



# Fort Campbell Installation Planning Standards



Michael Baker Jr., Inc. - AECOM Joint Venture



*A World Class Army Home*



# Fort Campbell Installation Planning Standards

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Under Contract To:

U.S. Army Corps of Engineers, Sacramento District

Funded By:

Headquarters, Installation Management Command

Revised By:

Fort Campbell Directorate of Public Works

Dated:

November 2014



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# Section 1 Introduction

In accordance with UFC-2-100 (installation master planning), Fort Campbell, in conjunction with its higher headquarters (US Army Installation Management Command), has developed several new planning products to update the installation's Real Property Master Plan (See Figure 1 below). To comply with the updated master planning requirements in UFC 2-100, Fort Campbell established a new Real Property Vision Plan and Installation Planning Standards. This document contains Fort Campbell's Installation Planning Standards.

## 1.1 Purpose

The Installation Planning Standards (IPS) captures the installation's guidelines for development of sustainable and efficient facilities. It provides a clear set of guidelines to ensure that Fort Campbell's vision and planning objectives for development are achieved. This document consists of the following sections:

- **Site Planning Section**, which provides for the spatial arrangement of a construction site considering the spatial arrangement of the larger installation;
- **Building Standards**, which govern the form and placement of the building;
- **Street Standards**, which establishes the basic road configuration and dimensions of individual components such as sidewalks, bike lanes, medians and travel lanes;
- **Landscape Standards**, which show the appropriate type and placement of landscape elements.
- **Visual Themes Section**, which provides additional design guidance and recommendations for specific areas within Fort Campbell;

## 1.2 Objectives

The objectives of the IPS are:

- To promote visual order and architectural consistency.
- To enhance the natural and man-made environments through consistent architectural themes and standards.
- To provide a set of general design standards and guidelines that define color, materials, style, signage, and other aspects of design for all visual elements surveyed.
- To provide standards and guidelines to meet sustainability and energy efficiency requirements.

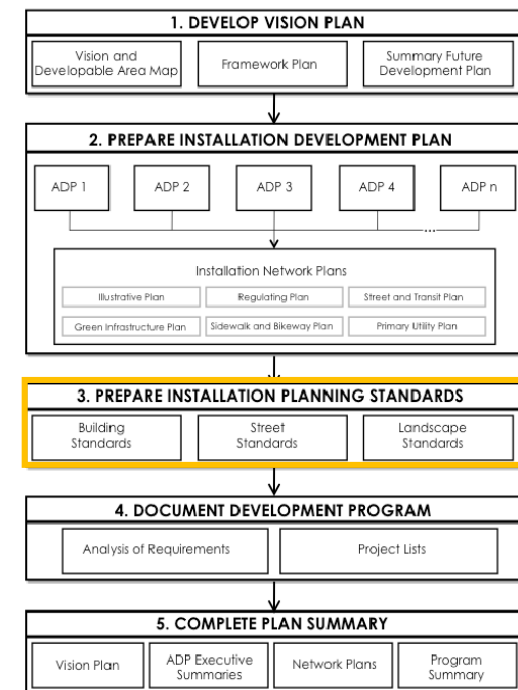


Figure 1. Master Planning Process Steps

# Section 1 Introduction

## 1.3 When to Use

The IPS provides installation-specific design data and general design concepts, recommendations, and standards applicable to all Army installations. This document will be used as a reference to acquire recommendations and Army standards on the design of all facilities, new roads, road widening, parking, sidewalks and other pedestrian paths, bicycle paths, Access Control Points (ACP), site furnishing selection and placement, signage selection and placement, lighting selection and placement, utility corridor selection, and utilities. Clearing of plant materials and planting of new plant materials will be based upon the guidance herein. ATFP modifications and security considerations should also conform to the design standards.

New construction projects typically have greater opportunities to comply with the standards, while projects that involve renovations or additions to existing buildings are typically more limited in their ability to address each specific element. For renovations or additions to existing buildings, the IPS should be followed to the greatest extent feasible based on the area and magnitude of work being conducted.

## 1.4 How to Use

Use this IPS, in conjunction with the Fort Campbell, Kentucky Technical Design Guide, to determine the general design and construction considerations in the preparation of project plans. The IPS provides design guidelines and Army-wide design standards intended to be used in all projects, regardless of the funding source. The IPS should also be used in developing requirements for programming documents for MCA construction (DD Form 1391), as well as cost estimates and preliminary and final designs (from both in-house and external design sources) involving exterior visual elements on the installation. The following steps illustrate how this guide is used for the preparation of plans for new construction, renovation, maintenance and repair projects on the installation:

**Step 1:** Review the design goals, objectives, and principles included in area development plan (ADP) reports.

**Step 2:** Consult the IPS to determine the applicable Building Envelope Standards, Transportation Standards, and Landscape Design Standards, along with design guidance provided in the Visual Themes section of the IPS.

**Step 3:** Design building form and site the project according to the Regulating Plan, appropriate Building Envelope Standard, and current Anti-Terrorism/Force Protection guidelines. Note the presence of existing utility lines and mature trees.

**Step 4:** Select structural systems, building materials, and colors from the Technical Design Guide.

**Step 5:** Select the appropriate landscape materials. The plan should be reviewed by Fort Campbell's Directorate of Public Works, Environmental Division.

**Step 6:** Assemble all plans documenting conformance to applicable standards and guidelines.

## Section 1 Introduction

### 1.5 Maintaining

Since the IPS is a “living document”, keeping it up-to-date and accurate will ensure its continued applicability. The Installation Planning Standards (IPS) should be revised as mission, budget, standards, and other conditions generate new planning and design requirements. Facility user feedback should also drive revisions. In accordance with AR-210-20, Master Planning for Army Installations, the installation Real Property Planning Board (RPPB) is the adjudicating body for the Installation Planning Standards at the installation level. Violations and variances from standards will be reviewed and adjudicated by the RPPB. The Senior Mission Commander will chair an Installation Planning Board (IPB) to review and approve the RPPB's actions.

The IPS will be maintained by the Master Planning Office of the Directorate of Public Works (DPW). Any proposed changes to the IPS will be presented to this office for review. Once changes have been approved, those changes will be annotated in the IPS as such.



## Section 2 Visual Themes

### 2.1 Introduction

Visual themes create a perception of unification within the installation. These themes create design consistency that provides orientation and a "sense of place". Visual themes provide the same general use and visual characteristics. They include broad scale activities that occur on the installation. These activities typically include similar design and layout characteristics.

The visual analysis maps graphically illustrate the features and constraints that affect the visual character of the theme. The following paragraphs present a functional analysis of each of the visual themes. This analysis includes a description of the visual character, a visual analysis map, and recommendations for each theme.

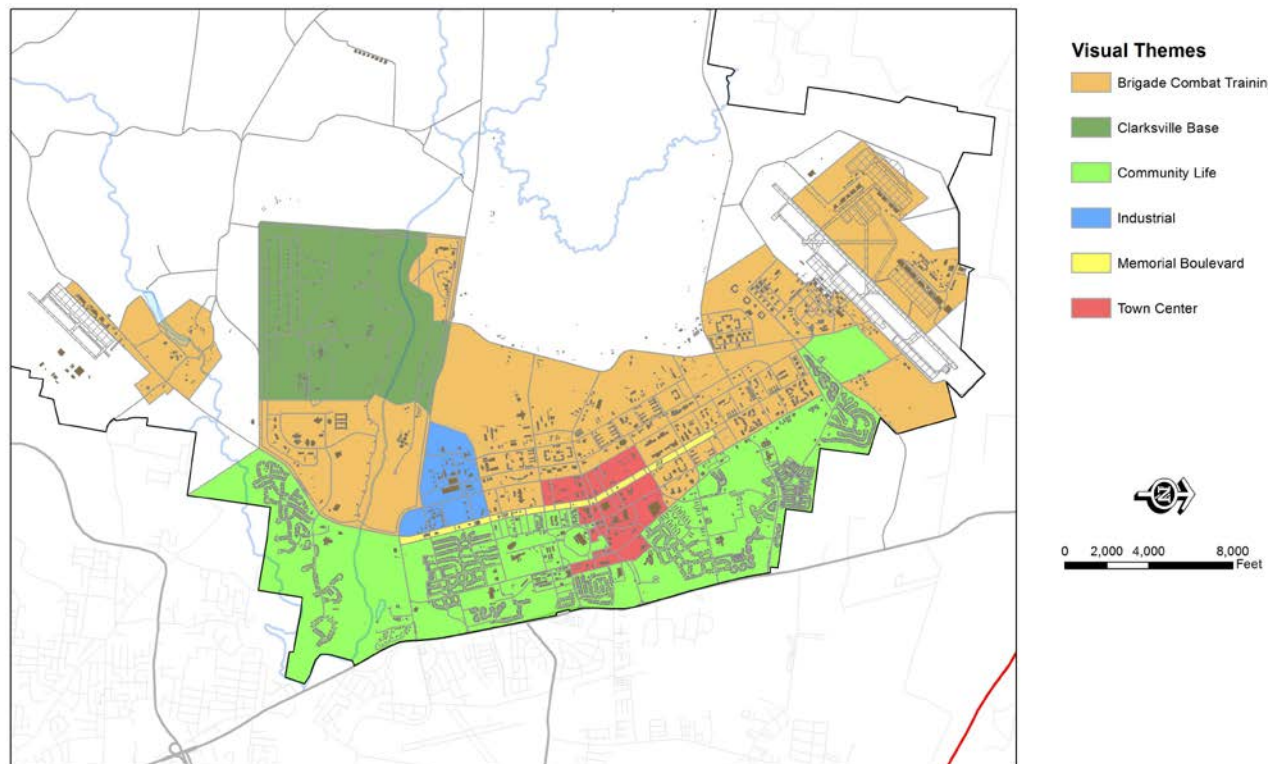


Figure 2. Visual Themes

## Section 2 Visual Themes

### 2.2 Town Center

#### 2.2.1 Character

This Visual Theme is currently bisected on an East to West axis by Screaming Eagle Boulevard, which begins at the Main Gate (Gate 4) to Ft. Campbell. The Town Center Visual Theme falls in a geographically centralized location on the installation, and includes the main PX Shopping Mall, Guest House, the current Headquarters Building and many other administrative and service facilities.

#### 2.2.2 Analysis Map

There are two focal points in this Visual Theme. One is the current Headquarters Building, which provides a certain historic feeling to this theme area. The second, Gander Memorial, is an extremely meaningful and picturesque site that in many ways is the focal point of the entire base. The existing alignment of Screaming Eagle Boulevard is given a primary circulation symbol.



Figure 3. Town Center

## Section 2 Visual Themes

### 2.2.3 Recommendations

#### Site Planning

- Ensure Gander Memorial trees have a prominent, central, and respectful location with adequate room to flourish and grow.
- Future buildings in this theme should face the main roads.
- Parking should be sited in the interior of the blocks.
- Outdoor seating areas should be created in the interior areas of blocks – separate from parking.
- Sidewalks should connect buildings along roadsides.

#### Buildings

- Maintain exterior of all buildings.
- New construction should be in context with adjacent buildings.
- New additions or modifications should enhance and improve the original architecture.
- Renovate or remove old structures in need of attention.
- Use Education Center and Turner Guest House as precedents for new construction in this area.
- Remove fabric awnings and canopies over entrances and replace with more permanent entrance covers that are designed to relate to existing original architecture.
- Temporary buildings should be removed and permanent structures constructed in more appropriate locations.
- Any modifications should be appropriate to the style and character of the original buildings.
- Preserve the visual character and integrity of historic buildings. Additions to these buildings should be discouraged.
- Remove all industrial-style metal buildings in the core area of this zone and replace with significant buildings appropriate to the zone.
- Screen services areas, utility structures, and mechanical equipment according to force protection standards or relocate to less conspicuous locations. Any planned screening around utility structures and mechanical equipment must comply with the Fort Campbell Technical Design Guide and also be coordinated with DPW Engineering Division.

## Section 2 Visual Themes

### Circulation

- Roads should be given a hierarchy and should receive appropriate treatments.
- Walkways should be provided on all streets.

### Plant Material

- All trees should be evaluated by a certified arborist for health status.
- Damaged trees (beyond remedy) should be removed.
- Add islands with landscaping in the parking areas to decrease, capture and filter runoff and aesthetically enhance the visual character of the zone.
- Plantings should be used to give hierarchy to streets. Landscaping for the administration buildings should be similar to college campuses planting with an emphasis on trees, groundcover and lawn.
- Significant planting should be done around the Youth Center. Shade trees should be a large proportion of this planting.
- Implement good pruning and maintenance practices. Allow shrubs to achieve their natural shape. Replace shrubs and trees, as needed based on natural scale and shape.
- Mass plant groups of the same tree, shrub and groundcover for visual impact.
- Plant the largest size possible of trees and shrubs for an immediate show of landscaping.
- All landscaping shall be planted and maintained in accordance with Fort Campbell Technical Design Guide requirements.

### Site Elements

- Incorporate appropriate outdoor seating in site plans for all buildings in this theme.
- Coordinate all planters, benches, trash receptacles, etc. throughout the theme.
- Screen dumpsters according to force protection standards and/or relocate to more appropriate locations.

### Force Protection

- Ensure that all plantings in the theme meet force protection standards.

## Section 2 Visual Themes

- Use topographical modifications to enhance force protection standards.

### 2.3 Community Life

#### 2.3.1 Character

The Community Life Visual Theme shares its eastern perimeter with the eastern extents of Ft. Campbell. The visual theme is broken into a north area and a south area. The two areas share the same functions at Ft. Campbell. The northern edge of this Visual Theme follows the boundary of the airfield, and excludes the corridor of JI Line Road, which is designated as Deployment on the land use map. This theme includes all of the family housing units on the installation, schools, the golf course, and the Combined Club.

#### 2.3.2 Analysis Map

The buffer along the eastern perimeter of the installation currently represents the existing vegetative buffer. This buffer is important to maintain in order to separate the Family Housing Theme from US Highway 41A. This buffer includes concrete noise walls softened with earth berms and landscaping used as a force protection barrier.

The buffer along the northeastern limit of the theme represents a separation between the Community Life areas and the airfield. This buffer consists of vegetation and open space. There is a buffer of open space to the east of Indiana Avenue that



Fort Campbell Installation Planning **Figure 4. Community Life**

## Section 2 Visual Themes

separates the Family Housing units from the Barracks on the West side of Indiana Avenue. The focal points within this theme are the schools and the golf course.

While family housing and the schools are managed by outside agents at Fort Campbell, certain standards should still be met in order to maintain an aesthetically pleasing atmosphere.

### 2.3.3 Recommendations

#### Site Planning

- Enhance the area near the Old Farmhouse.
- Provide more appropriate aged play spaces for the school and locate these play spaces closer to the school.
- Provide a more effective buffer between the housing areas and US Highway 41A.
- Utilize topographical mounding and plantings suitable for a residential area.

As it stands, the old hospital site cannot be used for housing, but is suitable for more temporary activities (e.g. ball fields). Given the karst terrain of the region, a cap will not contain contaminants. Develop this site using progressive remediation techniques (e.g. Phytoremediation). The Army has an opportunity with this site to be a leader in more environmentally sound treatments of contaminated grounds.

#### Buildings

- Ensure all public buildings within the theme area are accessible.
- Incorporate modifications into buildings and landscape in an aesthetically pleasing way.
- Maintain exterior of all buildings.
- Remove all chain link fencing and replace with a more appealing solution to screen rear yards in residential areas.
- New construction should be in context with adjacent buildings.
- New additions or modifications should enhance and improve the original architecture.
- The historic character of Cole Park Log Cabin and Cape Cod GOQ should be protected.

## Section 2 Visual Themes

### Circulation

- Create a hierarchy of roads within the housing areas.
- Recommend adding 4 foot sidewalks in all future housing areas. These sidewalks should be separated from the concrete curb by a minimum two-foot grass buffer strip. Retrofit existing neighborhoods if possible. Create pedestrian connections to the Town Center.

### Plant Material

- Allow shrubs and trees to grow to achieve natural shape and size with pruning on an as-needed basis for health and aesthetic appearance of the plant.
- All trees should be evaluated by a certified arborist for health status.
- Damaged trees (beyond repair) should be removed.
- Mass plant groups of the same tree, shrub and groundcover for visual impact.
- Plant the largest size possible of trees and shrubs for an immediate show of landscaping.
- Parks and open areas should receive increased plantings of shade trees to create a more pastoral effect.

### Site Elements

- Coordinate all public planters, benches, trash cans, etc. throughout the zone.
- Screen dumpsters and relocate them in more appropriate locations.
- Remove all chain link fencing and replace with a more appealing solution in residential rear yards.
- Increase the presence of benches and other site amenities in open park areas to encourage pedestrian use.

### Force Protection

- Provide barriers at public facilities. If possible, eliminate straight-on approaches to buildings.

## Section 2 Visual Themes

### 2.4 Clarksville Base

#### 2.4.1 Character

Clarksville Base is historically significant with ties to the early US Navy Nuclear program. The borders of the Clarksville Base Theme area are established by Mabry Road to the north, McNair Road to the west, Jordan's Springs Road to the south and 101st Airborne Division Road to the east. The majority of this theme area is wooded with many ammunition storage units. There has been recent development in this area that is included in the Brigade Combat Training Theme.

#### 2.4.2 Analysis Map

The buffer on this map represents a visual/spatial buffer between the surrounding roads and the ammunition storage bunkers within the site.

There is a significant amount of open space located around the Unaccompanied Personnel Housing (UPH). There is also an area of open space along the southern edge of the theme with good views.



Figure 5. Clarksville Base



## Section 2 Visual Themes

### 2.4.3 Recommendations

#### Site Planning

- Cluster new construction around existing buildings in the Northwest corner, near the UPH site.

#### Buildings

- Renovate and repair historic buildings and structures.

#### Circulation

- Minimize the construction of new roads through the site.

#### Plant Material

- The health of all trees should be evaluated.
- Invasive understory growth should be removed.
- Maintain the wooded nature of the site.

#### Site Elements

- Outdoor seating areas with adequate shade should be provided for all Soldiers and Civilians.

#### Force Protection

- Maintain the wooded buffers of the site. If force protection measures are needed, use topographical changes in order to minimize visual disturbance of the woodlands.

## Section 2 Visual Themes

### 2.5 Brigade Combat Team

#### 2.5.1 Character

This visual theme includes two distinct visual zones: Operations/Maintenance and Troop Housing. There is a green space that runs along a north/south axis between Wickham Avenue and Desert Storm Avenue. This area contains a railway, which prohibits it from functioning as 'open space' for active use.

#### 2.5.2 Analysis Map

There are patches of open space within this theme, most of which are ball fields and unused spaces between buildings and parking lots. A small percentage of these spaces would fall within the Antiterrorism/Force Protection offsets from structures for security purposes. The Parade Field is located in this theme, and is identified as open space.

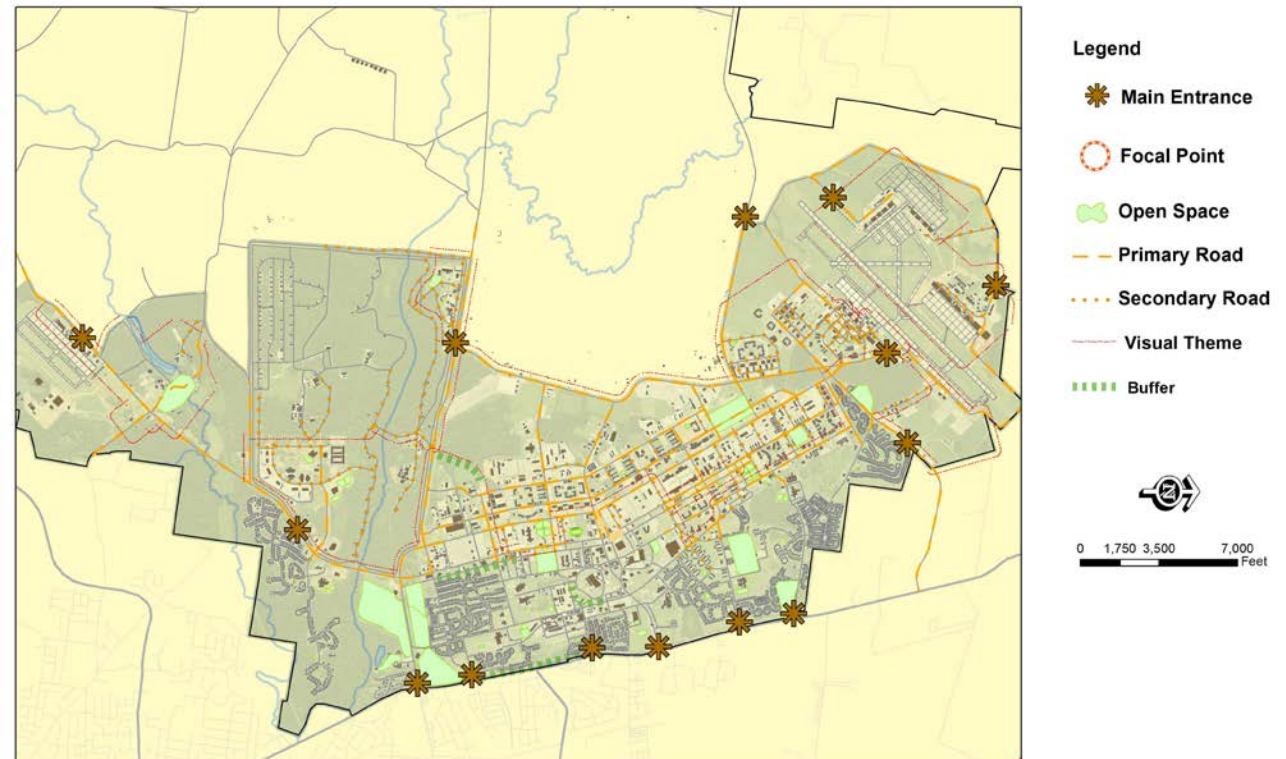


Figure 6. Brigade Combat Training

## Section 2 Visual Themes

### 2.5.3 Recommendations

#### Site Planning

- Prototypical site plans should be created for buildings that provide outdoor seating areas for Soldiers and Civilians.

