would represent a major revision of the land use plan.

(b) A significant reduction of U.S. forces in the theater typically requires that a base camp or portions of the base camp be cleaned up, closed, and returned to the HN. In this case, a small contingent of U.S. personnel would normally remain indefinitely in a much smaller base camp. This would require a significant change to the land use configuration.

(3) In some special cases, it is possible that there would be Executive Office, Cabinet level, or Congressional oversight of a plan to establish a base camp in a foreign country. Therefore, it is conceivable that a planner would be asked to provide information beyond that which is customarily associated with the development of a base camp.

1. Implement and maintain the land use plan. The plan is initially prepared and implemented with the advice and consent of the plan's affected groups. Planners solicit comments, and coordinate land use approaches with the base camp's command group, its assigned units, and, in some cases, certain HN representatives, as a routine matter during the development of the land use plan. Once the base camp exists and the base camp planning board is in place, it will assume the responsibility of maintaining the land use plan.

(1) The approved land use plan, along with the record of the land use planning process contained in the base camp development record, is the template within which the base camp will be developed. One way to make the land use plan work is to develop actions and programs that will implement various aspects of the plan. Examples of

actions and programs that are the products of land use policies may include the development of—

- A firing range and maneuver training area complex.
- Unaccompanied personnel housing complexes.
- A service member support and community center area.

(2) Once the base camp becomes operational, there is a need for continuous review, revisions, and submittal of updates for higher headquarters approval. If the land use plan is solid, the objective would be to focus on the details of the plan and not on overhauling its framework. The process depends on keeping users involved and making major or minor revisions based on situations such as changes to the mission, population, user requirements, technology, equipment, weapons systems, HN concerns, and environmental concerns.

(3) The process of implementing a land use plan must be accompanied by an effort to keep it relevant. Regular review by the base camp planning board and the appropriate higher command, at times using USACE, NAVFAC, or AFCESA expertise, is an excellent way to maintain relevance.

(4) The planning process must include a feedback mechanism so that new information can be incorporated into future planning. For example, the acquisition of new data can require an adjustment to the original land use goals and objectives. The best feedback mechanism consists of presenting the land use plan to assigned units and other users, soliciting comments and guidance from the appropriate higher command and, if security conditions permit, providing copies of the land use plan to HN governmental agencies. Appropriate distribution of the land use plan, an open door policy regarding access to the local planning staff, visits by the planners to the units and other users, and frequent base camp planning board meetings collectively represent the most effective means of obtaining timely feedback.

(5) The ultimate test of any plan is the extent to which the base camp's leaders adhere to it. Land use plans that are based upon specific goals and objectives provide a framework for prudent decision making and stave off short-term solutions that either create or fail to solve long-term problems. Leaders and planners must understand that there is a difference between amending a land use plan in light of new information or changed circumstances and altering the plan due to capricious preferences. In certain situations, it is very difficult to maintain the plan without compromising its vision and coherence. The higher headquarters review and approval process and the act of maintaining good working relationships with planners at higher headquarters, can serve as a check and balance for capricious, unwise, or dangerous revisions of a land use plan.

