

## **X.1. General**

### **1. Purpose**

The site and landscape design guidelines herein support the enhancement of the campus open space system as describe in the campus master plan. An example of existing prominent open spaces, Wheeler mall and Brock Commons – a landscaped north- south campus axis.

### **2. General Guidelines**

A. New Spaces. New landscape design should open views to historic and architecturally significant existing buildings.

B. Open space diversity. Site development should create a variety of open space types and experiences for campus users.

C. Support safety. Site amenities and plantings should enhance campus security through careful attention to circulation routes, lighting and maintaining visibility.

D. Respecting the site. The site development plan must demonstrate consideration for unique site features including topography, hydrology, and existing vegetation and acceptable methods to preserve aspects of the site deemed desirable by the university.

E. Site preparation. Mass clear- cutting or grading of a site to the extent that all native or existing conditions are lost is prohibited. See Campus Tree management Plan

## **X.2. Hardscape**

### **1. Application**

Hardscape is to be used to provide a durable, all- weather surface to accommodate pedestrian activity and outdoor gatherings and activities. Whenever possible, Hardscape materials shall be chosen to maximize pervious surface area.

### **2, Location**

Hardscape is intended generally for sidewalks and paths, plazas/building entrances, transit stops, and gathering places adjacent to building or building groups. Materials should be chosen based on the activities intended for the location, including such considerations as the use of a combination of materials for prominent locations and compatibility with the materials and styles of adjacent buildings.

#### **A. Sidewalks and Paths.**

- Most sidewalks and paths require only scored concrete while more prominent pedestrian areas, such as a concourse, may require additional accent surfaces, such as brick pavers, to visually reflect their importance. Such walks may also include brick banding.
  - Sidewalks shall be a minimum of eight feet wide.
  - To the extent possible use walkways as the edge of planting beds to reduce edging of lawn.
- B. Plazas, Building Entrances and Gathering Places.** A combination of Hardscape materials shall be used to distinguish building entrances, public spaces and gathering places.
- Pavement patterns in plazas and gathering spaces should include a combination of materials and colors that may be served from those in adjacent buildings.
  - All walkways for building entrances, plazas and feature areas shall consist of compacted dense grade base, concrete sub slab, mortar bed and brick pavers or concrete topping slab.
- C. Transit stops.** A suitably sized, all-weather surface shall be provided along with other furnishings for transit stops.

### **X.3. Surface Parking**

Surface parking areas shall be minimized from public views, to the degree practicable, by location and / or through landscape screens. Parking areas shall be arranged properly for vehicular and pedestrian safety and landscaped for shade and scale.

#### **1. Relationship to Context**

Surface parking areas should be located away from open spaces and streets. Preferably parking lots are located internally behind buildings. In this manner, access to and use of the lot may be shared among neighboring buildings.

#### **2. Pedestrian Access**

Convenient pedestrian paths should be designed into the arrangement of large parking lots to direct pedestrians to designated crossings and pedestrian linkages.

#### **3. Parking Lot Landscaping**

Landscaping shall be provided along the perimeter and within the interior of surface parking lots. Landscape areas shall be protected from vehicle encroachment.

##### **A. Perimeter Landscaping.**

Landscaping shall be provided along the perimeter of any parking areas not bounded by a building.

**B. Interior Landscaping.**

Landscaping islands and circulation should be arranged to breakdown the overall scale of a large surface parking area so that it might be experienced as a group of small parking areas.

- Landscaping islands shall be sized to provide sufficient root growth for canopy /or understory trees.
- Internal landscape islands shall be a minimum of 160 square feet (9 feet x 18 feet, typical).
- Include a landscape island for each contiguous 15 spaces

**C. Drainage.** Stormwater drainage should be integrated with the landscape design to include opportunities for on-site retention, such as through rain gardens, bioretention cells or swales.

#### **X.4. Planting Materials**

Planting design is an important component in enhancing the appearance of a successful campus. Plant selection, quality of plant material and ongoing maintenance should be consistent throughout the campus to convey the visual image of a single integrated open space. Plant material used for landscaping purposes under these guidelines shall be selected under ANSI Z60.1-2012 American Standard for Nursery stock and from the recommended plant list in Appendix A.

**1. Irrigation, Drainage, and Maintenance**

Planting and irrigation design shall promote water conservation through selection of plant materials with low water requirements, by grouping plants with similar water needs together and utilizing water-conserving irrigation design and equipment.

- High maintenance areas shall be limited to building entrances and other easily accessible, prominent locations.
- Yard inlets and area drains in landscape areas shall be located in grass areas, where practical, instead of planting beds.

**2. Recommended Plant List**

The recommended plant list in Appendix A classifies planting material under the following categories:

Ornamental tree, understory tree, canopy tree, groundcover and vines, shrub, ornamental grasses, and annuals.