#### Buildings

- Renovate hammerhead barracks to create a clearly defined entrance.
- Develop new construction along Tennessee Avenue to build up density adjacent to Memorial Boulevard.
- Use LaPointe Medical facility and buildings 7094, 7095 and 7096 as precedents for new construction in this area.
- Maintain exteriors on all buildings.
- Future troop housing units should be constructed at a scale that is different from maintenance and operations buildings.

#### Circulation

- Create a network of walkways through the entire troop housing area that will allow for improved accessibility, physical fitness opportunities, and pedestrian separation from vehicular traffic.

#### Plant Material

- Site plans should be developed for all buildings. Troop housing areas should have more of a campus feeling, with large trees and open lawn.

#### Site Elements

- Lighting, benches, and trash receptacles should be consistent throughout the theme.
- Dumpsters should be located more appropriately and adequately screened.

#### Force Protection

- All dumpsters should be sited and screened according to force protection standards. Implement topographical techniques to secure dumpsters while allowing for a limited visual impact.

## Section 2 Visual Themes

### 2.6 Memorial Boulevard

#### 2.6.1 Character

The northern extent of the green space is at 49th Street, where barracks and the BCT Theme take over. The southern extent is at 1<sup>st</sup> Street towards the golf course and the Community Life Theme. The boulevard provides Ft. Campbell with an opportunity to create a central recreational area for everyone on the base.

#### 2.6.2 Analysis Map

This visual zone is primarily open space. This theme is located between Tennessee and Kentucky Avenues, which are secondary circulation routes on the installation.



Figure 7. Memorial Boulevard

## Section 2 Visual Themes

### 2.6.3 Recommendations

#### Site Planning

- This zone should be considered an ideal space for memorials. There is ample room to relocate trees, if necessary, to spots where each tree can flourish, and become a place for everyone on the base to gather and remember.
- Memorial Boulevard should be treated as a passive pedestrian park space.
- There should be very limited to no development within this zone. This limitation applies to parking, buildings, storage buildings, recreation fields, and play areas.

#### Buildings

- The indoor pool-building exterior needs to be updated.
- Renovate or repair facilities within or facing this zone.
- Any miscellaneous/temporary buildings should be removed from this area.
- The future construction of buildings in this zone should be prohibited.

#### Circulation

- Vehicular circulation through this site should be minimized. Specific “cross-town” routes should be established and their use encouraged.
- Increase pedestrian circulation opportunities.
- Eliminate parking areas in this area.
- A multi-purpose trail should be added.

#### Plant Material

- Gander Memorial should be strengthened by making it the central focus of the base. A new site plan should be developed to optimize the growing condition of the Gander Memorial trees. Consult with a certified arborist and landscape architect prior to any restoration or relocation work.
- Transplant trees as necessary.

## Section 2 Visual Themes

- Tree plantings within the theme should be similar to the Community Life Theme.
- The planting scheme for this zone should be shade trees, flowering trees and lawn. No other plantings should occur.
- The concept is to create a simple, elegant plant palette.

### Site Elements

- Site elements should compliment or relate to the Community Life Theme.
- Coordinate all public planters, benches, trash cans, etc. throughout the zone.
- Increase the presence of benches and other site amenities in open park areas to encourage pedestrian use.

### Force Protection

- Not applicable.

## Section 2 Visual Themes

### 2.7 Industrial

#### 2.7.1 Character

The Industrial Visual Theme is defined by 1st and Airborne Streets, Stillwell Road, and Tennessee Avenue. Located on the edge of the Memorial Boulevard Visual Theme, it is directly across the boulevard from the Werner Park housing community. Consisting of large buildings and containing the more utilitarian functions of the base, with little landscaping.

#### 2.7.2 Analysis Map

The main corridors through the zone are Wickham and Desert Storm Avenues. Buildings are set back from the road, and there is little to no buffer between the road and the monolithic expanses of buildings. A significant amount of open space gives an impression of “missing teeth”, or simply areas that have not been programmed yet. There are no architectural nor visual focal points within this theme.



Figure 8. Industrial

## Section 2 Visual Themes

### 2.7.3 Recommendations

#### Site Planning

- Continue to congregate buildings in a central location.
- Minimize the extent of parking lots by sharing between buildings and uses.
- Relocate all hazardous activities as far away from natural waterways as possible.

#### Buildings

- Organize construction of new buildings in a way that will conserve land.
- Maintain exterior of all buildings and remove any structure that is beyond repair.

#### Circulation

- Minimize the number of entrances into this theme area.
- Maintain a grid system in this zone.

#### Plant Material

- Provide shade trees. There is ample open space to plant trees for visual appeal as well as personal comfort for workers in the area.

#### Site Elements

- The area should contain several outdoor seating areas, with shelters for workers. Shelters can consist of constructed or planted materials.
- Seating areas should be located in proximity to the entrances of all buildings but away from parking areas.
- Replace wood gazebos with a shelter constructed in the same style and material as adjacent buildings.

#### Force Protection

- Future plantings should comply with force protection standards.



## Section 3 Site Planning

### 3.1 Introduction

Site Planning is the process of arranging an external physical environment in complete detail to include the structures, circulation patterns, and other elements that form the built environment. The site planning and design process is used to develop a project that fulfills facility requirements and creates the optimal relationship with the natural site. Site Planning also provides for the spatial arrangement of a construction site considering the spatial arrangement of the larger installation. The Real Property Master Plan Long Range Component provides information that forms the foundation of site planning efforts. This Master Plan is a mechanism for ensuring that individual projects are sited to meet overall installation requirements. Various Department of Defense and Army guidance documents lay out criteria for how facilities on Army installations are to be sited, to include the Unified Facilities Criteria (UFC) 1-200-02, High Performance and Sustainable Building Requirements, UFC 2-100-01, Installation Master Planning, UFC 3-210-10, Low Impact Development (and ASHRAE Standard 189.1, Standard for the Design of High Performance Green Buildings), UFC 4-030-01, Sustainable Development, and UFC 4-010-01, Department of Defense Minimum Anti-terrorism Standards for Buildings.



Site Plan

The goal of site planning for the installation is to produce an attractive, safe and sustainable development. Sustainability requires the built environment be designed and constructed to preserve and enhance the natural environment. Manmade facilities are designed as part of the environment to minimize negative environmental impacts. General site planning techniques resulting in sustainable development are cost efficient because they conserve energy and reduce construction and maintenance cost.

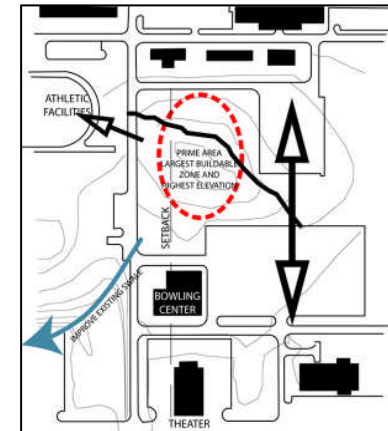
### 3.2 Objectives

Typical site planning objectives include the following:

- Locate facilities in a compatible land use area consistent with the Real Property Vision.
- Plan for facilities to be clustered to preserve land and reduce construction cost. Clustering should occur on the flattest land areas. Room for expansion should be provided. When clustering facilities, Force Protection methods must be considered.

## Section 3 Site Planning

- Commit to the conservation of existing passive/recreational open space and avoid environmentally sensitive sites and other constraints (seek approval at RPPB if developing in these areas).
- Preserve natural site features such as topography, hydrology, vegetation and tree cover. Replace trees at a 2 to 1 ratio.
- Preserve the natural site by molding development to fill around existing landforms and features. This development approach minimizes extensive earthwork, preserves existing drainage patterns, and preserves existing vegetation.
- Utilize Low Impact Development techniques on construction project sites to ensure quality and quantity storm water management design.
- Locate facilities with consideration of climactic conditions such as wind, solar orientation, and micro-climate.
- Ensure site connectivity by including components of the Fort Campbell trail plan, if applicable, sidewalk and bike lane infrastructure consistent with the Multi-modal Transportation Plan, and recreational/common space components on project sites. Include site elements such as bike storage, benches, etc. when appropriate.



Site Opportunities and Constraints

### 3.3 Considerations

The primary “fit” of the development to its environment is initially determined by the site analysis and subsequent site planning. The determination of primary issues that provide basic location and organization of spatial relationships are determined during the site planning.

#### 3.3.1 Land Use

The procedure for siting a facility at Fort Campbell begins with approval through the Installation Siting Board and Real Property Planning Board (RPPB). At the time a facility is initially sited, planners should ensure that the facility is sited in a compatible land use area. Planners should use the Land Use Vision map and Land Use Compatibilities matrix to ensure the proposed facility is sited in an appropriate location that considers the long term vision for the installation. If the proposed building site does not conform, the rationale for the nonconformity shall be presented at the RPPB.

## Section 3 Site Planning

- All land use decisions should support the land use vision.
- Site facilities in compatible land use areas unless otherwise approved at the RPPB. Community facilities, and housing facilities should be located in areas where they are close to other community resources and connected with existing/planned pedestrian and bicycle infrastructure.
- If an existing facility scheduled for replacement is in an incompatible land use area, the replacement facility should be relocated to an appropriate area.
- Provide buffers between incompatible land uses (see Section 7, Landscaping).

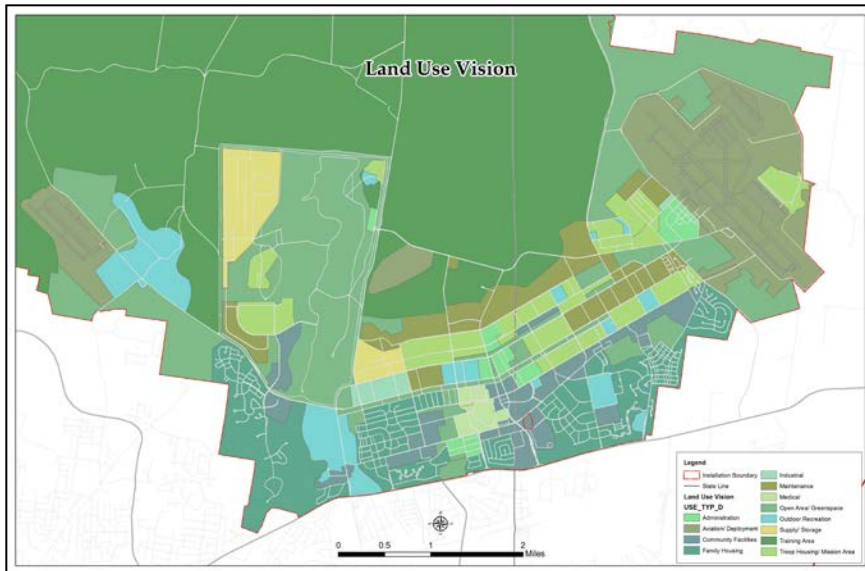


Figure 10. Land Use Vision Map

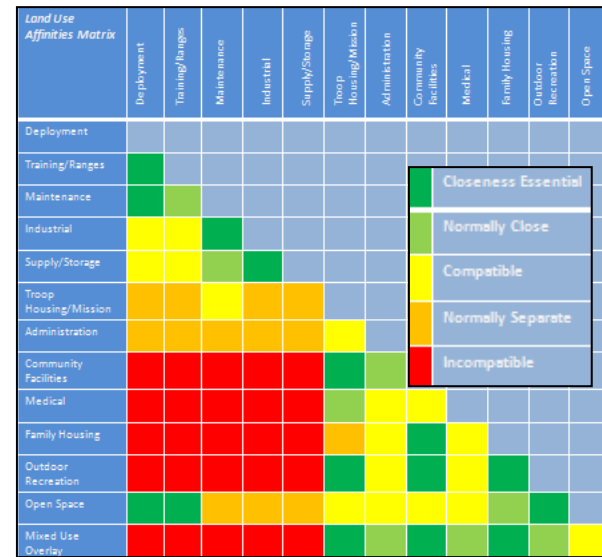


Figure 9. Land Use Compatibilities Matrix

## Section 3 Site Planning

### 3.3.2 Open Space

An area of emphasis in Fort Campbell's Green Infrastructure Plan is making open space a priority. Consistent with the regulations listed above, Fort Campbell's intent is to preserve existing open space, to include passive open space, areas used for the management of storm water, and recreational space. These areas should be avoided when selecting development sites. When developing new building sites, preferably on brown-field (or previously developed) sites, open space should be maximized, and impervious cover minimized where possible. Anti-terrorism setback areas required by the UFC 4-010-01 should be utilized for the dual purpose of providing human-scale common space with identifiable uses (courtyards, plazas, picnic areas, etc). Planners should develop an initial concept for their building site that considers these areas, as well as pedestrian connectivity, handicap accessibility, parking, landscaping, storm-water management, and other aspects of community connectivity. The Building Design (Section 4), Transportation (Section 5), Landscaping (Section 7) and Site Elements (Section 8) sections of this report are dependent upon site planning for their location and spatial relationships.

- Avoid developing Greenfield sites or sites identified for recreation or open space usage, (obtain RPPB approval to develop in these areas).
- Utilize open space required for Force Protection to provide well-connected recreation and common space. Incorporate recreation facilities as part of all barracks or housing projects.

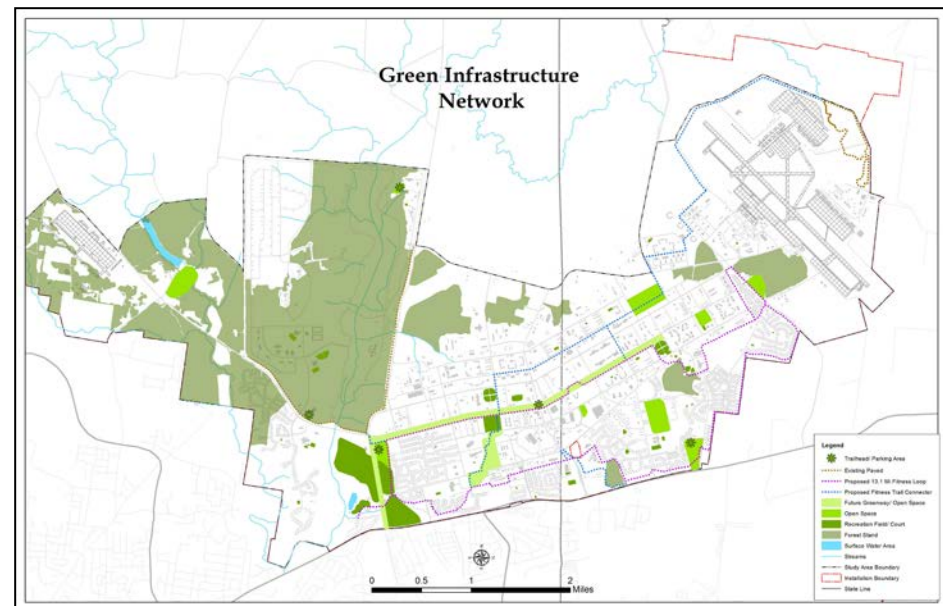


Figure 11. Green Infrastructure Network Map

### 3.3.3 Accessibility

Any building or facility used only by able-bodied personnel need not be accessible to the disabled. Nevertheless, when feasible and appropriate, seek to incorporate accessibility measures into the design since the facility use may change over time (military exclusion is provided by UFAS 4.1.4 (2)). All other structures or facilities must meet the standards of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS), with the most stringent standards applied in

## Section 3 Site Planning

the event of conflicting guidelines. (See AR 420-70, Chapter 2, Para 2.8). This includes the avoidance of site barriers through the use of curb cuts, ramps, handrails, and grade-level entrances.

- Provide designated handicapped parking spaces in all major parking lots and drop-off zones for persons with mobility impairments.
- Modify existing structures for handicapped accessibility whenever possible, especially community facilities that are most likely to be used by families, veterans or visitors.

### 3.3.4 Environmental

Planners shall also work with the DPW Environmental Division early in the project planning process to complete National Environmental Policy Act (NEPA) review, in order to ensure adequate consideration of environmental impacts and other constraints, in time to consider alternative sites, if necessary. Installation Management Command (IMCOM) siting approval should also be sought after approval of both the initial NEPA document and RPPB approval.

Environmental issues to consider in the preparation of a site plan include any action or proposal that has a detrimental effect on a site area's land, water, or air quality. The location of facilities on land that results in minimal disturbance to the existing topography, vegetation, and drainage patterns greatly reduces the negative impact on the environment. It is the Garrison Commander's responsibility to ensure that all National Environmental Policy Act (NEPA) documentation is started before the site selection process, as this process feeds the 1391 process. NEPA requires that an Environmental Impact Statement (EIS) be submitted to the U. S. Environmental Protection Agency (EPA) for major projects that may significantly affect the environment. The EPA reviews and responds to filed impact statements.

Federal law requires that prior to the undertaking of activities which effect the nation's waterways, described as "navigable waters of the United States" and "waters of the United States" to include wetlands, a permit must be acquired. Information regarding statutory, administrative, and judicial matters, including general regulatory policy, definitions of "waters of the United States" and "navigable waters", and processing of permits can be obtained via coordination with DPW's Environmental Division. To the maximum extent possible, avoid siting development or individual buildings in environmentally sensitive areas. The installation master plan environmental GIS overlay should be reviewed prior to the development for areas designated as threatened and endangered species' habitat areas. Storm- water management on sites should also be considered.

## Section 3 Site Planning

- Avoid developing on environmentally sensitive sites or sites identified for storm water management (obtain RPPB approval to develop in these areas).
- Replace trees on a 2 to 1 basis if they are impacted by construction.
- Incorporate Low Impact Development techniques for storm-water management at an early stage of project development.

### 3.3.5 Transportation and Site Connectivity

When making a decision about siting a facility, transportation and site connectivity should be an initial consideration. For example, community facilities should be sited within walkable distance of housing and along proposed routes for transportation infrastructure.

As project development continues through the Planning and Request for Proposal development stages, Project Planners shall ensure that elements of the Installation's Long Range Component Plan are included in the project's site concept. For example, a building concept plan being developed for a Military Construction (MILCON) or SRM project should include portions of the trail system identified in the installation's Green Infrastructure Plan, if the building site is located along the proposed trail route. The project should include sidewalk or bike lane infrastructure if identified in the installation's Multi-Modal Transportation Plan, and the project should include preferences for bike infrastructure (i.e. storage and showers/changing rooms), if the proposed facility is in an appropriate land area. Ensuring that these components are included at the earliest stages of project development will assist in building out the installation's long term vision for a healthy and active Fort Campbell. For more information, see Section 5.

- Ensure community facilities, administrative facilities, housing (including barracks), medical facilities, recreation facilities and other similar uses are sited near existing or projected transportation infrastructure.
- Ensure pedestrian (and alternative transportation) connectivity is provided on and around the project sites and include components of the Multi-modal Transportation Plan as part of the project, as appropriate.

## 3.4 Design Criteria

The site-planning component of installation design comes first in the design process and determines the general location of the other components. Consequently, site planning must consider the criteria for architectural design, circulation, landscape architecture, site elements, and force protection. Site planning criteria is divided into two categories, natural conditions and manmade conditions. Each is discussed separately in the following paragraphs. These criteria are to be utilized for the assessment of the visual and spatial impacts of site planning.

## Section 3 Site Planning

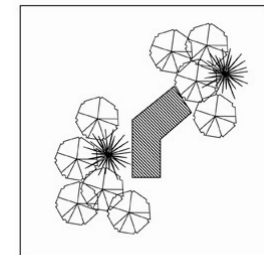
### 3.4.1 Natural Conditions

It is the goal of this installation to minimize disturbance of natural areas. Low Impact Development (LID) techniques must be incorporated into all development projects. The website: <http://www.epa.gov/nps/lid/index.html> contains numerous fact sheets on LID practices. Section 7, Landscaping, contains additional information.

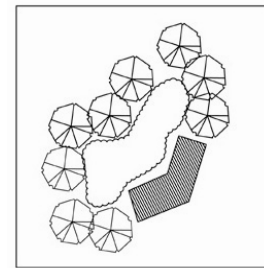
### 3.4.2 Topography

The natural terrain is a major determinant of the layout and form of the installation. The following guidelines should be used to maintain the natural topography of the installation.

- Maintain natural ground slopes and elevations.
- Align roadways and buildings along topographic lines.
- Locate facilities that have expansive ground coverage on relatively flat terrain.
- Use moderately sloping areas for buildings with less ground coverage area.
- Avoid development on steep slopes.
- Avoid development in natural drainage ways and flood plains.
- Provide a reasonable balance of cut and fill.



NOT ADAPTED



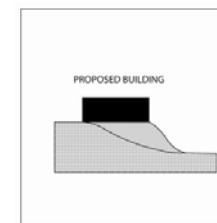
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### Site Adaptation

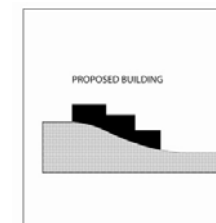
### 3.4.3 Hydrology

The site planning team will consider the following hydrologic concerns for natural drainage corridors, floodplains, and waterways during the site planning process.

- Preserve and maintain natural drainage areas and floodplains.
- Limit development in floodplains to open spaces and recreation uses.
- Preserve rivers, lakes, streams, or other waterways, and incorporate them into the design layout.



NOT ADAPTED



ADAPTED

### Topographic Adaptation

## Section 3 Site Planning

### 3.4.4 Climate

The installation will be designed in response to local climatic conditions to provide a more comfortable environment, and reduce the demands for heating and cooling. Design buildings, and choose site locations in order to maximize the warming effect of solar radiation in winter and reduce the impact of cold winter winds.

### 3.4.5 Views and Vistas

Design to preserve and enhance scenic and other attractive views and vistas, and to screen unattractive views and vistas. Visual extensions through open spaces provide a sense of orientation, relief, and enjoyment.

### 3.4.6 Vegetation

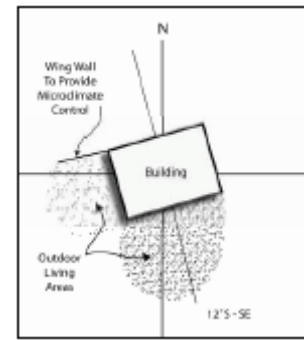
The installation will be designed to protect and preserve existing native vegetation. This preservation reduces maintenance and enhances sustainability. A preferred plant matrix is included in Section 7, Landscaping.

### 3.4.7 Manmade Site Conditions

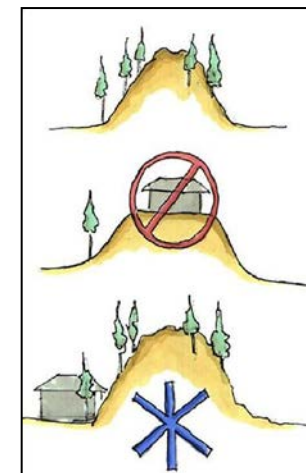
The site plan provides the locations of the manmade development that will occur on site. It establishes the spatial relationships as well as the relationships between manmade and existing natural features. Manmade site conditions include all development on the installation to include buildings, roadways, parking lots, walkways, walls, fences, utilities, and other facilities. Buildings, roadways, parking lots and above ground utilities are the primary manmade visual determinants.

The following site planning guidelines will be used in the visual and spatial review of the installation:

- Cluster buildings to reduce impact on the natural environment, and reduce roadways (especially impervious areas) and utility corridors needed to serve the development, at the same time giving full consideration to emergency services, and antiterrorism and force protection requirements.
- Locate large buildings in relatively flat areas to reduce the need for cut and fill. Preserve the natural



**Orient Buildings for Optimal Environmental Utilization**



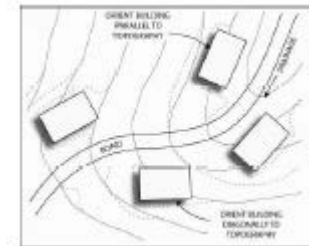
**Develop Around Natural Landforms**



## Section 3 Site Planning

vegetation and drainage and orient buildings to topography.

- Minimize solar heat gain for cooling and maximize solar heat gain and retention for heating.
- Site buildings with respect to the microclimates of the site. These result in variances in wind or light because of adjacent land forms, structures, or trees.
- Orient outdoor pedestrian areas to the most comfortable exposure and coordinate with ATPF measures.
- Utilize lighter colored building surfaces exposed to the sun and darker colors on recessed surfaces to absorb radiation.
- Orient windows according to impact of climatic conditions and in accordance with surveillance strategy (Crime Prevention Through Environmental Design).
- Locate development on leeward side of hills.
- Design and locate roads to provide a hierarchy of traffic carrying capacities.
- Locate roads to blend with topography and vegetation.
- Design and locate parking lots to minimize the visual impact of broad expanses of pavement and vehicles while ensuring surveillance is possible. Use plantings and biofiltration areas not only to beautify parking areas, but to manage storm water on site (see Section 7).
- Design and locate pedestrian walkways and bicycle paths to fit the physical environment, and provide a comfortable pedestrian experience, limiting conflicts with vehicular traffic (see Section 5).
- Locate trees and shrubs to buffer harsh natural conditions while providing alternate surveillance so that inappropriate activities do not take place in these buffered areas (see Section 7).
- Deciduous material provides for sun in the winter and shade in the summer. Evergreen material provides windbreaks for cold north winds. Design and locate site elements to blend with and enhance the physical environment (see Section 7).
- Force Protection requirements should be designed and located to blend with the physical environment.



**Orient Buildings and Roads to Topography**



**Screen Parking Areas**

## Section 4 Building Design

### 4.1 Introduction

Military installations should provide efficient and pleasant physical environments conducive to attracting and retaining skilled and motivated personnel in support of mission capability. The design, compatibility and location of buildings are a key component to creating an attractive place to work and live and also foster pride in and commitment to military service.

This section includes architectural design standards that regulate the form, setbacks, uses, and support requirements of any given construction project at Fort Campbell. Together with the Regulating Plan, these standards create a form-based code that will facilitate mission readiness and walkable development patterns in support of the installation's vision.

### 4.2 Overview

Building standards establish the basic parameters governing building form. The intent of these standards is to shape public space and create a sense of architectural continuity. Within this section, additional design guidance is provided on the following:

- Mass
- Scale
- Form
- Fenestration
- Architectural Design Elements
- Site Planning
- Green Building and Sustainable Design
- Building Envelope Standards



## Section 4 Building Design

### 4.3 Mass

Mass is defined as a three-dimensional form such as a cube, box, cylinder, or pyramid. The way the forms are sized directly relates to the way building elements are emphasized or de-emphasized. Voids of open space in the forms can change their appearance and make the building more interesting and less imposing.

- New buildings should be carefully developed to meet the desired size and proportion requirements.
- The size and proportions of a new building, if located in a cluster of existing buildings, should be designed to make it compatible with the architectural theme of adjacent structures in the same visual zone.
- Design buildings with a recognizable base, body, roof lines, and entry.
- Vary materials between the base and body of a building to break long wall planes and provide visual interest.
- Provide changes in vertical planes to break up a box-like appearance. Vertical elements such as pilasters help create bays to give the appearance of several smaller buildings.
- Surface detailing should not serve as a substitute for distinctive massing.
- Massing designs may include:
  - Variation in the wall plane (projections and recesses).
  - Variation in the wall height.
  - Roofs located at different levels.
- Upper floors may have varied setbacks to accommodate balconies and other architectural treatments.
- Recessed or projecting entries are encouraged to break up the massing and emphasize the entrance location.
- Tall dominating structures should be broken up by creating horizontal emphasis through the use of ornamentation and by using a combination of complimentary colors or materials.

### 4.4 Scale

Scale is the proportion of one object to another. Human or intimate scale incorporates buildings and landscape elements that are moderate in size. Monumental scale incorporates large or grand building elements. In general, human scale involves more horizontal elements, while monumental scale accentuates the vertical elements.

## Section 4 Building Design

- The scale of most buildings on Fort Campbell should be more human than monumental. All new construction should be compatible in scale with adjacent buildings.
- Utilize architectural details and materials on lower walls that relate to human scale, such as trellises or awnings.
- Include articulated building facades along pedestrian-oriented spaces and streets that include features such as doors, windows, trellises, or awnings, rather than blank walls.
- Provide projections and recesses to add texture and differentiate between buildings.

### 4.5 Form

The form of a building is determined by its size, mass, shape and proportions. The use of similar building forms provides continuity to the installation architectural impact. The result is a more aesthetically pleasing environment.



## Section 4 Building Design

### 4.6 Fenestration

Building fenestration includes features such as doors, windows, and building decoration details. These features should be similar in arrangement, design, size and proportion for architectural compatibility and visual consistency and continuity.

### 4.7 Architectural Design Elements

Development and renovations will reflect the appropriate architectural vernacular of Fort Campbell. Components of this vernacular that are encouraged include:

- Solid stone base
- Strong roof lines
- Low to moderate pitched roofs and flat roofs
- Prominent and pronounced building entrances
- Overhangs
- Use of Army standard colors (refer to Figure 1: Army Standard Color Palette)



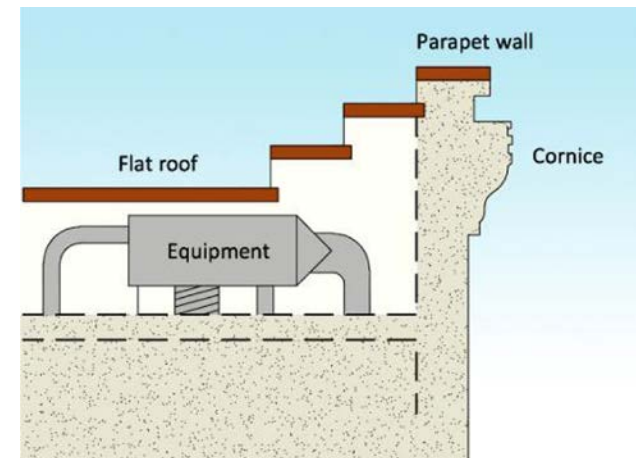
## Section 4 Building Design

### 4.7.1 General

- Articulate building forms and elevations to create interesting roof lines, building shapes, and patterns of shade and shadow while maintaining compatibility with surrounding buildings.
- Include vertical and horizontal variations in wall and roof planes, building projections, building projections, doors, windows, and similar design elements to break up building bulk and provide visual interest.
- Ensure consistent design features on all elevations of the structure. Publically visible side and rear elevations should receive the same design considerations as the primary public elevation. If not publicly visible, the design of side and rear facades may be simpler, more casual, and more utilitarian in nature (but not flat and devoid of articulation) and should include materials that are consistent with and complementary to the front facade.
- Roof materials and colors shall be consistent with the desired architectural style and be complimentary to adjacent structures.
- Rooftop equipment (excluding rooftop solar panels) shall be screened and not be visible from the adjacent street and parking area. Buildings with flat or low pitched roofs shall incorporate parapets, pitched facades, or architectural elements designed to screen roof-mounted equipment and be architecturally compatible with the design of the building facade.



Similar Side and Rear Treatments



Screen Rooftop Equipment

## Section 4 Building Design

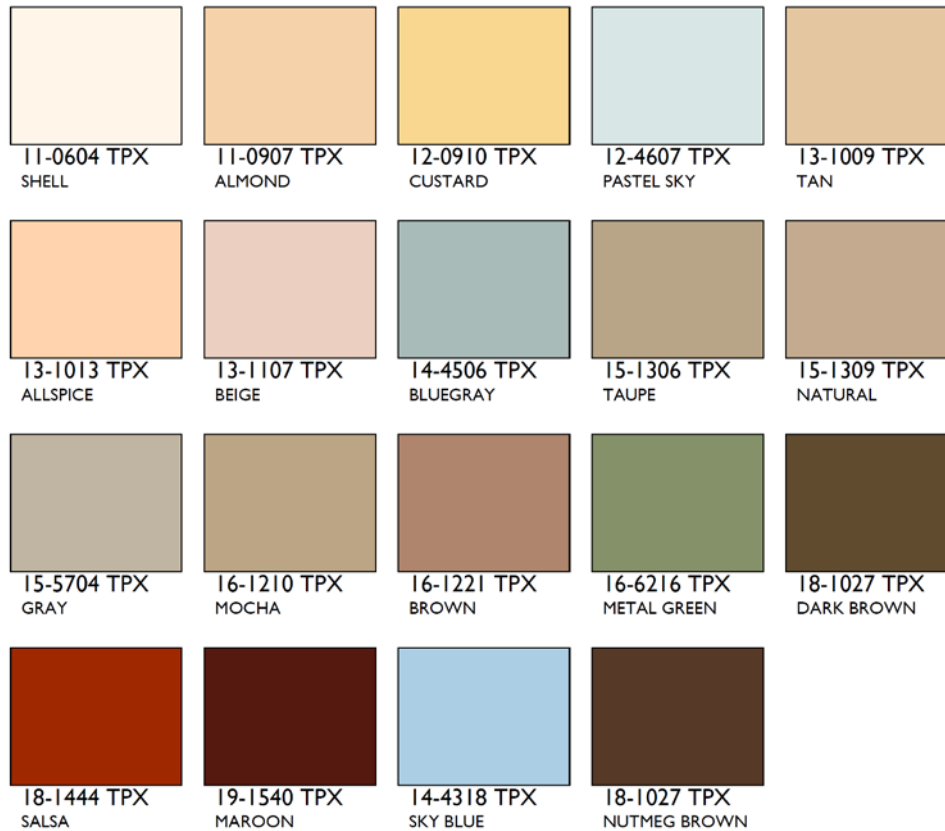
### 4.7.2 Building Materials and Colors

- The use of the same materials in the exterior finish and trim of buildings helps provide visual continuity. Also, the use of a color scheme that is consistent throughout the installation, where possible, results in a continuity of buildings and contributes to a sense of place.
- Primary building materials should be limited to no more than two different materials (excluding glass windows) on a single facade. Appropriate primary building materials include:
  - Masonry (pre-cast, split faced concrete masonry units, a minimum of 8 feet concrete masonry units is required)
  - Brick
  - Metal and glass windows (as approved, generally on upper floors and at primary building entrances, full height metal buildings should be avoided)
- Inappropriate building materials include:
  - Plywood, hardboard, or unfinished lumber
  - Wood or wood composite siding
  - Aluminum, corrugated sheet metal, or tin siding
- Materials and finishes selected shall be durable and weather resistant.
- Material choice and location should minimize reflective surfaces or glare that would impact adjacent buildings.
- Changes in material should generally occur when there is a change in the plane of the façade and on inside corners of the building. If a change occurs along the line of a single plane, a pronounced expansion joint or trim piece should be used to define a clear separation.
- Gutters, scuppers, and downspouts shall be integrated into the exterior design and should be finished to blend in with the background material or be integrated into the architectural design.
- Masonry and brick shall not be painted, to ensure the natural color remains visible.
- The approved Army standards color palette is identified in Figure 1. The use of color of exterior materials and finishes should generally be light, warm colors to minimize the appearance of excessive building bulk. Darker colors may be used as accent colors on window and door frames, building trim, details, and projecting elements.

## Section 4 Building Design

- Color applications on a facade should be limited to a maximum of two main colors and a maximum of two accent colors.
- Painted building surfaces should have a matte finish.

Figure 13. Army Standard Colors Palette



Source: Fort Campbell Installation Design Guide (2006, 2012)



Figure 12. Materials that change on inside corners (above left image) and on outside corners (above right image)



## Section 4 Building Design

### 4.7.3 Roofs

- Appropriate roof forms include low and moderate pitched hip and gables or flat roofs with a continuous parapet. Curved roofs may be used to articulate specific building components such as an entry awning or tower. Mansard, gambrel, bonnet and saltbox roofs are not appropriate.
- Pitched roofs may include overhangs.
- Appropriate roof materials include:
  - Asphalt shingles
  - Preferred option: Standing seam metal (as approved)
  - Membrane roofing (for "flat" areas)



Asphalt shingles



Standing seam metal



Membrane roofing

## Section 4 Building Design

### 4.8 Anti-Terrorism/ Force Protection

- Anti-Terrorism force protection (ATFP) standards for Army installations are provided by UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, and a summary of the standoff distances required by this UFC are provided in the table below.

	Construction Type	Without a Controlled Perimeter Applicable Explosive Weight I <sup>(2)</sup>		Within a Controlled Perimeter Applicable Explosive Weight II <sup>(2)</sup>	
		PG-BIL <sup>(3)</sup>	INHABITED <sup>(3)</sup>	PG-BIL <sup>(3)</sup>	INHABITED <sup>(3)</sup>
Light Construction	Wood/Metal Stud	190FT/58M	175FT/53M	82FT/25M	82FT/25M
Light Construction w/Brick Veneer	Wood/Metal Stud	105FT/32M	105FT/32M	36FT/11M	36FT/11M
PEB	Girt and Metal Panel	148FT/45M	108FT/33M	56FT/17M	39FT/12M
Heavy Construction	Reinforced Concrete	66FT/20M	66FT/20M	33FT/10M	33FT/10M
	Reinforced Masonry	82FT/25M	82FT/25M	33FT/10M	33FT/10M
NOTES:					
1. FOR MASTER PLANNING PURPOSES ONLY – NOT FOR PROJECT DEVELOPMENT/PROJECT SPECIFIC DESIGN. For project specific planning and design see UFC 4-010-01: DoD Minimum Antiterrorism Standards for Buildings and UFC 4-020-01: Security Engineering Facilities Planning Manual.					
2. See UFC 4-010-02, DoD Minimum Standoff Distance for Buildings, for the specific explosive weights (pounds / kg of TNT) associated with explosive weights I and II. UFC 4-010-02 is For Official Use Only (FOUO).					
3. PG –Primary Gathering Building; BIL – Billeting; INHABITED – Inhabited Building					
4. Refer to UFC 4-010-01 for exempted building types, which include low occupancy family housing (family housing with 12 units or less); town center buildings (mixed use of low occupancy family housing and small scale retail, health, or community services operations); gas stations and car care centers, transitional and temporary buildings; military protective construction; stand-alone franchised food operations, shoppettes, mini-marts, similarly sized commissaries, and other small stand alone commercial facilities.					

## Section 4 Building Design

### 4.9 Lighting

- Building-mounted and exterior lighting shall be designed as part of the overall architectural style of the building(s). Lighting should highlight interesting architectural features; however, lighting of full facades or roofs is prohibited. Accent lighting, when provided, should complement the building color and materials.
- Lighting shall be directed away from the observer with the use of low glare, fully shielded luminaries. Lighting fixtures with exposed bulbs are prohibited.
- Use the most energy efficient light source suitable for the application. Lighting fixtures selected should incorporate technical and operational energy conservation concepts. Lighting selection should address lifecycle cost comparisons, not just initial cost comparisons.
- All lighting shall meet “dark sky” compliance standards due to use of night vision goggles and to minimize the overall impact to light pollution. Ensure that lighting sources include shielded exterior luminaries.
- Vehicle entrances, driveways, parking and service areas (including bike rack locations), building entrances, walkways, and activity and gathering areas shall be illuminated for safety and security. Lighting in these areas shall be provided at regular intervals to prevent the creation of light and dark pockets.
- Light pole height, light fixture style, illumination level, and spacing shall be consistent within a specified area to create a uniform look and feel and to maximize compatibility with adjacent uses. These elements shall be compatible with their location. Figure 2 includes the light design matrix from the *Fort Campbell Installation Design Guide* for reference.
- Pedestrian-scaled lighting (typically no greater than 15 feet in height) for walkways not adjacent to a street and within activity/gathering areas (e.g., campus “quad” areas) is encouraged. Bollard lighting may also be provided in these areas to illuminate the ground without providing light spillover or glare to adjacent uses and areas.
- Animated lighting, overhead service wires, and exposed conduit are prohibited.
- Architectural lighting and spotlights may be used to highlight prominent building and landscaping features, and shall be screened by landscaping or other methods so they are inconspicuous during the day. Lighting shall be aimed or screened to prevent glare that could blind motorists or pedestrians or illuminate areas used for sleeping (e.g., residential areas).
- All lighting provided shall comply with the applicable requirements in the *Unified Facilities Criteria (UFC) 3-530-01*.