A. Plant Selection

- Evergreens plants shall be a primary selection in open space designs.
- Place emphasis on the selection of native trees and trees with spring and / or fall color
- All trees shall be hand- selected by the university's representative at the growing source to ensure consistent quality.

3. Trees

Trees shall be used to provide shade; define edges of street paths and open spaces; and to support the intended pedestrian-scale of the campus

A. Street and Path Trees.

- Street trees shall be located within the planting strip between the sidewalks and curb. The strip shall be of sufficient width to prevent damage to Hardscape due to root spread. (Planting guidance see campus tree management plan).
- Streetscapes with building setbacks of 25 feet or more (measured from curb) shall include canopy trees to reinforce the intended street width proportions described in tree management plan. Streets with narrow setbacks may use ornamental or understory trees.
- Off- street paths shall be lined with ornamental trees, at a minimum, and spaced between 40-80 feet.

B. Trees in Open Spaces.

- Trees located within open spaces shall be arranged consistently with the intended geometry of the open space and shall be located so as to preserve intended views across or through the space.
- Larger open spaces should include a combination of understory and canopy trees
- Understory trees are sufficient for most plazas.
- Sufficient room shall be provided in tree wells to accommodate the expected root spread of the tree type.

C. Tree in Parking Lots.

Understory and canopy trees shall be used in surface parking areas for shade and to reduce heat islands. All parking spaces shall be within 100 feet of a shading tree, which may include trees within perimeter landscaping areas. See also Tree Management Plan.

#### 4. Shrubs

- A. Defining Space. Shrubs shall be used to define spaces as needed but shall not interrupt the open flow of grassed areas.
- B. Pruning. Select shrub material that performs well with limited pruning.
- C. Maintenance. All shrubs shall be planted a minimum of five feet from buildings for ease of building maintenance and window cleaning.

#### 5. Existing Plantings

The university places a high value on its existing tree canopy and requires its partners in development, contractors and all vendors working on campus to respect and preserve existing trees.

- A. Existing Trees. Generally, only those trees which are necessary for construction on the site shall be removed. Refer to Tree Management Plan.
  - Removal of trees having a diameter at breast height of four inches or more is discouraged.
  - Methods, as described in Tree Management Plan 2012, Shall be used to protect all trees and major plant material designated by the university during construction. The entire area below or within the drip line shall be enclosed within fencing to protect root systems during construction.
  - The university will monitor protection fencing and will assess fines up to \$1000 per infraction if tree protection fencing is not kept in place and maintained during construction.

#### X.5 Irrigation Systems

These points are general guidelines. All irrigation systems shall be automatic. All systems components of the same function shall be a uniform brand. All automatic irrigation systems shall be controlled by the Landscape and Grounds department central control computer in Bristow hall. All systems will have a rain sensor shut-off and soil moisture shut- off sensor.

- 1. Field controllers.
  - All controllers will be Hunter ICC-800PL Models with compatible IMMS radio control system. ICR equipped plug in,
  - Plastic cabinet, internal transformer and 32 stations capable.
  - Radio test s must be performed and approved by Hunter irrigation before installation to ensure strong radio link to central control system.
  - Controller must be grounded and certified to validate warranty.

## 2. Site System design.

- All slopes greater than thirty (30) degrees shall be watered by stream spray, rotor, drip, or other low precipitation irrigation heads if the given controller cannot cycle at least two minutes several times a night.
- All laterals shall be sized so as not to exceed a ten percent pressure drop from the nearest to farthest head of any valved lateral, and so not to exceed a velocity of five feet per second in any section.
- All remote control valves shall be sized for a minimum pressure drop of two (2) PSI for the given GPM of lateral and installed per irrigation drawing specifications.
- Plant materials of differing watering requirements shall not be serviced by the same valve. In no case shall turf be on the same valve as any other plant material, unless by Longwood Landscape & Grounds department.
- In-line subsurface drip irrigation is to be used for shrubs in rows or closely spaced groups. This is preferred over individual emitters. This preferred over individual emitters. If individual emitters are used there should be a minimum of 2 per plant.
- Irrigation heads of different precipitation rates shall not be serviced by the same valve.
- Where irrigation is solely dependent upon quick coupling valves, they shall be spaced no more than fifty (50') feet apart.
- Complete irrigation coverage of planted areas is required.
- Valve boxes and other irrigation boxes shall be green in lawn areas and black in other areas (such as shrubs groundcovers, and mulched areas).
- Flow sensors and master valves shall not be located under concrete or asphalt. Flow sensors and master valves shall be located in areas such as soil or lawn where digging can occur to access for maintenance and repair.
- In areas of high vehicular traffic that constantly endure on driveways, parking lots, walkways, fire lanes and any location that vehicles may intentionally or unintentionally drive over or through, require the use of concrete sprinkler blocks to protect the various heads from common vehicular traffic, to be used along sidewalks and other paving.
- The irrigation contractor shall provide as-built irrigation drawings to Longwood Landscape & Grounds department and Capital planning , per their specifications.