# Section 4 Building Design

Figure 14. Light Design Matrix

LIGHT DESIGN MATRIX		TYPICAL AREAS OF USE																		
		Entry Gates	Primary Roadways	Secondary Roadways	Tertiary Roadways	Primary Walkways/Bikeways	Secondary Walkways/Bikeways	Tertiary Walkways/Bikeways	Courtyards	Playgrounds	Ball fields	Basketball Courts	Tennis Courts	Buildings	Landscaping	Fence Parameters	Signs & Monuments	Large Parking Lots	Small Parking Lots	Training areas
LAMP	Incandescent																			
	Halogen	•	•																	
	Mercury Vapor		•	•	•	•	•		•	•	•	•			•					
	Florescent																			
	Metal Halide		•	•	•	•	•		•	•	•	•	•	•	•		•			
	High Pressure Sodium	•	•								•	•	•	•			•		•	•
LEVEL	Lux (lx)		20	15	10	10	2		50	200	200	50								
	Foot-candles (fc)		2	1.4	0.9	0.9	0.2		5	10	20	5.6				0.2		1	1	1
HEIGHT	40' Max	•							•					•	•	•		•		
	25' Max	•				•	•	•						•	•				•	
	15' Max			•	•															
	Varies		•							•	•	•	•				•			•
FIXTURE	Cutoff		•	•	•													•	•	
	Utility	•														•				•
	Bollard																			
	Spot												•				•			
	Wall Mount																			
POLE	Metal		•	•	•													•	•	
	Wood														•					
SPACED	120' Max		•	•	•											•		•		
	90' Max																			
	Varies												•			•				•

Source: Fort Campbell Installation Design Guide (2006, 2012)



Variety of lighting for even illumination



Bollard and pedestrian-scaled lighting

## Section 4 Building Design

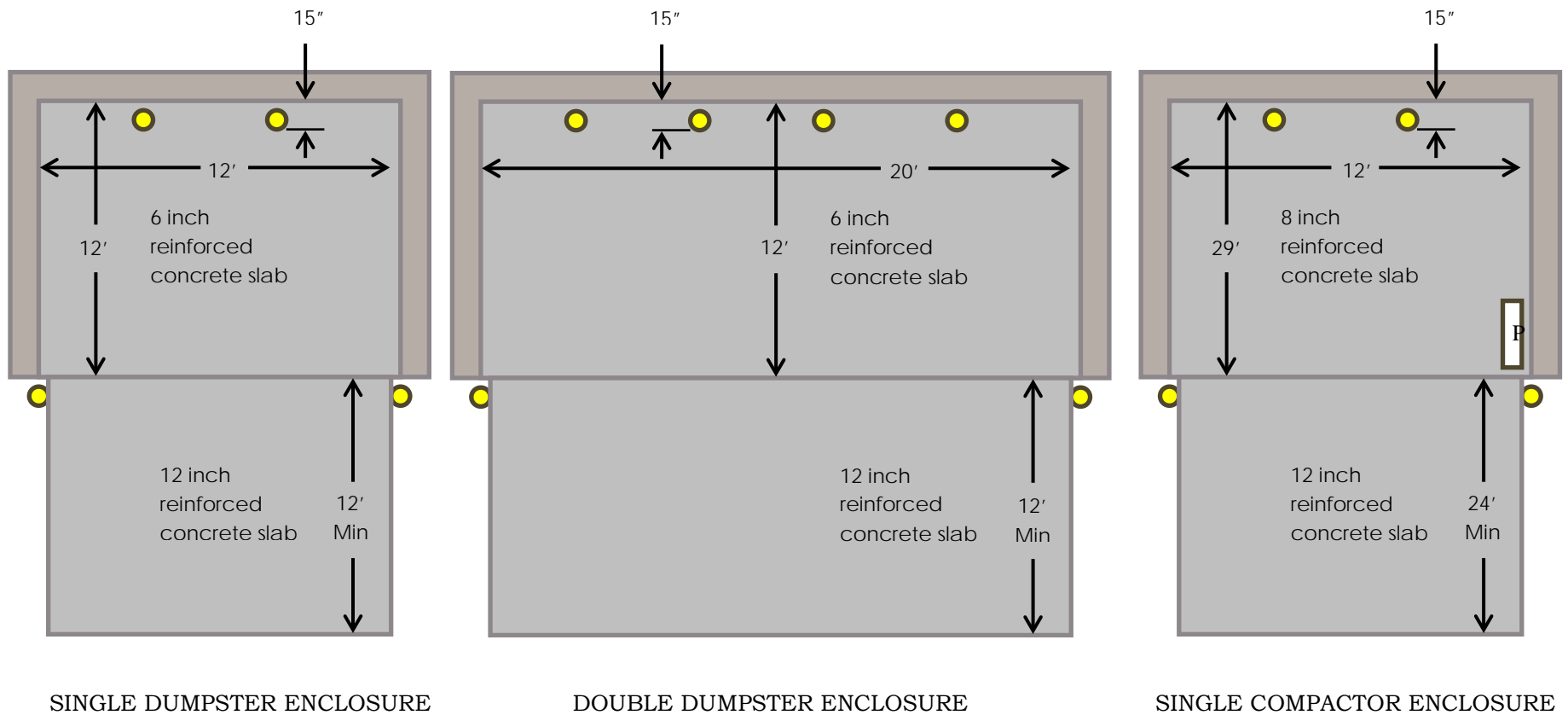
### 4.10 Screening

#### 4.10.1 Refuse Enclosures and Storage Areas

- Refuse and compactor enclosures shall include 8-foot walls with a cap that matches the adjacent buildings. Walls shall be constructed of 8-inch concrete block with veneer on the exterior shall match the décor of the adjacent buildings. The interior of the enclosure should be painted to match the décor of the project. There are no open top large refuse or recycle dumpsters used by the Fort Campbell Refuse Contract other than at the convenience center.
- Single dumpster refuse enclosures shall be 12 feet deep by 12 feet wide. Double dumpster refuse enclosures shall be 12 feet deep by 20 feet wide. Single compactor enclosures shall be 29 feet deep by 12 feet wide. For multiple dumpsters, add 10 feet width for each additional dumpster. For additional compactors, add 12 feet of width for each additional compactor.
- 8-inch steel pipe bollards filled with concrete shall be placed at the front of the enclosure adjacent to the wall edge. Additional bollards shall be provided inside the enclosure within 15 inches of the rear wall and spaced at 4-foot intervals. The rear bollards are intended to protect the wall as the dumpster is picked up. Bollards shall be yellow in color for safety. For additional dumpsters or compactors, add two bollards in the rear of the enclosure.
- For refuse enclosures, a 6-inch reinforced concrete slab shall be provided within the enclosure and a 12-inch reinforced concrete slab shall be provided in front of the enclosure a minimum of 12 feet from the enclosure. For compactor enclosures, an 8-inch reinforced concrete slab shall be provided within the enclosure and a 12-inch reinforced concrete slab shall be provided in front of the enclosure a minimum of 24 feet from the enclosure. The approach slab is intended to support the weight of the front wheels while picking up the loaded dumpster and all wheels for compactor enclosures. The slab should be designed for the weight of the vehicle (i.e., refuse collection truck or roll-off container truck) with the dumpster or compactor.
- Consider vehicle turning radius for the approach to the enclosure. Add additional radii to the approach slab as necessary.
- The figure below illustrates the approximate shape of the dumpster or compactor enclosures.

## Section 4 Building Design

Figure 15. Enclosure Dimensions



## Section 4 Building Design

### 4.10.2 Service Areas

- Service areas (e.g., loading docks) shall be screened from views of streets, activity/gathering area, building entrances, and parking lots by not locating them in prominent areas and by using screening walls, fences, and landscaping. Service areas should include alternate means of surveillance to deter and detect inappropriate activities.
- Design and locate loading areas to prevent truck back-up maneuvers from or onto streets or parking aisles.

### 4.10.3 Utilities and Mechanical Equipment

- Utilities and mechanical equipment should be located at the rear of buildings, away from views of streets, activity/gathering area, building entrances, and parking lots by not locating them in prominent areas and by using screening walls, fences, parapets and architectural enclosures(for rooftop equipment), and landscaping. Utilities or mechanical equipment that is required to be located within or adjacent to these areas should be screened from public view to the greatest extent feasible. Elements to be screened include:
  - Electric and water utility meters
  - Heating/ventilation/cooling equipment
  - Irrigation and pumps
  - Rooftop mechanical equipment (excluding roof-mounted solar panels)
  - Other mechanical equipment
- Mechanical equipment should be located as to minimize noise impacts on adjacent areas.
- Any planned screening around utility structures and mechanical equipment must comply with the Fort Campbell Technical Design Guide and also be coordinated with DPW Engineering Division.

## Section 4 Building Design

### 4.11 Site Planning

- Orient buildings to face the street or outdoor space by including walkways, prominent entrances, distinctive building features, and entry plazas in clear view of the street or outdoor space. For campus developments, ensure that buildings are also oriented toward activity and gathering areas, such as a central quad.
- Include activity/gathering areas within new developments, including:
  - Campus-style quads
  - Entry plazas
  - Pocket parks
  - Outdoor seating and dining areas
  - Courtyards
  - Outdoor terraces or rooftop gardens
  - Paseos
  - Focal points and water features



Courtyard



Water feature



## Section 4 Building Design

- Provide sufficient levels of shade in activity and gathering areas through use of landscaping, shade structures, building elements (e.g., overhangs), and other similar features.
- Encourage pedestrian activity through building siting and design.
- When possible and appropriate, extend interior spaces into the outdoors, both physically and visually through use of awnings, overhangs, outdoor dining spaces, or other features.
- Minimize the visual impact of parking areas by providing several smaller parking areas instead of one large parking area, providing landscaped buffers, and/or providing parking areas to the side or rear of buildings.
- Avoid locating and orienting service areas toward publicly accessible spaces.



Locate parking to the side and rear of buildings

## Section 4 Building Design

### 4.12 Green Building and Sustainable Design

- Adapt building designs and siting to natural site and environmental conditions, such as sloped topography, predominant wind direction, solar exposure, position on hillsides, etc.
- Design buildings in clusters to preserve land use and reduce construction and maintenance costs.
- Design a coherent architectural style that results in the blending of new and old structures.
- Combine multiple activities in one building to reduce the number of building required and more efficiently utilize limited installation land areas.
- Design buildings to include more floors in a vertical structure that results in a smaller footprint and more efficiently utilizes limited installation land areas.
- Reduce the need for mechanical and electrical climate control by utilizing passive solar orientation, in which windows, walls, and floors collect, store, and distribute solar energy in the form of heat in the winter and reject solar heat in the summer.
- Orient and design buildings to include natural day-lighting.
- Utilize roof space for energy collection (e.g., solar panels or wind turbines) and promote the use of green roofs and cool roofs.
- Design and construct buildings and development for longevity and potential reuse.
- Utilize natural, recycled, sustainably produced, and other “green” building materials, whenever feasible.
- Incorporate US Green Building Council’s Leadership in Energy and Environmental Design (LEED) measures and guidelines, even if the building or development will not go for certification.



Solar panels on awning (above left image) and roof (above right image)

### 4.13 Building Envelope Standards – Form Based Code

Implementation through form-based coding allows installations to exercise more control in the development process. It provides a tool to ensure that building development supports Fort Campbell's vision, goals, and objectives. Form-based codes promote mixed-use, compact, and walkable development patterns, not traditional auto-oriented, segregated land uses. Form-based codes emphasize spatial principles that support sustainable development, making building form and character the most important factor, and building use secondary.

The code is a graphic tool that condenses the vision, goals, and objectives into a clear, readable, enforceable plan for development. The code provides clear parameters for height, massing, siting, and basic building elements for each district on Fort Campbell.

**The form-based code includes the following components:**

- Illustrative Plans that graphically illustrate potential development outcomes that support the overarching planning vision.
- Regulating Plans that regulate only the most important elements of the Illustrative Plan such as Required Build-To Lines (RBLs), required entry and/or parking locations, minimum and maximum building heights, and refer the users to building and street standards.
- Building Envelope Standards that specify acceptable massing, height, fenestration, and uses.
- Street Standards that graphically demonstrate street design requirements in plan and section.

**How to use the code:** Four steps are required to understand and implement the code:

1. Where applicable, look at the Regulating Plan. Find the site. Note the Required Building Line (RBL) and the Parking Setback Line. Note the color of the site block—this determines the building envelope standard for all buildings in this area. See the key in the regulating plan.
2. Look at the appropriate building envelope standard page in the code. This page outlines the basic requirements for building on this site in terms of height, siting, elements and uses.
3. Look at the Illustrative Plan. Find the site. Note the street types of any of the streets that border or are encompassed in that site.
4. Refer to the appropriate street standard page in the Area Development Plan reports. These pages provides specific design details for vehicular traffic lane widths, curb radii, sidewalk, bike lane, tree planting area dimensions, and on-street parking configurations for each street type listed in the plan. This information explains the form of the streets framing and supporting the buildings. It also shows where the building will sit on the site, including the limits on its massing and the range of acceptable uses.

## Section 4 Building Design

(RESERVED)

## Section 5 Transportation

### 5.1 Introduction

The image of the installation is greatly determined by the design and location of roadways, walkways, entrances, and parking lots. The primary roadway system and parking lots utilize considerable amounts of land and are visually dominant elements of any installation. This section discusses the details of circulation design and impacts.

The circulation system provides a primary vantage point from which all installations are viewed. Safe and efficient vehicular movement results in better orientation and contributes to the development of a positive environment for installation personnel and visitors. The circulation component is used to assess the circulation elements of the installation and identify specific characteristics that provide visual zone and theme identity.

Roadways, pedestrian walkways, and bicycle trails will be designed to provide a hierarchy of circulation design and carrying capacity. Functionally, a hierarchical network can be created that separates incompatible types of traffic. This separation of traffic promotes sustainability because it results in more efficient energy consumption.

Visually, the circulation hierarchy can be reinforced through design, planting, signage, and lighting to promote a more attractive visual experience and promote a sense of orientation.

### 5.2 Objectives

- Provide circulation that meets antiterrorism and security requirements and promotes and enhances public health and safety.
- Provide a system of circulation that includes all forms of vehicular and pedestrian circulation.
- Provide a system that includes hierarchies of vehicular and pedestrian traffic flow.
- Adapt the circulation system to the natural conditions of the site.
- Improve the existing circulation network for expansion, safety, way finding and appearance.
- Promote maintenance and repair of existing and proposed circulation systems.

## Section 5 Transportation

### 5.3 Roadway Standards

Streets are classified as primary, secondary, or tertiary. Vehicle lane widths should be sized based on street classification and desired speed. Generally, lanes should be between 10 to 12 feet in width. Turn lanes should be included where sufficient right-of-way exists and where high volumes of turning vehicles would otherwise inhibit through traffic. Turn lanes should be between 8 to 10 feet in width.

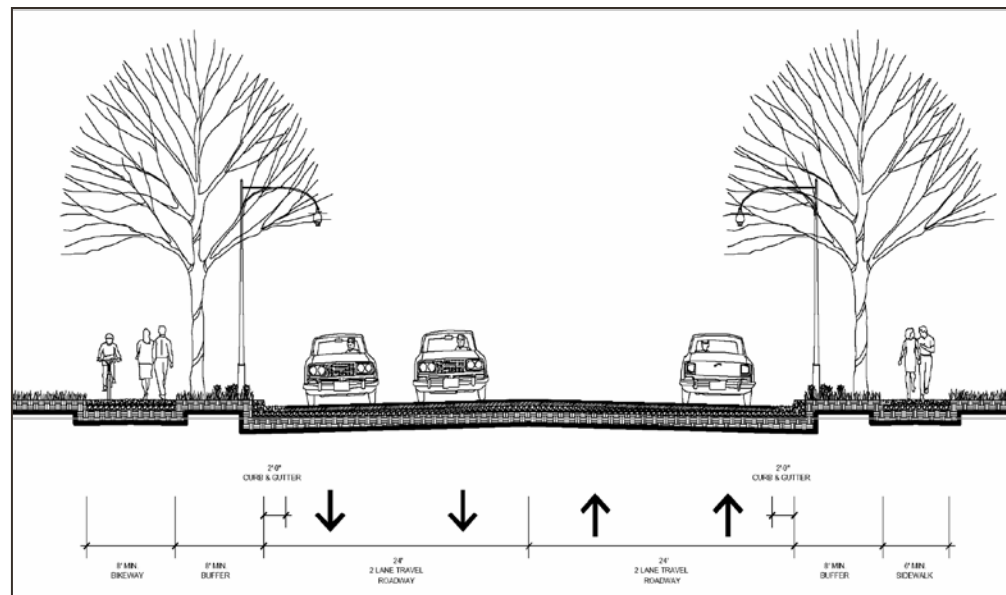
Cantonment area roadways shall be designed for a variety of users following the concept of *Complete Streets*.

The federal Manual of Uniform Traffic Control Devices (MUTCD) shall be used to determine appropriate facility signage.

#### 5.3.1 Primary

Primary streets connect major activity centers and provide the primary access through the installation. These streets accommodate moderate to moderate-high traffic speeds and often have two or more lanes of travel with medians. On-street parking is normally not provided. Turn lanes are usually provided at intersections with other primary and secondary streets.

- Continuous, through-traffic alignments that are relatively straight or large-radii curvilinear.
- Alignments that form the boundary between different land uses are preferable to alignments that transect a land use zone.
- Controlled access and a minimum of curb cuts limited to entranceways to major facilities or building groups.
- At-grade intersections with signal controls.
- Medians, street lighting, signing, and planting that enforces the moderate- to-high speed nature and importance of the road.
- Curbs, gutters, and sidewalks provided in all cantonment area and other residential areas with densities greater than two dwelling units per acres.

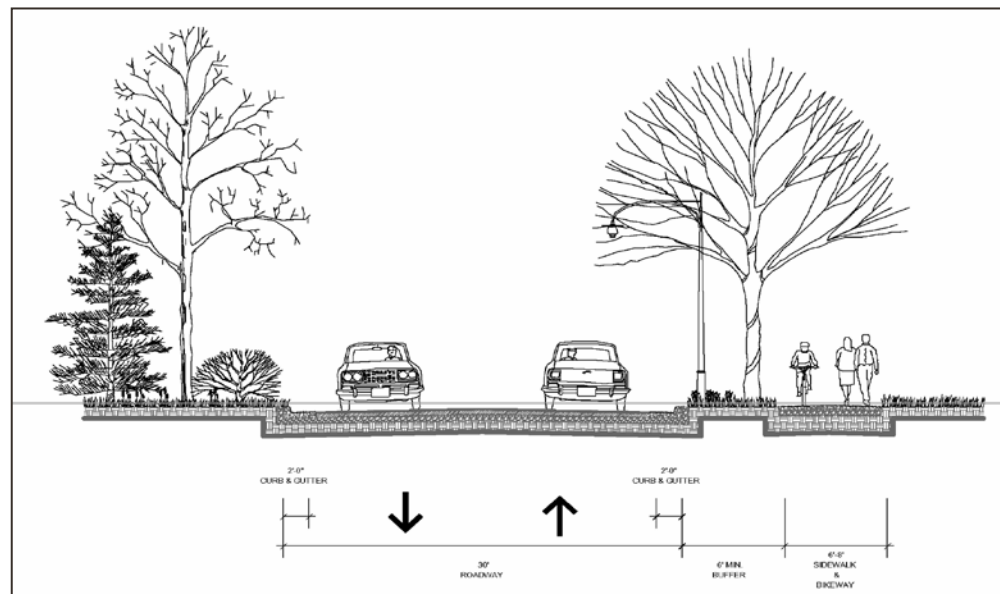


## Section 5 Transportation

### 5.3.2 Secondary

Secondary streets connect between primary and tertiary streets, and often connect primary roads to adjacent land uses. These streets accommodate moderate to slow traffic speeds and often have one lane in each direction. On-street parking is normally not provided. Left-turn lanes are usually provided at intersections with primary streets and other secondary streets.

- Continuous through-traffic alignment between primary roads, either straight or curvilinear based upon the design speed topography and land pattern.
- Direct access to abutting property.
- A maximum of two moving traffic lanes in each direction, either undivided or a boulevard with planted median.
- Sidewalk separated from the road by a planting strip.
- Street lighting, signing, and planting that reflects the moderate-to-slow speed nature of traffic and the character of the land use area they are in.
- Curbs, gutters, and sidewalks provided in all cantonment area and other residential areas with densities greater than two dwelling units per acres.

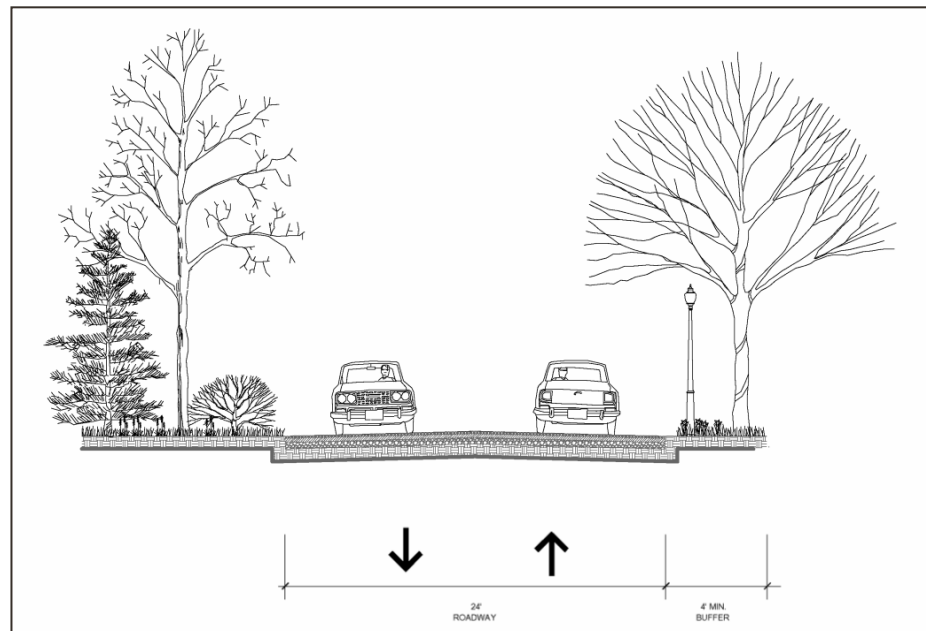


## Section 5 Transportation

### 5.3.3 Tertiary

Tertiary streets provide access to individual facilities, parking and service areas. These streets accommodate low vehicle speeds and low volumes of traffic and usually have one lane in each direction. These streets are not generally designed as through streets and may include "T" intersections and cul-de-sacs.

- Alignments designed to discourage through-traffic.
- Alignments are relatively short straight or curvilinear keeping with topography, land use, and slow speed nature of traffic.
- Generally a maximum of two moving traffic lanes, one in each direction. On street parking allowable on an infrequent overflow basis by the addition of a parallel parking lane or bay.
- Curbs, gutters, and sidewalks provided in all cantonment area and other residential areas with densities greater than two dwelling units per acres.
- Sidewalks maybe limited to only side, depending upon need.
- Street lighting, signing, and planting in character with slow speed nature of traffic and the land use area within which the road is located.





## Section 5 Transportation

### 5.4 Intersections

Intersections are the most dangerous areas of the installation circulation system. They should be planned or improved to provide safe and efficient traffic flow for both pedestrian and vehicular traffic. The following design techniques should be used to plan or improve intersections:

- All roadways should intersect at right angles (90 degrees), although 85-95 degrees is acceptable.
- Avoid dangerous, complex intersections of more than two streets intersecting at one point or offset intersections.
- Eliminate intersections that are in close proximity to one another. They should be no closer than a minimum distance of 30 meters (100 feet).
- Use T-intersections for tertiary road intersections with secondary or primary roads to reduce conflict and promote safety.
- Provide turning lanes at all intersections along primary roads to eliminate interference with through traffic flow.
- Minimize intersections along primary roads to reduce points of conflict and increase safety.
- Include adequate sight distances to meet minimum standard requirements at all intersections. The location from where the driver is waiting to cross or enter a traffic lane to a point 23 meters (75 feet) down the centerline to the right and the left forms the sight triangle.
- Provide crosswalks at all intersections where necessary, marked with paint or vinyl strips or identified with a different paving surface.
- Provide pedestrian access to persons with disabilities in accordance with the [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\)](#) and the [Uniform Federal Accessibility Standards \(UFAS\)](#). In the event of a conflict the most stringent standards will be applied.
- Create local service drives or access roads to parallel highways and primary roads to provide access to properties fronting the primary road avoiding a direct curb cut from the primary road to each individual property.
- Intersections between railroad track and high-speed roads must be signaled, well marked and have a smooth transition. All other road crossings must be well marked and have clear line of sight down the tracks.

## Section 5 Transportation

### 5.5 Parking Requirements

#### 5.5.1 Access and Circulation

- Design parking lots with walkways that provide a direct, convenient path between the building entrance, parking areas, nearby sidewalks or walkways, and/or to adjacent buildings.
- Utilize landscaping and pavement to differentiate walkways from vehicular parking and circulation.
- Create common or shared driveways and parking areas for adjacent developments and parking lots.
- Where provided, locate passenger pick-up/drop-off areas to minimize conflicts with parking circulation.
- Create separate circulation flows for service areas.
- Provide convenient bicycle parking (e.g., racks or lockers) near building entrances. Provide coverings to protect bicycles from the sun, rain, and snow, when feasible.
- Parking lots shall be accessible to those with disabilities in accordance with the requirements of the UFAS, paragraph 4.1.1(5)(a).



Common and shared driveways and parking areas

## Section 5 Transportation

### 5.5.2 Parking Lot Location and Design

Parking areas can be designed and enhanced to provide a more pleasing impact and a more comfortable physical experience for the user. The following design techniques should be used to create more aesthetically pleasing, physically comfortable parking lots:

- Locate parking lots between and behind buildings to reduce the visual impact from the circulation system.
- Design parking lots to be efficient in the design and placement of access drives and parking spaces. All drives providing direct access to parking spaces should provide spaces on both sides of the drive.
- Provide planting areas at the ends of all rows of parking spaces.
- Provide islands with trees within the main parking lot to soften the visual expanse of the parking lot; provide shade and/or wind breaks.
- Use LID practices in parking lot design. Minimize containment of water from parking areas. Planted islands should be used to collect storm water, and allow it to percolate into the ground.
- Use natural topography and existing trees to visually screen parking areas from adjacent facilities and other parking bays.
- Design parking lots to preserve significant existing trees. Provide a planting area around the tree that is large enough to allow water to the root system.
- Parking lots should be paved with concrete, asphalt, or other paving material. In less frequently traveled areas, when possible, use permeable pavements such as gravel, or permeable asphalt and concrete.
- Parking structures, both below grade and above grade, provide for greater parking capacity in densely developed areas where available land is scarce. Parking structures are expensive, but they provide a number of benefits including efficient land use, reduced visual impact and protection of vehicles from inclement weather. If parking structures are built they shall be designed to meet antiterrorism requirements.

The [U. S. Air Force Landscape Design Guide, Section 14, Parking Areas](#) is a comprehensive guide which includes siting, parking area types, geometry (parallel, perpendicular, angled), access, and maintenance considerations.

## Section 5 Transportation

### 5.5.3 Critical Dimensions

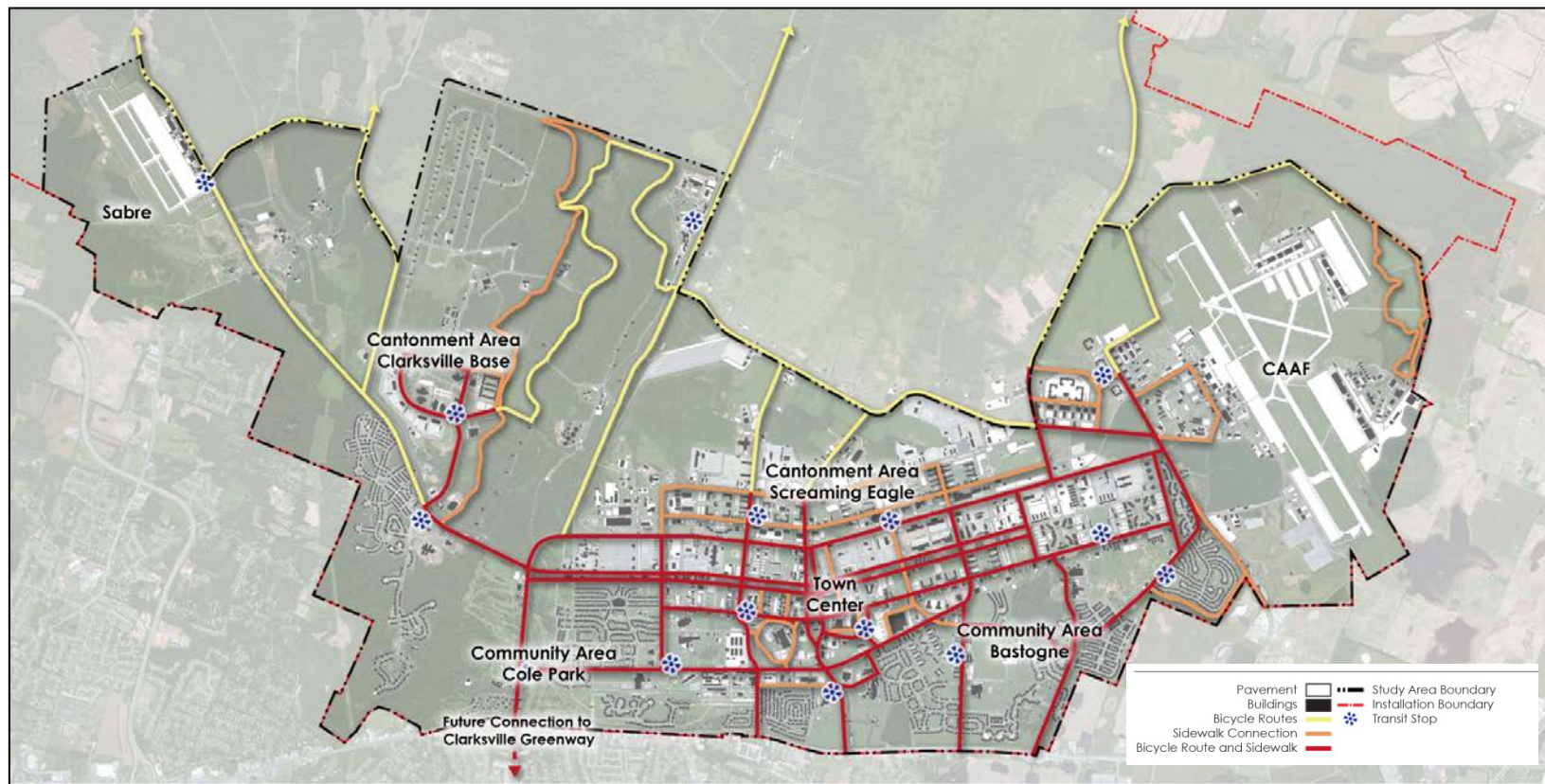
- Utilize 90 degree angle parking stalls where feasible for ease and efficiency of parking. Parking stalls shall be a minimum of 18 feet in length, with a maximum of 20 feet; 18 feet is recommended. However, if the parking space abuts a bioswale and if tire stops (or other similar device) are in place, the length may be reduced to 16.5 feet with 1.5 feet of overhang.
- Parking stall width shall be a minimum of 8 feet, with a maximum of 11 feet; 9 feet is recommended. Accessible spaces shall be a minimum of 16 feet in width with a minimum 4 foot striped path, which may be shared by the adjacent accessible parking stall. Dimensions of angled parking stalls shall be adjusted to accommodate parked vehicles appropriately.
- Two-way drive aisles shall be a minimum of 20 feet in width, with a maximum width of 30 feet; 24 feet is recommended. One-way drive aisles shall be a minimum of 10 feet in width, with a maximum of 15 feet; 12 feet is recommended.
- Include landscaping and/or drive isles to break up the monotony of parking stalls. Where feasible, provide no more than 10 to 15 parking spaces without including landscaping and/or drive aisle between spaces.

## Section 5 Transportation

### 5.6 Coordinated Pedestrian, Bicycle, and Bus Improvements

Pedestrian and bicycle facility improvements should be considered whenever a street is up for repaving and when new development occurs adjacent to a street. Preliminary locations for pedestrian and bicycle facilities were identified during a series of workshops (December 11 through 13, 2012) and are identified below.

Figure 16. Preliminary Transportation Plan



Source: Fort Campbell Vision Workshop (December 2012)

## Section 5 Transportation

### 5.7 Walkways

Walkways provide connections for pedestrians between buildings and ancillary facilities such as parking lots and other areas. Well-designed and located pedestrian walkways also provide a desirable alternative to total dependence on motor driven vehicles.

The goal is to encourage the use of walkways as an alternative means of circulation. Pedestrian walkways should be designed and located to provide a comfortable, enjoyable experience for the user. The use of walkways within the installation promotes development sustainability by conserving energy, reducing air pollution, and decreasing the land requirement for parking. These walkways as well provide a means to increase physical fitness.

In order to achieve this goal the following objectives must be met:

- Provide walkways that are designed at a pedestrian scale to be comfortable and pleasant.
- Provide safe and secure pedestrian facilities that are separate from vehicular and railroad traffic.
- Provide amenities for pedestrians.
- Provide accessibility to all users, including physically impaired or challenged persons. All street and driveway crossings shall be ramped, marked, and accessible to persons with disabilities in accordance with requirements of the UFAS.
- Provide links to major attractions and generators of pedestrian traffic.
- Provide design consistency throughout the walkway and ensure that it is well drained.

Sidewalks are classified to conform to the hierarchy roadway system - primary, secondary, and tertiary walkways. Non-roadway oriented sidewalks should be sized and placed where people will use them rather than creating worn "shortcut" paths. Railroad track crossing should be avoided, but where necessary, they should be well marked and have good line of sight. Walkways through railroad track ballast should be maintained with small, well-drained rock.

## Section 5 Transportation

### 5.7.1 Hierarchy

Sidewalks and walkways are classified as primary, secondary, or tertiary.

- Primary sidewalks provide a high volume of pedestrian use along major axes and to major destinations. These sidewalks shall be located along both sides of the primary roadways within the cantonment areas. Sidewalks should be sized to accommodate the anticipated pedestrian use and should have a minimum width of 6 feet and a maximum width of 12 feet in high use areas.
- Secondary sidewalks provide a moderate volume of pedestrian use between activity centers and housing areas. These sidewalks shall be located on one or both sides of secondary and tertiary streets. Sidewalks should be sized to accommodate the anticipated pedestrian use and should have a minimum width of 5 feet and a maximum width of 12 feet in high use areas.
- Tertiary walkways provide pedestrian use for recreational purposes. These walkways are generally not adjacent to a street and may be provided in a meandering and curvilinear alignment. Walkways may be paved with concrete or asphalt or unpaved with wood chips or decomposed granite. Paved walkways should have a minimum width of 4 feet and unpaved walkways should have a minimum width of 3 feet. If these walkways are for shared use with bicycles, the widths should be increased by 3 feet for one way routes and 6 feet for two way routes.

### 5.7.2 Walkway Separation

- Curbs shall be provided along primary roadways to increase pedestrian safety and reduce the width of the clear zone. This provision should be balanced with the need and cost for additional storm drainage facilities.
- Sidewalks along primary roadways with a curb shall have a minimum four-foot landscaped buffer between the curb and the sidewalk. Sidewalks along curbed secondary roadways shall have a minimum two-foot landscaped buffer. Sidewalks along curbed tertiary roadways should have a minimum two-foot buffer.



Detached paved sidewalk



Flashing crosswalk indicators

## Section 5 Transportation

- Sidewalks along primary roadways without a curb separation should have a landscaped buffer of at least six-feet and include shade trees, grasses, and low-profile evergreen plantings (e.g., shrubs). Sidewalks along secondary roadways should have a minimum four-foot landscaped buffer. Sidewalks along tertiary roadways should have a minimum two-foot buffer.
- Streetscape amenities (e.g., trash and recycle receptacles and benches) are encouraged along sidewalks and walkways, especially near major destinations. A clear zone with a minimum width of five feet shall be maintained where amenities are provided.
- Sidewalks and walkways shall be accessible per the requirements of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS), with the most stringent standards to apply in the event of conflicts.

### 5.7.3 Crosswalks

A pedestrian crossing can be either marked or unmarked and can occur midblock or at street intersections. Crosswalks are marked crossings and should be used to at intersections of roadways and walkways. Midblock crossings should be provided in areas of high pedestrian traffic, but are generally discouraged across heavily traveled roadways. When laying out the crosswalk, consider the following:

- Extend walk's paving across the road in heavily used areas. Raised crosswalks eliminate the need for curb ramps in sidewalks.
- Provide a clear line of sight for motorist and pedestrians. Do not plant in sight lines. Walkways should meet the road at 90-degree angles.
- Adequate lighting shall be provided.
- Provide barrier-free access at all intersections or use raised crosswalks.
- Install crosswalk striping as street segments are improved and/or as new pedestrian facilities are added. Prioritize routes identified for pedestrian connectivity on Figure 17 to minimize gaps in the pedestrian circulation network.
- Midblock and other potentially dangerous crossings shall have additional elements to increase safety (e.g., flashing crosswalk indicators or signals and enhanced crosswalk striping/signage).
- Improved crosswalks shall have a minimum five-foot by five-foot landing on either side to increase pedestrian safety.



## Section 5 Transportation

### 5.8 Bikeways

A variety of on- and off-street bikeways should be provided throughout Fort Campbell based on the available right-of-way, funding, intended use, and vehicle speeds.

#### 5.8.1 Bike Lanes

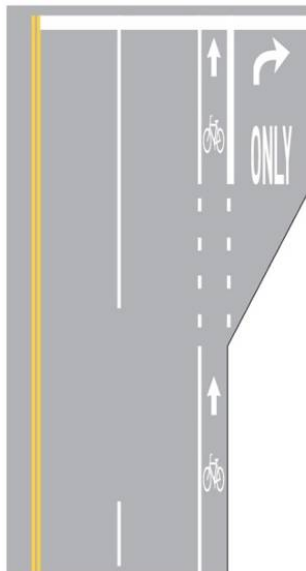
- Bike lanes are on-street lanes that are striped and are designed for exclusive use by bicyclists, although vehicles may cross for on-street parking, driveways, or turn lanes. Bike lanes are suitable for streets with 3,000+ vehicle trips.
- Bike lanes shall be a minimum of 4 feet in width when not adjacent to on-street parking. Where sufficient right-of-way is not available (e.g., at choke points), 3 foot bike lanes may be provided. Bike lanes shall be a minimum of 5 feet in width when adjacent to on-street parallel parking. A minimum of 14.5 feet is desired from edge of street to the edge of the bike lane (encompassing the entire width of the parking lane and bike lane); however, 12 feet is the absolute minimum where right-of-way constraints exist.
- The bike lane shall consist of a minimum 6 to 8 inch white stripe adjacent to the vehicle travel lane. Where adjacent to on-street parallel parking, a minimum 4 inch white stripe shall be provided between the parking lane and the bike lane. Additionally, “bike lane” word and/or symbol and arrow markings (*Manual on Uniform Traffic Control Devices [MUTCD] Figure 9C-3*) shall be provided in the bike lane, especially near conflict zones such as near intersections or driveways. The markings should be placed outside of the motor vehicle tread path to minimize wear.
- Appropriate locations for markings include:
  - At the beginning of a bike lane
  - At the far side of all bike path crossings
  - At approaches and at far side of all primary street crossings
  - At major changes in direction



Bike lanes

## Section 5 Transportation

- At intervals not to exceed ½ mile
- At beginning and end of bike lane pockets at approaches to intersections
- Bike lane signage may be located near the locations of the markings. MUTCD R3-17 signs are recommended.
- Gutter seams, drain inlets, utility covers, and similar features within the bike lane shall be flush with the pavement. Groves on drain inlets shall be designed to prevent wheels on bicycles (and also wheelchairs when placed near crossings) from falling in the slots.
- Bike lanes near intersections shall be located to the left of right turn lanes to prevent conflicts at intersections.
- Coloring (generally green) may be used within the bike lane for increased visibility. Coloring may be applied along the entire length of the bike lane, in bands underneath bike lane markings, and/or in at conflict areas. The colored surface should be skid-resistant and retro-reflective. Adding a color stripe sends a strong signal to cyclists as to where they should ride, and communicates to motorists that bicyclists are legitimate users of the entire travel lane.



Bike lane at intersection



R3-17



R3-17a



R3-17b

MUTCD R3-17 signs



Green bike lanes

## Section 5 Transportation

### 5.8.2 Buffered Bike Lanes

- Greater separation on bike lanes is desirable along streets with posted speed limits greater than or equal to 35 miles per hour, with high parking turnover, or with high truck volumes. The standards for bike lanes mentioned previously would apply along with those below.
- The buffer zone should be a minimum of 2 feet in width and be located between the vehicle travel lane and bike lane. The buffer area shall include a white stripe on each side and diagonal white stripes spaced at intervals of a minimum of 3 feet. Double white lines indicate lanes where crossing is discouraged, though not prohibited. For clarity, the line inside the buffer boundary may be dashed where vehicles are expected to cross.
- The combined width of the bike lane and the buffer area should be considered the bike lane width, and bicyclists may use the entire width.
- Alternatively, the buffer may be provided between the parking lane and the bike lane to provide a “door zone” buffer.
- Alternatively, separated lanes can be installed which shift the location of the bike lane and parking. Separated lanes require careful engineering and planning consideration to ensure the location and circumstances suit mobility needs for the roadway.



Buffered bike lane



Buffered bike lane with parking

## Section 5 Transportation

### 5.8.3 Cycle Tracks

- Cycle tracks are on-street facilities that provide the experience of a separated bike path with the infrastructure of a bike lane, by utilizing a buffer zone similar to that used for buffered bike lanes. They are physically separated from the vehicle travel lanes and are distinctive from sidewalks. Cycle tracks may be one-way or two-way. Cycle tracks are generally used on streets with high volumes of bicyclists, with high vehicle volumes, high vehicle speeds, high parking turnover.
- Cycle tracks shall include a buffer consisting of painted stripes such as for buffered bike lanes, painted stripes with traffic channelizers, painted stripes with planters (which may be permanent or movable), raised curb, or planted parkway median strip.
- Additionally, the cycle track may use a different pavement treatment than the adjacent vehicle travel lanes.
- When buffering parking, a minimum buffer width of 3 feet is recommended, and a minimum of 11 feet from the edge of the vehicle travel lane (including the parking lane and buffer area).
- The minimum width for the bike lane portion is 5 feet.
- “Bike Only” markings may be used as an alternative to “Bike Lane” markings. Markings are required at the beginning of the cycle track and at periodic intervals.
- Cycle tracks may be shifted near intersections to make the bicyclists more visible.
- For two-way cycle tracks along one-way streets, a “One Way” sign (MUTCD R6-1, R6-2) with “Except Bikes” plaques and a “Do Not Enter” sign (MUTCD R5-1) with “Except Bikes” plaque shall be posted along the facility and at intersections with streets, alleys, and driveways to inform motorists to expect two-way bicycle traffic. Signal control devices (e.g., stop signs and signals) shall also be installed and oriented towards bicyclists traveling in the contra-flow direction.



One-way cycle track



Two-way cycle track

## Section 5 Transportation

### 5.8.4 Sharrows

- Shared lane markings, or “sharrows,” are road markings used to indicate a shared lane environment for bicycles and vehicles. Sharrows are generally used on streets with slower speeds (generally less than 25 miles per hour).
- Sharrows consist of the shared lane marking (MUTCD Figure 9C-9), which consists of a bike symbol and chevron aimed in the direction of travel. The center of the marking shall be a minimum of 4 feet from the edge of the street when not adjacent to on-street parking. When adjacent to on-street parallel parking, the center of the marking shall be a minimum of 11 feet from the edge of the street (including the parking lane and “door zone”). Ideally, the marking is placed in the center of the travel lane to reduce wear.
- Sharrow markings should be located near intersections and frequently along the route. For lower volume streets they may be placed at intervals of up to 250 feet or more; however, in busier areas and where desirable to guide bicyclists to change direction, the markings should be placed at closer intervals (50 to 100 feet).
- Color may be added beneath the markings for added visibility. The color may be applied continuously along the route or in bands where the sharrow marking is located.



Sharrow



Sharrow with continuous color



Sharrow frequency

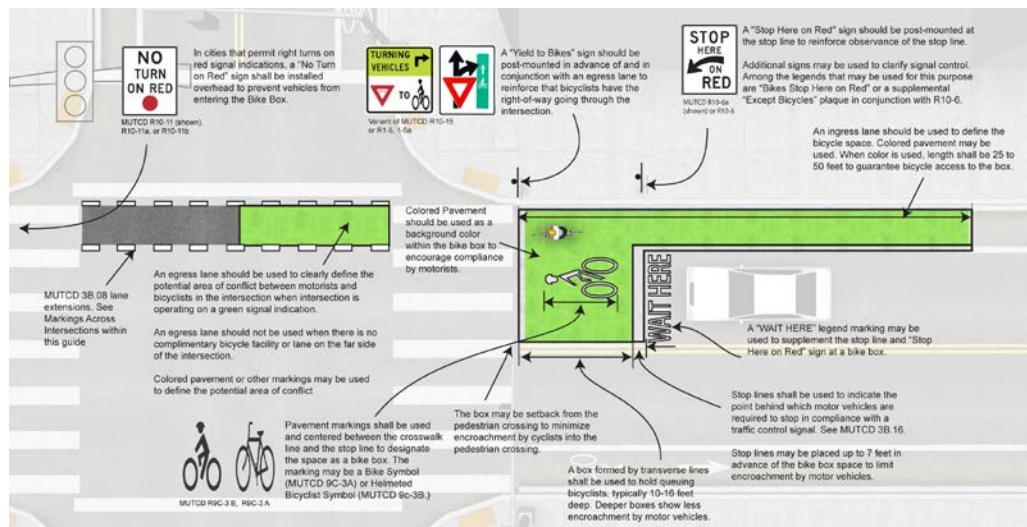


Sharrow with green boxes

## Section 5 Transportation

### 5.8.5 Bike Boxes

- Bike boxes are designated areas at the head of a vehicle lane at a signalized intersection that provides bicyclists with a safe and visible way to get ahead of the queuing vehicles during the red signal phase. Bike boxes are generally used on streets with high bicycle volumes, with high vehicle volumes, with turning conflicts between bicyclists and motorists exist, where a left turn is required to continue along a designated bike route, and where dominant vehicle traffic turns right but bicycle traffic continues forward.
- Bike boxes shall be a minimum of 10 feet deep and includes a “Wait Here” marking and stop line to indicate to motorists where they should stop. Pavement markings shall be provided between the crosswalk line and the stop line to indicate the bike box area. A “No Turn on Red” sign (MUTCD R10-11, R10-11a, or R10-11b) shall be installed to prevent vehicles from entering the bike lane or bike box during the red phase.
- Bike boxes may be painted with color paint (generally green), include color paint borders, or simply include bike stencils.



Plan view of bike box with green paint (from NACTO Urban Bikeway Design Guide)



Bike box with green paint

## Section 5 Transportation

### 5.8.6 Bike Paths and Multipurpose Trails

- Bike paths and multipurpose trails are off-street paths that are designed either for bicyclists or multiple users including bicyclists and bicyclists. Bike paths and multipurpose trails are suitable alternates for busier streets, streets with high vehicle speeds, and for recreational purposes.
- Provide a minimum width of 10 feet although 12 feet is preferred. Along paved paths, an additional 2 feet may be provided on each side of the trail to serve as an unpaved shoulder. Unpaved multi-purpose trails should be constructed of decomposed granite a minimum of 4 inches deep, or similar material.
- Centerline striping is encouraged in high use areas to separate users by direction. Additionally, striping to separate pedestrians and bicyclists may be provided where sufficient width is provided. Yellow stripes are used to differentiate direction and white strips are used to differentiate use. Dashed yellow lines represent areas where passing is appropriate and solid yellow lines where passing is not appropriate.
- Provide lighting near crossings, at trailheads and points of entry, and along portions with high use during early morning or late evening.
- Staging areas should be provided at major trailheads and points of entry, where sufficient room exists. These areas provide a safe space for bicyclists to pack gear, mount/dismount, and rest.
- Landscaping along bike paths and multi-purpose trails should generally consist of low-maintenance trees, shrubs, and groundcovers. Placement and maintenance of trees and other vertical elements shall ensure a minimum vertical clearance of 10 feet along the path or trail surface.
- Amenities such as benches, trash and recycle receptacles, benches, tables, drinking fountains, and maps are encouraged along the bike paths and multipurpose trails and at major points of entry and trailheads.



Bike path with yellow centerline striping



Unpaved (decomposed granite) trail

## Section 5 Transportation

### 5.9 Half Marathon Training Trail

- At least one half marathon (13.1 miles) training route shall be provided within Fort Campbell. An additional half marathon route may be connected to provide a full marathon (26 miles and 385 yards) course.
- The trail may consist of sidewalks (and crosswalks) and other paved paths.
- The trail should be designed as a multi-purpose trail with a minimum width of 10 feet.
- The trail shall include mile markers and may include other route identifiers, such as route signs, maps, and special landscaping.
- Amenities should be provided along the route and at trailheads or major starting/stopping points, including:
  - Benches and tables
  - Trash and recycle receptacles
  - Drinking fountains
  - Bicycle racks
  - Exercise stations
  - Restrooms and showers



Exercise station



Seating, refuse receptacle, and restrooms



Mile marker



Trail map



## Section 5 Transportation

### 5.10 Bus Stops

A future shuttle service may be provided throughout Fort Campbell, serving various destinations. Therefore, current planning should provide the provisions should this service be provided.

- Address bus stop locations on an installation-wide basis. Plan for enough stops to sufficiently serve major destinations without making service impractical. Preliminary locations identified during visioning workshops in December 2012 are identified on Figure 3.
- Provide signage at the bus stop indicating at a minimum the route number. Additionally, the time points, frequency, route map, and other relevant information should be provided.
- Provide at least one bench adjacent to the sidewalk near the bus stop. The bench shall be located on a concrete base a minimum of 2 feet from the sidewalk and 5 feet between the front of the bench and any stationary obstacle.
- Bus shelters are strongly encouraged at bus stops to provide refuge from adverse weather. Bus shelters shall be a minimum of 3 feet from the back of sidewalk and shall have a minimum dimension of 5 feet by 8 feet with a minimum height of 6.5 feet. At least three sides of the shelter shall be transparent and made of an unbreakable type material. The bus shelter shall completely cover the bench, but shall not obstruct views from the bench and approaching busses. Bus shelters should include route maps and time points or frequency for routes. Trash and recycle receptacles should be provided near bus shelters.
- Landscaping (e.g., shade trees) may be included around the bus stop for weather protection and aesthetics. Landscaping shall not obstruct views between the bench and approaching busses.



Bus shelter with bench



Route map and timetable sign

## Section 6 Landscaping

### 6.1 Introduction

Landscape Design Standards include the selection, placement, and maintenance of plant material on the installation. The visual image conveyed by a military installation is defined not just by architectural character and site organization, but also by an attractive, organized landscape design. The presence of plant material on the installation greatly enhances the visual character and environmental quality of the installation, and contributes to the installation's goal to provide quality open space in accordance with the Green Infrastructure Plan. Plantings add an element of the human scale to open spaces and can be used functionally to screen undesirable views, buffer winds, reinforce the hierarchy of the circulation system, or provide a visual transition between dissimilar land uses.

The overall objective of the use of plant material within the installation is to improve the physical and psychological well being of the people who live and work on the installation. Part of Fort Campbell's Green Infrastructure Plan vision is to work towards a goal of 60% open space in the cantonment area. Although part of this focus is on preserving undeveloped areas (passive open space), there is also emphasis on proper management of storm water management areas, to include use of Low Impact Development techniques. Another focus is providing for desirable recreation space, both in park settings, and by utilizing the open space around buildings required for Anti-Terrorism/Force Protection setbacks, for the dual purpose of providing recreational and passive open spaces as part of campus planning for facility occupants.

### 6.2 Objectives

The overall objective of the use of plant material within the installation is to improve the physical and psychological well being of the people who live and work on the installation. This is achieved through the following objectives.

- Commit to the conservation of existing passive/recreational open space.
- Preserve and enhance mature trees, forest lands, and detailed planting features such as shrubs and groundcovers.
- Repopulate trees (2 for every 1 tree impacted, using tree bank) when trees must be felled as part of construction efforts.
- Improve the overall visual quality of the installation through the use of native plant material to blend the built and natural environment (see recommended plant palette, below).
- Minimize maintenance through the use of native plant materials that require less maintenance to survive.

## Section 6 Landscaping

- Maintain the “predevelopment hydrology” (pre-project hydrologic conditions of temperature, rate, volume, and duration of storm water flow) on new construction sites.
- Utilize Low Impact Development techniques on construction project sites to ensure quality and quantity storm water management design. For example, utilize bio-swales in parking lots and open spaces to minimize impervious surfaces, provide additional landscaping, and facilitate the natural collection/filtration of storm water through non-structural/structural methods.
- Work towards a goal of converting 25% of impervious parking area to pervious parking areas (one new lot annually).
- Provide scale and comfort to the pedestrian environment in parks/playgrounds, and in Brigade Open Space areas.
- Reinforce the hierarchy of the circulation system with landscaping, to include standards for fitness trails and sidewalk networks.
- Screen unsightly views or elements, and buffer incompatible land uses.

### 6.3 Principles

The following overall principles for site landscaping shall be observed:

- Incorporate native, drought-tolerant, and low-maintenance plant species; blend the built and natural environment.
- Utilize bio-swales and other Low Impact Development techniques throughout parking lots and open spaces to minimize impervious surfaces, provide additional landscaping, and facilitate the natural collection and filtration of storm water.



Bioswale



Walkway through parking lot

## Section 6 Landscaping

- Design landscaping to create comfortable microclimates, provide shade to buildings, and reduce the heat island effect (generally caused by large expanses of paved and unlandscaped areas).
- Encourage vines and climbing plants on trellises and fences.
- Consider the mature size, root characteristics, and watering needs of landscaping when selecting, locating, and maintaining species.
- Avoid planting species too close together, under power lines, or to structures to which they may cause maintenance issues at maturity.
- Provide landscaping near the base of buildings to soften the transition from the building to adjacent areas.
- Provide landscaped buffers between parking lots and adjacent streets and activity/gathering areas.
- Utilize landscaping to line walkways, screen views of parking lots and service areas, define edges of outdoor areas, enhance prominent building features, and buffer adjacent uses where appropriate.

### 6.4 Design Guidelines

Proposed plantings must be reviewed to ensure that site conditions (soil, topography, adjacent uses, and architecture) and climatic criteria (sun, shade, and moisture requirements) are considered in the desired plant design and selection (i.e. form, texture, color, size). The uses and users of the site must also be considered. Landscape planting plans should be approved by qualified personnel to provide quality assurance and promote design consistency using Replacement Trees Species and Spacing List available from DPW-ENV Forestry.

#### 6.4.1 Foundation Planting

Foundation planting provides a green background for additional plantings, adds scale and character to the building, helps to integrate the building with its surroundings, screens HVAC and other utilities and helps create a sense of arrival. When planning foundation planting, consideration should be given to AT/FP measures and Crime Prevention Through Environmental Design methods.

- Focal and seasonal plantings should be located at building entries for pedestrian interest. Plans should be broad and simple to limit maintenance (for example group plants in beds with simple edges that are easy to mow. Avoid small turf areas. Avoid the usage of annuals because of the high maintenance involved).

## Section 6 Landscaping

- Utilize the architecture of the building and the land use area to evaluate the planting design and selection of plants (i.e. greater selection of plants in community, housing, medical, and administrative areas vs. industrial and maintenance areas).
- Consider the mature size of all plants. Plant materials should not block windows and views from interior spaces.
- Trees shall be set back from the building walls to provide space for mature growth and to prevent root systems from damaging the foundation.
- A symmetrical foundation planting design should be used for a symmetrical building; symmetrical plantings should be provided in more formal environments, and asymmetrical in less formal areas.
- Due to the possibility of insect problems (bee stings, etc.), do not plant flowering plants near entrances.

### 6.4.2 Screening

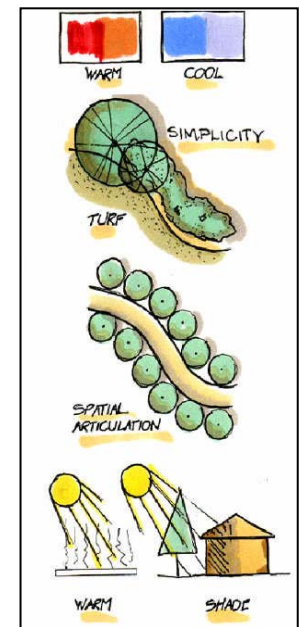
- Use a combination of evergreen and deciduous trees to provide windbreak protection from prevailing winds. Windbreak plantings should be irregular in form, rather than straight and evenly spaced, in order to provide more effective wind control and to visually blend with the natural character of the installation.
- Screening of dumpsters: Landscape planting should be used to supplement permanent wall dumpster enclosures.

### 6.4.3 Buffer Planting

Use a mixture of evergreen and deciduous trees and shrubs to visually separate land uses (i.e. a Child Development Center near a motor pool) and to help separate visual zones (i.e. Memorial Blvd), or screen unattractive visual impacts.

### 6.4.4 Open Space Planting

- Enhance open space areas (i.e. parks, playgrounds, periphery of recreational fields, and Brigade open space areas) with appropriate plantings (consider the presence of unit mission activities).
- Use a mix of evergreen, deciduous, and flowering trees of various sizes and shapes. Plant the same kind of trees in massive groupings to impact vast open areas.



Design Principles

## Section 6 Landscaping

### 6.4.5 Image Planting

The image of the installation is formed by the visual impressions that exist within the installation.

- The primary locations of highly visible images are the main gate, along primary circulation systems, and at areas of high concentrations of people.
- Features such as signs, statues, static displays, and other primary visual images can be improved by the use of trees, shrubs, and ground cover.

### 6.4.6 Street Trees

Street tree plantings should be used to reinforce vehicular hierarchy, orient and direct traffic, upgrade views, and to visually de-emphasize on-street parking. Also, in the design of a street tree planting, separate plant species may be used to identify distinctive details or areas of the installation (e.g. a particular land use relationship, historical district, community area, or other similar entity).

- The primary locations of highly visible images are the main gate, along primary circulation systems, and at areas of high concentrations of people (i.e. Normandy Blvd and Michigan Ave). Enhance key entry points to Town Center with landscaping. When choosing street trees along primary circulation systems, or near other primary locations, remain consistent with existing tree selections in the Fort Campbell *Streetscapes* projects and at Town Center Park.
- Use formal street trees in single rows to provide continuous shade to streets, buildings, and walkways and to visually reinforce primary and secondary roads. Repeat use of a single plant or mass of plants to provide visual interest and formality in areas such as Town Center. Do not plant trees under utility lines.
- Use informal groupings of street trees along tertiary routes. Utilize medium size deciduous trees to screen on-street parking along roadways. Set trees 1 to 2 meters (3 to 6 feet) from the back of curbs. Spacing should be uniform, except where curb cuts interrupt regular spacing.
- As a general rule, street trees should be deciduous species, resistant to salt and root pressure, and should have a 10 feet to 12 feet high clearance between the street pavement and branch height to allow adequate clearance for pedestrian and vehicle traffic to pass unimpeded by lower branches.
- The street tree layout should be coordinated with the layout of proposed street lighting.
- Appropriate plant heights should be used within sight triangles to ensure safe views from intersections.

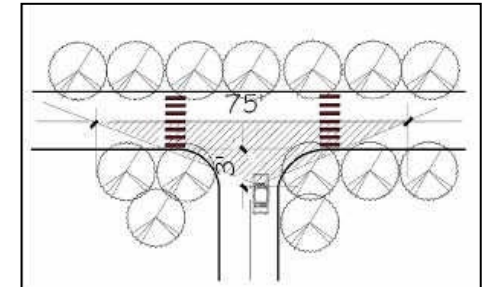
## Section 6 Landscaping

- Weeping trees should not be used in locations where they may hang over the roadway or block views.
- Protect existing trees during construction using tree barricades. Replace any trees impacted by construction with two replacement trees. Trees can be replanted off of the project site (i.e. tree banking); see Urban Forester for more information.

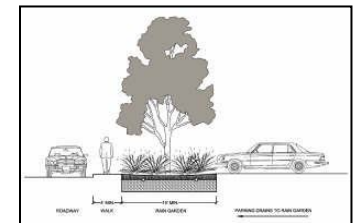
### 6.4.7 Parking Lot Planting

Parking lots are often the least attractive elements on a military installation. The use of landscape plant material and earth berm can greatly improve the appearance of these areas as well as help define circulation and reduce heat gain during summer months.

- Use shade tree plantings at parking lots to reduce glare and moderate ambient air temperatures on the lot. Optimum spacing of parking lot shade trees is 4.5 to 9 meters (15 to 30 feet) on center. Weeping trees should not be used in locations where they may hang over the roadway or block views.
- Choose trees and shrubs that require minimum maintenance and will not litter the parking area with leaves, fruit, or nuts.
- Use a mix of evergreen and deciduous plant material to screen parking areas from adjacent uses.
- Environmental Control Planting. When properly placed, plants can provide environmental benefits and address visual concerns.
- Use deciduous trees and shrubs at courtyards, buildings and along streets to provide shade, moderate temperatures and reduce glare during the summer months while allowing solar exposure in the winter.
- Enhance parking lots in front of shopping centers in Town Center with appropriate landscaping features.
- Locate deciduous plantings on the southeast and southwest corner of buildings or courtyards to mitigate solar radiation and glare due to heat build-up and lower sun angles in the mid-morning and late afternoon hours.
- Use LID practices in parking lot design. See 5 SFG Language Sustainment Facility parking lot design as an example.



**Consider site distances when selecting plant material**



**LID Practices in Parking Lot Design**

## Section 6 Landscaping

### 6.4.8 Entrances to the Installation

Landscaping at the entrances and along the streetscapes of the installation will develop a strong visual image and provide visual interest during all four seasons. The entrance to the installation creates the first visual impression for the visitor.

- Landscape materials and planting areas should be proportional in scale to the hierarchy of the street on which they are located.
- Landscaping must be integrated with AT/FP. Low shrubs, groundcover, annual/perennial plants and canopy trees provide seasonal interest as well as maintain views required to ensure force protection measures. Large evergreen trees are discouraged in these locations because they may obstruct sightlines and impact the need for force protection. Adequate lines of sight must be maintained for guard personnel to observe vehicular and pedestrian traffic.

### 6.4.9 Xeriscaping and Low Impact Development

Xeriscape is the conservation of water and energy through creative and adaptive landscape design. Xeriscape landscapes provide attractive solutions that conserve water, limit necessary maintenance, and save money. The use of on-site natural features to control storm water runoff quantity and quality in lieu of traditional 'end-of-the-pipe' solutions is a land planning and engineering design approach termed Low Impact Development (LID). These features include not only open space and natural features, but also manmade features such as building roofs, streets, and parking surfaces. LID applies equally to new construction and redevelopment, and is best accomplished at the installation level. Additional information on LID is available in UFC 3-210-10. An example of a parking lot that uses these techniques is the 5 SFG Language Sustainment Facility.

## 6.5 Plant Palette

The Replacement Tree Species and Spacing List, available from DPW-ENV Forestry, should be used to for construction and landscaping projects. The table in Appendix A contains a portion of the tree list as well as the plant palette for bio-retention and parking lot trees and shrubs at Fort Campbell.



## Section 6 Landscaping

### 6.6 Walls and Fences

Keep the height of walls and fences as low as possible to avoid a “fortress” appearance, while allowing them to perform their intended function. Perimeter fencing along high visibility areas and primary gate corridors should be constructed of wrought iron.

Design fences and walls to be consistent with the overall design of adjacent buildings and development.

Ensure that fences and walls have an articulated design. Articulation may be created by having regularly spaced posts, by changing height, and by using different building materials on the base, posts, or cap of the fence/wall.

Paint fences and walls to match or complement the color of the adjacent building. However, walls constructed with stone or brick may be unpainted to display the natural color of the materials.

### 6.7 Site Amenities

- Ensure that site amenities are compatible with the design of adjacent buildings.
- Locate site amenities so they do not create conflicts with pedestrians, bicyclists, and/or motorists.
- Locate benches and trash/recycle receptacles near building entrances and within activity/gathering areas.
- Locate mailboxes in highly visible and conveniently accessible areas, per US Postal Service (USPS) guidelines.
- Provide the following site amenities, where feasible and appropriate:
  - Benches and seat walls
  - Trash/recycle receptacles
  - Bicycle racks and lockers
  - Pedestrian-scaled and bollard lighting
  - Tables with chairs/benches
  - Potted plants and trees
  - Newspaper racks
  - Interactive/interpretive elements
  - Play equipment



Seat wall

## Section 7 Site Elements

### 7.1 Introduction

Site elements include all visual elements of the installation that are considered utilitarian in use. These elements include the following four categories of amenities: Site Furnishings, Signs, Lighting, and Utilities.

Site element features and equipment should, to the greatest extent possible, reflect the established design standard for the installation. The precedents established with the *Streetscapes* project around Town Center, within Town Center Park, and as shown in *Fort Campbell Town Center Area Development Plan*, set the standard for site elements in community service, administrative, medical, housing, mission, and other similar areas. Less formal treatment is permissible in heavier land use areas (i.e. industrial, maintenance, and heavy training areas). Consistent usage of site elements throughout the installation eases maintenance and supports Fort Campbell's Real Property Vision.

### 7.2 Objectives

- Provide site elements that are appropriate to their intended function and surrounding environment.
- Establish a coordinated system of site elements that provide consistency and continuity throughout the installation to convey a sense of organization and defined sense of place.
- The design and location of the various site elements should express an image, character, and scale appropriate to the installation, considering the surrounding land use.
- Incorporate appropriate outdoor seating and other site elements in plans for all buildings, recreation areas, and public open space.
- Design and locate all site elements to meet AT/FP requirements.
- Use recycled/salvaged materials wherever possible.
- Minimize maintenance and repair through the use of efficient products that are vandal-proof.
- Minimize negative visual impacts of all utility systems.

## Section 7 Site Elements

### 7.3 Site Furnishings

Site furnishings include all of the outdoor amenities found on an installation. These furnishings should be located in coordinated clusters to provide areas with pedestrian-scale amenities and avoid the haphazard placement of furniture around the installation. For the most part, the standard set for site furnishings and amenities on Fort Campbell is visible in the installation's *Streetscapes* design and at Town Center Park. All furnishings shall be accessible to persons with disabilities, in accordance with the requirements of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS). General rules for the placement of site furnishings and amenities include the following:

- Ensure that site amenities and furnishings are compatible with the design of adjacent buildings and appropriate considering existing land use. Site furnishings shall complement each district's architectural style.
- Locate site amenities so they do not create conflicts with pedestrians, cyclists, and motorists.
- Locate benches and trash/recycle receptacles near building entrances and within activity areas.
- Locate mailboxes in highly visible and conveniently accessible areas, per US Postal Service (USPS) guidelines.

Site furnishings include the listed features. Details about each site furnishing type are detailed below.

- |                        |                     |  |
|------------------------|---------------------|--|
| ▫ Benches              | ▫ Trash Receptacles | ▫ Play Equipment   |
| ▫ Tables               | ▫ Dumpsters         | ▫ Mailboxes  |
| ▫ Shelters             | ▫ Flagpoles         | ▫ Monuments, Memorials, Military Equipment Static Displays |
| ▫ Kiosks               | ▫ Movable Planters  | ▫ Drinking Fountains                                       |
| ▫ Walls/ Seating Walls | ▫ Bicycle Racks     |  |
| ▫ Fences               | ▫ Bollards          |  |

## Section 7 Site Elements

### Benches

Benches should be located in areas of high pedestrian use and arranged to encourage social interaction within a pleasant outdoor setting. This includes pedestrian nodes along primary walkways, recreational trails, major building entrances, courtyards, bus stops, and other gathering areas. Benches should be sited on concrete pads adjacent to walkways. A minimum 2 foot setback should be provided for proper clearance around benches for adjacent sidewalks and a minimum of 5 feet between front of bench and any stationary obstacle. Co-locate benches with other site amenities such as trash receptacles. Provide appropriate landscaping nearby for visual definition and seasonal shade. Wall mounted benches should be similar in style and color to free standing benches.



### Tables

Locate tables together with seating that is oriented to encourage socializing and relaxing in an attractive setting. Small groupings of tables in high visibility areas should be placed within proximity of recreation and food service facilities. These groupings should be located on hard pavement areas adjacent to walkways. Pavement should be constructed of exposed aggregate or broom finish concrete. Incorporate tree plantings and overhead trellis structures within these areas to provide shade and spatial definition.



### Shelters

There are many different types of shelters on military installations. Shelters are provided at recreation and sports facilities and in areas where people congregate to socialize or eat such as in courtyards or picnic areas. Picnic shelters should be strategically located and sized for shared use to discourage the placement of small shelters scattered throughout the installation. Picnic shelters can be open on all sides. The minimum size should be 20 feet square with a minimum 8 foot vertical clearance.

Exterior finishes should be compliant with the Fort Campbell Technical Design Guide Appendix D.



Industrial Use Shelter

## Section 7 Site Elements

### Bus Shelters

Bus shelters should be located at major facilities along the bus route such as commissary/post exchange, barracks, hospital, and library. Bus stops should relate to major pedestrian walkways and be placed on concrete pads. Provide a minimum 3 foot clearance from the back of sidewalks. Shelters shall have a minimum dimension of 5 feet by 8 feet with a minimum height of 6.5 feet. At least three sides of the shelter shall be transparent and made of an unbreakable type material. The bus shelter shall completely cover the bench, but shall not obstruct views from the bench and approaching busses. Bus shelters should include route maps and time points and frequency for routes. Trash and recycle receptacles should be provided near bus shelters. Landscaping should be included around the bus stop for weather protection and aesthetics, but shall not obstruct views.



Standard bus shelter

### Kiosks

Kiosks can be used as information centers at pedestrian nodes within Town Center or at trailheads serving recreational trails. Provide on a concrete base adjacent to walkways. Allow a minimum of 3 foot clearance on all sides. Kiosk design should blend compatibly with other site furnishings and with the architectural character of the District in terms of form, scale, and materials. A similar design treatment should be established for similar structures such as vending machine shelters. Roof should be steel (brown), with brown frame, approximately 6 feet x 8 feet in size.



Trailhead Kiosk

### Trash Receptacles

Trash containers should be highly visible and accessible for effective litter control. Containers should be located conveniently along:

- Walkways,
- Near Major pedestrian intersections,
- At trailheads and other major trail starting/stopping points,
- Near building entrances,
- At bus stops, and
- Near seating and eating areas, and
- Other activity/gathering areas.

Provide a clear zone of 5 feet between trash receptacles and other streetscape amenities. Antiterrorism/force protection requirements restrict the location of dumpsters to a minimum of 33 feet from inhabited buildings and 82 feet from billeting and primary gathering areas.



Receptacle

## Section 7 Site Elements

### Walls

Walls should be used to provide visual screening, define pedestrian plaza areas, wind screening, pedestrian and vehicular control, security, and to retain soil. The design of walls should fulfill their function in harmony with the character and appearance of their setting. Low walls should be used to define pedestrian court areas and provide informal seating. Screening walls can be used where appropriate to screen building service areas. Walls adjacent to walkways should be free of any projections such as signs or drain pipes that would pose a hazard to passing pedestrians. Construction of walls should incorporate brick to match existing buildings (IAW the Fort Campbell Technical Design Guide Appendix D), with stone or concrete cap, or concrete with a textured finish and stone or concrete cap. Retaining walls may be constructed of brick, native stone, versa-lock modular stone with a light tan finish, or concrete block with a light tan stucco finish, concrete block planters, or other appropriate material. Walls used to screen service areas or trash enclosures should incorporate landscape plantings to help reduce the negative visual impact of these areas.



Dumpster screen wall with landscaping and retention wall

- Keep the height of walls and fences as low as possible to avoid a “fortress” appearance, while allowing them to perform their intended function.
- Design fences and walls to be consistent with the overall design of adjacent buildings and development.
- Ensure that fences and walls have an articulated design. Articulation may be created by having regularly spaced posts, by changing height, and by using different building materials on the base, posts, or cap of the fence/wall.
- Paint fences and walls to match or complement the color of the adjacent building. However, walls constructed with stone or brick may be unpainted to display the natural color of the materials.

### Seating Walls

Wherever possible, seating should be incorporated into planter boxes or retaining walls, particularly at building entrance areas. Seating walls should be integrated into the overall area design and the pedestrian circulation system. Seating walls should generally be between 18 inches and 22 inches high, and 12 inches to 18 inches wide and constructed of textured concrete or brick in a manner to complement or match the materials of the adjacent buildings. All materials shall comply with the Fort Campbell Technical Design Guide, Appendix D.

## Section 7 Site Elements

### Fences

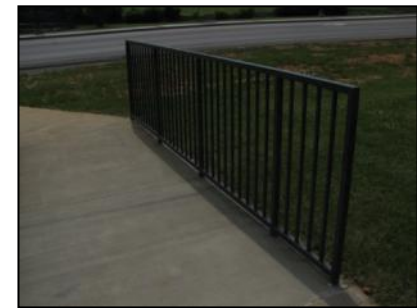
Fences should be utilized for screening of service areas and site utilities, and for security measures. Screen fencing should consist of square tubular metal posts and rails with vertical wood fence boards. All fence posts should be securely anchored with concrete footings. All metal posts and framework should be painted standard black. Hardware shall be stainless steel to prevent rust. Wrought iron fencing shall be used along high-visibility areas, especially along primary gate corridors. Chain link fences (only permissible in industrial areas within the cantonment area) should be screened with trees and shrubs. Fencing should be used to provide visual screening, define pedestrian plaza areas, wind screening, pedestrian and vehicular control, security, and to retain soil. The design of fences and railings should fulfill their function in harmony with the character and appearance of their setting.



Metal fence

### Dumpsters

Details for siting dumpster/refuse enclosures are included in Section 4. To the greatest extent possible, incorporate dumpster placement into areas screened with walls, fencing or plant material. Avoid locating dumpsters along major circulation or use areas. They should be directly accessible by way of a paved service drive or parking lot with adequate overhead clearance for collection vehicles. Anti-terrorism/force protection requirements restrict the location of dumpsters to a minimum of 33 feet from inhabited buildings and 82 feet from billeting and primary gathering areas. As discussed in the Walls section above, plantings should be incorporated to buffer the visual impact of screen walls. Walls and fencing should be a minimum of 8 feet in height, constructed of 8 inch concrete block with veneer that matches the adjacent buildings (ensure brick complies with the Fort Campbell Technical Design Guide).



Metal railing

Single dumpster refuse enclosures shall be 12 feet deep by 12 feet wide, with double dumpster enclosures 12 feet deep by 20 feet wide. Compactor enclosures shall be 29 feet deep by 12 feet wide. Add 10 feet width for each additional dumpster and 12 feet width for each additional compactor. Provide a minimum 3 foot clearance on each side between screen walls and dumpsters to allow adequate pedestrian and truck access. Eight inch steel pipe bollards filled with concrete shall be placed at the front of the enclosure adjacent to the wall edge, and additional bollards placed inside the structure within 15 inch of the rear wall and spaced at 4 foot intervals. Bollards shall be painted yellow for safety.

A 6 inch reinforced concrete slab shall be provided within the enclosure and a 12 inch reinforced concrete slab shall be provided in front of the enclosure a minimum of 12 foot from the enclosure. The slabs shall be designed for the weight of the vehicle servicing the enclosure (see Section 4 for more details and a diagram). All dumpsters shall be placed on concrete pads with aprons large enough to encompass the bearing points of the service vehicle.

## Section 7 Site Elements

### Flagpoles

Flagpoles are limited on Fort Campbell and new flagpoles must be reviewed and approved through the Installation Siting Board. Any flagpole must be tapered mill finish aluminum, fitted with gold anodized finish "ball" finial. The mounting detail should be simple with a concrete base flush at grade. A concrete pad should be used when poles are located in lawn areas. In plaza areas, flagpole locations and the mounting detail should be integrated into the paving pattern. Flagpoles should include lighting and may be accented with planting beds around the base of the flagpole. All plantings should be low maintenance as discussed in Section 6.

### Planters

Movable pre-cast concrete planters may be used outside of building entrances to provide seasonal color and interest and function as security threat barriers. Planters should be located so they block uninterrupted vehicular access to a building, but not so they excessively impede pedestrian movement. Several planters of various sizes should be grouped together to produce an aesthetically pleasing display.

### Bicycle Racks

Bicycle racks should be provided at key destination locations, in parks, near community facilities such as schools, and near any administrative, medical, community, recreation, or mission facilities along existing or proposed multi-modal transportation routes. Bicycle racks should be included as part of MILCON projects when they are constructed in these areas. They should be located on a concrete surface where they will not impede pedestrian movement or block building entrances.

### Bollards

Bollards are utilized to separate vehicular and pedestrian traffic, to direct access, or as decorative elements in pedestrian areas. Concrete bollards may be appropriate in industrial areas.



Planters



Bike rack





## Section 7 Site Elements

### Drinking Fountains

Outdoor drinking fountains should only be provided where they will support larger playgrounds, outdoor recreation facility complexes, trails, and outlying recreational areas if convenient to a potable water supply line. Steps should be provided for children and comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and Uniform Federal Accessibility Standards (UFAs).

### Playground Equipment

The playgrounds and tot lots within the installation should have equipment that is consistent



**Playground equipment and shade sails**

throughout the installation or that meets specific criteria of materials, color and design. Guidance for planning and designing unsupervised outdoor play areas that meet child safety and child development requirements is found in Unified Facilities Criteria (UFC) 3-210-04, Design: Children's Outdoor Play Areas. The guidance in this publication meets the needs of children with and without disabilities. A play area inspection and maintenance program for Child Development Centers can be found in Technical Manual 5-663, Child Development Center, Play Area Inspection and Maintenance Program. In addition, acceptable Shade Sail designs to provide shade over playground equipment can also be viewed at Town Center Park. Bright, primary colors are acceptable when developing designs for playground equipment.



**ADA accessible drinking fountain**

### Mailboxes

All mailboxes should be located in close proximity to the facility they serve. Consider Anti-terrorism/Force Protection requirements when siting mailboxes to ensure a minimum of 33 feet from inhabited buildings and 82 feet from billeting and primary gathering areas. The location of mailboxes should be coordinated with the US Postal Service. If group mailboxes are required, provide central locations adjacent to hard-surface walkways, but not to impede pedestrian movement. Structures sheltering mailboxes shall comply with Appendix D of the Fort Campbell Technical Design Guide.



**Mailbox structure**

## Section 7 Site Elements

### Monuments, Memorials and Military Equipment Static Displays

As discussed in the Visual Themes Section, the Memorial Boulevard area has been designated as an appropriate location for monuments and static displays. Most monuments sited on Fort Campbell should be directed to this area, although other sites in areas designated for open or recreational space may be determined through the Installation Siting Board process. Such monuments and static displays should be carefully designed and placed in prominent locations to serve as focal points within the installation. Many static displays of equipment will be consolidated in one location at the future Museum site. Memorials will conform to the guidance set forth in Army Regulation 1-33, Memorial Programs.

### 7.4 Signs

Signs are used to visually communicate information. They are highly visible features that should be attractive and compatible with their surroundings. Careful consideration should be given to the message conveyed, visual appearance, organization, location, structural support system, and relation to other signs within the installation. Standardized signage systems facilitate movement, provide a sense of orientation, and reinforce standards of excellence. Signage creates a unifying element throughout the installation that visually ties the installation themes together and builds a reference and continuity that translates into confidence and reassurance when traveling. The standards for signage at Fort Campbell are included in Campbell Regulation 420-6, Fort Campbell Exterior Signage and Markings. This regulation provides guidance for the following sign types and provides information on sign placement, and sign system typography.



- Information/Identification Signs
- Building Identification Signs
- Housing Area Signs
- Installation Identification Signs
- Street Signs
- Wheeled (or other temporary) signs
- Directional Signs
- Regulatory Signs
- Traffic Control Signs
- Prohibitory (Warning) Signs
- Electronic Exterior Signs

#### Entryway Sign

# Section 7 Site Elements

## 7.5 Lighting

Lighting is a functional requirement of installations that also impacts the visual environment. The installation lighting system conveys a sense of order and organization. There are five primary types of lighting on military installations:

- Roadway Lighting
- Pedestrian Lighting
- Parking Lot Lighting
- Outdoor Architectural Lighting
- Security Lighting

A lighting system provides the proper type of lighting for different requirements and locations. A system is composed of six primary components: fixtures, light height, type of pole, light spacing, type of lamp, and level of lamp intensity. The proper type of lighting for various locations is shown in the matrix, below.

All lighting should be located or designed to prevent undesirable spillover of light into other areas, consistent with *Leadership in Energy and Environmental Design (LEED)* criteria, and in coordination with Directorate of Plans, Training and Mobilization (DPTMS) Airfield personnel guidance. Spotlights in particular should be aimed and screened to prevent glare that could blind motorists or pedestrians and impact housing areas. Lighting should meet “dark sky” compliance standards due to night vision goggle use.

Figure 17. Light Design Matrix

LIGHT DESIGN MATRIX		TYPICAL AREAS OF USE																		
		Entry Gates	Primary Roadways	Secondary Roadways	Tertiary Roadways	Primary Walkways/Bikeways	Secondary Walkways/Bikeways	Tertiary Walkways/Bikeways	Courtyards	Picngrounds	Ball Fields	Basketball Courts	Tennis Courts	Buildings	Landscaping	Fence Perimeters	Signs & Entrances	Large Parking Lots	Small Parking Lots	Training areas
LAMP	Incandescent																			
	Halogen	⊙	⊙																	
	Mercury Vapor		⊙	⊙	⊙	⊙	⊙		⊙	⊙	⊙	⊙			⊙					
	Fluorescent																			
	Metal Halide		⊙	⊙	⊙	⊙	⊙		⊙	⊙	⊙	⊙	⊙	⊙	⊙		⊙			
	High Pressure Sodium	⊙	⊙							⊙	⊙	⊙	⊙			⊙		⊙	⊙	⊙
LEVEL	Lux (fc)		20	15	10	10	2		50	100	100	50								
	Foot-candles (fc)		2	1.4	0.9	0.9	0.2		5	10	10	5.6				0.2		1	1	1
HEIGHT	40' Max	⊙							⊙					⊙	⊙	⊙			⊙	
	25' Max	⊙					⊙	⊙	⊙					⊙	⊙				⊙	
	15' Max			⊙	⊙															
	Varies		⊙							⊙	⊙	⊙	⊙				⊙			⊙
FEATURE	Cutoff		⊙	⊙	⊙													⊙	⊙	
	Utiliter	⊙														⊙				⊙
	Bollard																			
	Spot												⊙			⊙				
Wall Mount																				
POLE	Metal		⊙	⊙	⊙													⊙	⊙	
	Wood															⊙				
SPACED	100' Max		⊙	⊙	⊙													⊙		
	90' Max																			
	Varies												⊙			⊙				⊙

## Section 7 Site Elements

### Light Fixtures

A lighting fixture is the frame or housing for holding the lamp in position and for protecting it from damage. Light fixtures should be selected and located to maintain the minimum foot-candle requirements for safety and security precedence. DPW's Energy Branch should review proposed lighting fixtures, to include lamp characteristics such as optical control, efficiency, lamp color rendition, lamp life, cost and maintenance to ensure fixtures will help meet installation energy goals. The light fixture size should be proportional to the intended pole height. Light poles should be consistent and provide uniformity throughout the installation. The pole height shall be determined by their intended function. Exterior lighting shall be LED, when available.

### Light Fixtures and Poles for Formal/Pedestrian Areas

Lighting in formal areas, such as along sidewalks in Town Center, and at entrances to facilities, should appear similar to existing lights located along Fort Campbell's Streetscapes and in Town Center Park. Wall-mounted lighting may also be placed on the wall of a building or near a walkway or stairway.



Parking lot lighting fixture

### Light Fixtures and Poles for Parking Lots and Roadways

Cut off lighting refers to the large shoe-box shaped fixtures placed on tall poles and used to illuminate streets and parking lots in less formal areas or where they are otherwise required for safety reasons. They are designed to cut off light traveling to the top and sides of the fixtures, concentrating it down onto the parking lot, roadway or pedestrian crossing. The fixtures reduce the spillover of light where it is not wanted. Lighting of this type should be evenly placed throughout parking lots or along roadways, placed in planted islands in parking lots, or around the perimeter of the area that requires lighting. Primary roadways shall include lighting in accordance with local and industry standards.

### Other Lighting Types

Other types of lighting may be appropriate in some areas, such as outdoor architectural lighting used to highlight buildings, building surroundings, and signage. Spotlighting may be used to highlight signs and other important objects.



Lighting fixture

### 7.6 Utilities

Utility systems provide the basic infrastructure of power, communication, water, and sewer systems necessary for the operation of the installation. Utilities play a key role in the visual quality on an installation. Their primary impact on visual quality is the result of the clutter of overhead utility lines and poorly designed storm drainage systems. The visual and environmental impact of utilities should be minimized on the installation and balanced with maintenance requirements using the following techniques:

- Utility lines shall be placed below ground, in accordance with the Fort Campbell Technical Design Guide, to minimize negative visual impact.
- Overhead utility lines should be located out of view of main public visibility areas or screened to be as unobtrusive as possible by avoiding major circulation corridors.
- Storm drainage requirements should be met, where possible, using Low Impact Development methods, which include attractive plantings that double as landscape features.

#### Overhead Transmission/ Distribution Lines

Overhead transmission/ distribution lines should be minimized, but where required, should be aligned along the edges of land use areas and open sites to avoid dividing an area and creating gaps or unusable areas. Overhead lines should be designed and located as to minimize their visual impact, but ensure access for future periodic maintenance. Alignments along hillcrests or steep grades should be avoided. General guidelines for transmission/ distribution lines include the following:

- Trees or other vegetation should not be planted beneath or adjacent to overhead lines in accordance with the TDG.
- Minimize long views or silhouette views of overhead lines from primary roads or other public viewing areas.
- Avoid the "tunnel effect" of long, straight, uninterrupted views along the alignment by clearing vegetation only within the right-of-way that threatens the overhead lines.
- Use vegetation or topography to screen and minimize visual impact of overhead lines in accordance with the TDG.
- Minimize the number of poles and pole height and use consistent pole designs.

## Section 7 Site Elements

### Sewer and Water

All sewer and water facilities are the responsibility of CH2M Hill and shall be provided in accordance with the Fort Campbell Water and Wastewater Design and Construction Standards, available from CH2M Hill. See the Fort Campbell Technical Design Guide or contact CH2M Hill at 931.431.5677/2015 for more information.

### Storm Drainage

Installation storm drainage systems should be appropriate to the character of development they serve. Storm drainage systems in densely developed areas typically require curbs, gutters and underground lines. Storm drainage systems in lower density areas can utilize drainage swales and ditches that are contoured to be compatible with the natural landform. In all cases, Low Impact Development (LID) techniques shall be utilized early in project planning to plan for quality and quantity storm water management on project sites.

The use of large-scale retention ponds shall be minimized. When they are used, they should be designed to appear as a natural amenity that is part of the natural contour of the land, rather than a square or rectangular hole in the ground. Retention ponds that are designed to be dry most of the time can be utilized for recreational purposes or as open space. In either case, the areas should be designed to conform to the natural contours of the land.

LID techniques such as bio-retention areas and rain gardens, both within parking lots and located around building sites, shall be used where possible to provide an attractive alternative to more traditional retention ponds that double as landscape areas. Parking lots should also have covered drainage at the entry to prohibit water from draining into adjacent streets. Additional information on Low Impact Development techniques is available at <http://www.epa.gov/nps/lid/index.html>, within the Landscaping Section of this report and through the US Army Corps of Engineers.



**Bio-retention area**

# Appendix A: Plant Palette

## Bio-Retention Plant Palette

### Large Grasses 3-6 ft.

Scientific Name	Common Name
Andropogon gerardii	Big bluestem
Bothriochloa laguroides ssp. torreyana	Silver beardgrass
Chasmanthium latifolium	Inland sea oats
Elymus canadensis	Canada wild rye
Bothriochloa laguroides ssp. torreyana	Silver beardgrass

### Small - Medium Grasses 1 ½ to 4 ft.

Scientific Name	Common Name
Deschampsia caespitosa	Tufted hairgrass
Dichanthelium sphaerocarpon	Roundseed panicgrass
Elymus hystrix var. hystrix	Eastern bottlebrush grass
Panicum virgatum	Switch grass
Festuca arundinacea	Kentucky 51 fescue

*Note: Grass selection should be based on Bio-retention area size, user maintenance needs and limits.*

# Appendix A: Plant Palette

## Perennials/Ground Covers

Scientific Name	Common Name	Cultivars or Comments
Hemerocallis middendorffii	Middendorffii Daylily	
Hemerocallis minor	Minor Daylily	
Sedum species	Sedum	Select appropriate species for the site
Liriope species	Lillyturf	Select appropriate species for the site

## Shrubs

Scientific Name	Common Name	Cultivars or Comments
Ilex glabra	Inkberry	Any appropriate cultivar for bio-retention size
Itea japonica 'Beppu'	Beppu sweetspire	If there is a better cultivar for the site it should be used
Juniperus communis 'Wiltonii	Blue Rug juniper	
Viburnum dentatum	Arrowwood viburnum	Any appropriate cultivar for bio-retention size
Physocarpus opulifolius	Ninebark	Any appropriate cultivar for bio-retention size
Buxus microphylla	Littleleaf boxwood	Any appropriate cultivar for bio-retention size



# Appendix A: Plant Palette

## Small Trees

Use New Replacement Tree List available from DPW-ENV Forestry to select appropriate trees and spacing requirements.

Scientific Name	Common Name	Cultivars or Comments
<i>Cercis canadensis</i>	Redbud	Cultivars should match conditions
<i>Amelanchier canadensis</i>	Serviceberry	Multiple stems

## Medium/ Large Trees

Scientific Name	Common Name	Cultivars or Comments
<i>Chionanthus virginicus</i>	Frindgetree	
<i>Acer rubrum</i>	Red maple	Has surface roots
<i>Quercus palustris</i>	Pin oak	
<i>Quercus phellos</i>	Willow oak	Has large surface roots
<i>Liquidambar styraciflua</i>	Sweetgum	Use fruitless varieties, has large surface roots
<i>Nyassa sylvatica</i>	Black gum	Make sure site has appropriate soils.
<i>Platanus occidentalis</i>	Sycamore	Select appropriate cultivar for the site
<i>Fraxinus pennsylvanica</i>	Green ash	
<i>Taxodium distichum</i>	Bald Cypress	Select appropriate species for the site

*Note: Prior to selection please check information regarding inundation, drought, and salt tolerance. Also confirm mature height and spread limits, and cold and heat tolerance for the site.*

# Appendix A: Plant Palette

## Parking Lot Tree and Shrub Plant Palette

### Shrubs / Small (4 to 5 feet at maturity)

Scientific Name	Common Name	Cultivars or Comments
<i>Ilex glabra</i> 'Chamzin'	Inkberry	When there is better cultivar for the site it should be used
<i>Viburnum opulus</i> 'Compactum'	Cranberrybush Viburnum	If there is a better cultivar for the site it should be used

### Shrubs / Low growing (2 to 3 feet at maturity)

Scientific Name	Common Name	Cultivars or Comments
<i>Itea japonica</i> 'Beppu'	Beppu sweetspire	If there is a better cultivar for the site it should be used
<i>Juniperus communis</i> 'Wiltonii'	Blue Rug juniper	If there is a better cultivar for the site it should be used
<i>Physocarpus opulifolius</i> 'Nana'	Dwarf Eastern Ninebark	If there is a better cultivar for the site it should be used
<i>Buxus microphylla</i>	Littleleaf boxwood	
<i>Spirea x bumalda</i>	Bumald spirea	Chose the cultivar that is best for the site

# Appendix A: Plant Palette

## Large Trees (Over 50 feet at maturity)

Use New Replacement Tree List available from DPW-ENV Forestry to select appropriate trees and spacing requirements.

Scientific Name	Common Name	Cultivars or Comments
Fraxinus americana	White ash	'Autumn Purple'
Quercus bicolor	Swamp White oak	
Gleditsia triocanthos	Honeylocust	Use thorn less variety/cultivar inermis 'Shademaster'

## Medium Trees (25 to 40 feet at maturity)

Scientific Name	Common Name	Cultivars or Comments
Ginko biloba	Ginko (Maiden Hair)	'Fastigiata', 'Princeton' 'Sentry', 'Shangri-la'
Ostrya virginiana	American hophornbeam	
Zelkova serrata	Japanese zelkova	'Village Green'

## Small Trees (10 to 25 feet at maturity)

Scientific Name	Common Name	Cultivars or Comments
Acer ginnala	Amur maple	
Crataegus crus-galli	Washington hawthorn	Use thorn less variety inermis

*Note: To protect newly planted trees from lawnmower and weed eater damage a trunk protector, that is adjustable to the growth of the tree, should be used.*

## Appendix B: Design Team Checklist

A completed Design Team Installation Planning Standards (IPS) Checklist should be completed for all projects that impact the appearance of an Army Installation. The Master Planner shall provide the checklist to all teams designing new facilities, additions, or renovations to existing facilities, or maintenance on the installation. The Design Team IPS Checklist is to be completed by the design team to assure the guidelines and standards have been considered and complied with in the design process and during project review.

The Designer of Record or Design Agent will provide a copy of the completed checklist, together with a signed certification statement with each design submittal (10% [pre-concept], 35%, 60%, and 95% for each MILCON projects). The Designer of Record will complete the checklist and verify compliance in the space provided. In the case of Design Build, all agents i.e. the Corps of Engineers, NAF, AAFES, tenants, etc. shall have the perspective design build contractors submit a completed IPS Checklist as part of their proposal. The completed checklist will be provided to the Master Planner for review with concurrence or denial. Upon a determination of concurrence by Planning Staff, the plan and the signed checklist are forwarded to the installation Master Planner for review and final approval. The accepted checklist shall become a part of the project record files.

If plans are denied for non-compliance at the installation or command level (where applicable) of review, an explanation of the denial will be provided to the Designer of Record. The plan and checklist can be resubmitted with revisions as indicated in the Explanation of Denial.

# Appendix B: Design Team Checklist

## 1. Project Title and Description:

Project Number:

Title:

Description:

## 2. Project Justification:

Purpose & Need:

## 3. Sustainable Design:

3.1 Has LEED Checklist been attached? (If not, obtain completed checklist)

Yes \_\_\_ No \_\_\_ (If not, obtain completed checklist)

Does project meet or exceed Silver level?

Yes \_\_\_ (Review project as submitted)

No \_\_\_ (Return submittal to design team for revisions to meet LEED Silver Requirement).

## 4. Site Planning:

4.1 Was the site plan prepared for the proposed project utilizing the IPS Design Process?

Yes \_\_\_ No \_\_\_

4.2 Does the site plan include Site Planning Design Components as stated in the IPS?

Yes \_\_\_ No \_\_\_

4.3 Does the site plan meet AT/FP requirements?

Yes \_\_\_ No \_\_\_

## Appendix B: Design Team Checklist

### Design Comments on Site Planning:

4.4 Does the site plan comply with the IPS?

Yes \_\_\_ No \_\_\_ (If not, provide justification)

4.5 Does the site plan meet approved installation master plan siting compliance?

Yes \_\_\_ No \_\_\_ (If not, provide justification)

4.6 Has NEPA been initiated for the construction effort in accordance with AR 200-2?

Yes \_\_\_ No \_\_\_

4.7 Has airspace criteria been considered relative to airfield accident potential zones?

Yes \_\_\_ No \_\_\_

### 5. Buildings:

5.1 Does the building exterior design meet the Building Design Objective defined in the IPS?

Yes \_\_\_ No \_\_\_

5.2 Is the exterior building designed to meet the Structural Characteristics defined in the IPS?

Yes \_\_\_ No \_\_\_

5.3 If the project is a renovation or addition, does the proposed renovation or addition meet IPS Building Design and Structural Characteristics?

Yes \_\_\_ No \_\_\_

5.4 If the project is a renovation or addition to a historic building, does the renovation or addition maintain the design integrity of the original building or meet Historical Approval Agencies' requirements for any other deviations?

Yes \_\_\_ No \_\_\_

5.5 Does the building exterior design meet AT/FP requirements (if applicable)?

Yes \_\_\_ No \_\_\_

## Appendix B: Design Team Checklist

Designer comments on exterior building design:

5.6 Does building design comply with the IPS?

Yes \_\_\_ No \_\_\_ (If not, provide justification)

### 6. Circulation:

6.1 If the project includes roadway construction, does the proposed plan meet Federal Highway and/or Local Guidelines?

Yes \_\_\_ No \_\_\_

6.2 If the project includes roadway construction, does the proposed plan meet AT/FP Roadway Setback Requirements?

Yes \_\_\_ No \_\_\_

6.3 If the project includes roadway construction, does the proposed plan include applicable Roadway Alignment and Intersection Guidelines?

Yes \_\_\_ No \_\_\_

6.4 If the project is an entrance gate, does the proposed plan include Entrance Gate Guidelines and Standards?

Yes \_\_\_ No \_\_\_

6.5 If the project includes parking, does the proposed plan meet the Parking Lot Location/Design Guidelines?

Yes \_\_\_ No \_\_\_

6.6 If the project includes pedestrian circulation, does the proposed plan meet the Walkways and Pedestrian Circulation Guidelines?

Yes \_\_\_ No \_\_\_

6.7 If the project includes bicycle circulation, does the proposed plan meet the Bikeway Guidelines?

Yes \_\_\_ No \_\_\_

## Appendix B: Design Team Checklist

Designer comments on circulation design:

6.8 Does circulation design comply with the IPS?

Yes \_\_\_ No \_\_\_ (If not, provide justification)

### 7. Plant Material:

7.1 All projects for new construction should include the planting of trees shrubs and/or groundcover. Does the proposed project include a planting plan?

Yes \_\_\_ No \_\_\_

7.2 Does the proposed planting plan meet AT/FP requirements?

Yes \_\_\_ No \_\_\_

7.3 Does the proposed planting plan include material recommended in selected Plant Palette Matrix included in the IPS?

Yes \_\_\_ No \_\_\_

Design comments on landscape design:

7.4 Does landscape design comply with the IPS?

Yes \_\_\_ No \_\_\_ (If not, provide justification)

### 8. Site Elements:

8.1 If the project includes site furnishings, does the proposed plan follow the guidelines in the IPS?

Yes \_\_\_ No \_\_\_

8.2 If the project includes signs, does the proposed plan meet the Sign Standards in the IPS?

Yes \_\_\_ No \_\_\_

8.3 If the project includes exterior lighting, does the proposed plan meet the Exterior Lighting Guidelines?

Yes \_\_\_ No \_\_\_



## Appendix B: Design Team Checklist

8.4 Will all transmission/ distribution and service lines be located underground?

Yes \_\_\_ No \_\_\_

8.5 Will all substation and transformers be designed and located as to minimize their visual impact?

Yes \_\_\_ No \_\_\_

8.6 Will all sewer and water lines to be located underground?

Yes \_\_\_ No \_\_\_

8.7 Are all storm drains systems designed to meet guidelines?

Yes \_\_\_ No \_\_\_

Designer comments on site elements design:

8.8 Does site elements design comply with IPS?

Yes \_\_\_ No \_\_\_ (If not, provide justification)

### 9. Antiterrorism (Security):

9.1 Have installation boundary setbacks been included?

Yes \_\_\_ No \_\_\_

9.2 Have building setbacks from road, parking, and other buildings been included?

Yes \_\_\_ No \_\_\_

9.3 Do site plans and landscape plans include the criteria outlined for AT/FP?

Yes \_\_\_ No \_\_\_

Designer comments on AT/FP compliance:

9.4 Does AT/FP Design comply with the IPS?

Yes \_\_\_ No \_\_\_ (If not, provide justification)

# Appendix B: Design Team Checklist

I hereby certify that the information provided is in compliance with the guidelines of the installation or applicable IPS, except as justified as non-compliance.

\_\_\_\_\_  
Designer of Record (Print and Sign)  
Concur \_\_\_\_\_ Deny\_\_\_\_\_ (Explanation of denial is attached)

\_\_\_\_\_  
Date

\_\_\_\_\_  
IPS Staff Reviewer (Print and Sign)  
Concur \_\_\_\_\_ Deny\_\_\_\_\_ (Explanation of denial is attached)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Command Review (If applicable)

\_\_\_\_\_  
Date