

OPEN SPACE, LANDSCAPE AND STORMWATER ON THE CLEMSON CAMPUS

Introduction

The Clemson campus is memorable for many reasons including its iconic buildings, open space network, and well-designed landscapes. The combination of the open space structure and the landscape define places and views that leave a positive and lasting impression, especially for first-time visitors. Looking forward, the Framework Plan will build upon this powerful structure with the goal of enhancing the landscape, extending this structure to new areas, and making landscapes more functional.

Trends

Landscape design has always been a central aspect of campus design contributing to the memorable spaces that define many universities—the Diag at Michigan, the Oval at The Ohio State University, and Harvard Yard, among many others. While this tradition remains a key feature of campus landscape design, in recent years there has been an increased emphasis on landscapes that are as functional as they are beautiful. Today, environmental concerns and stormwater management regulations lead many campuses to create “working landscapes”—landscapes that provide shade, manage water, and protect habitats among other objectives. To that end, an integrated approach to landscape design is now needed as existing landscapes are rethought and as new spaces are introduced.

Considerations

Clemson is defined by many memorable open spaces and landscapes. The central green spine of the campus is especially memorable. Beginning with Bowman Field and Carillon Garden, extending to the Class of 1960 Green, the Amphitheater, and the Reflecting Pond, and terminating on Cooper Library, this spine is one of the most powerful of college landscapes. Opportunities exist to further define this central green as new landscapes are designed south of the Library, notably, the emerging quad now defined on the east by the Academic Success Center and on the west by the Watt Family Innovation Center.

The Highway 93 or Walter T. Cox corridor leading into the campus from the east is memorable for the boulevard treatment of the street itself and the landscapes that flank the road including President’s Park and the iconic Bowman Field landscape—a landscape that serves as window to the modern as well as the historic campus. Trustee Park and Fort Hill preserve important places in the history of University and contribute to the open space structure of the central campus. The recently completed Scroll of Honor Plaza honors Clemson alumni, and Spirit Walk and the Tiger Band Plaza pay tribute to the Clemson Band, its history and members. Woodland Cemetery on Cemetery Hill directly south of Memorial Stadium is also an important part of the open space system. Beyond the campus core, the open space structure is defined by landscapes reflective of

Clemson's land grant legacy including the agricultural fields at Calhoun Bottoms, the South Carolina Botanical Garden, and the golf course.

Water is also an important feature of the Clemson landscape. Hunnicutt Creek, the former Seneca River basin, and Lake Hartwell, and its associated dikes, all shape the landscape and layout of the campus. The reengineering of the Seneca River in the 1950s to create Lake Hartwell resulted in important stormwater management changes. Today, stormwater flows toward the former river basin where it is pumped up and over the Lake Hartwell dikes. This unique situation, combined with stormwater regulations, requires careful water management planning along Hunnicutt Creek and on the interior of the campus.

Feedback received from the Campus Planning Task Force and landscape/stormwater stakeholders includes:

- Important to protect existing key open space on campus and to continue planning for long-term preservation of the tree canopy
- Consider opportunities to expand open space, including growing Bowman Field across Walter T. Cox Boulevard to unite north and south parts of campus and extending open space from Death Valley to the core to strengthen east-west connections
- Walter T. Cox Boulevard should be considered the ceremonial entry to campus, but the use Perimeter Road should increase for vehicular traffic; the goal is to reduce vehicular traffic along Walter T. Cox Boulevard to make pedestrian crossings safer
- As Perimeter Road increases for vehicular traffic, enhancing its character should be considered as well
- Consider trail opportunities along Hunnicutt Creek and connecting to Lake Hartwell

Opportunities

The existing open spaces and landscapes of the Clemson campus define a structure and approach for the future open space system as well as future landscapes environments. Opportunities exist to extend this structure to new development areas, thereby defining future circulation corridors, quadrangles, and other open spaces. Opportunities also exist to create more outdoor study, dining, and recreational landscapes in association with existing and proposed buildings. Outdoor environments of this nature would build upon the success of recent outdoor study spaces at the Library and at the Fernow Street Café, among others. Establishing a network of such spaces would contribute to the aesthetic and experiential qualities of the campus.

The potential for pedestrianization of the campus core, along with the development of a bike network, provide opportunities for extending landscape corridors throughout the campus linking into the existing open space structure. Options for redesigning existing vehicular roadways as pedestrian, bike, and landscape corridors will be a focus during the alternatives phase of the planning process. A major opportunity exists along Highway 93 or Walter T. Cox Blvd. which is now under University ownership. Redesign of this streetscape as a pedestrian and bike friendly landscaped corridor is a key opportunity. Coordinating the design of the corridor with landscape concepts for Bowman Field and traffic management strategies will be explored.

Stormwater Management Strategy

Coordinated stormwater strategies also present significant opportunities to address the practical need to move water while introducing best management practices (bmps) that address the rate of flow and water quality concerns. Hunnicutt Creek, in particular, offers several opportunities for mitigating existing erosion and flow problems while providing new pedestrian routes and a renewed landscape corridor through the campus. Opportunities will be explored for coordinating proposed stormwater management improvements with landscape and circulation enhancement projects. An integrated landscape, stormwater, and circulation framework is the ultimate goal.

The stormwater management strategy developed by the University in conjunction with their consultant team will be coordinated with broader land use, landscape, and circulation concepts for the campus. The proposed strategy addresses Clemson's obligations under its MS4 permit (Municipal Separate Stormwater Sewer System) for the campus. The MS4 permit applies to the area generally bound by Highway 93 / Douthit Hills on the north; Highway 76 on the east; Hunnicutt Creek on the south; and, the Lake Hartwell dike on the west.

The proposed stormwater system for the campus includes several strategies in each of the sub-watersheds in the MS4 permit area. These include: 1) ponds and underground detention areas; 2) forebays¹ along the upper reaches of Hunnicutt Creek and at key points on the Seneca River basin; 3) riparian zones and stream restoration measures along Hunnicutt Creek and the Seneca basin; and, 5) stormwater pipes. The goal is to establish, over time, an integrated stormwater conveyance system leading to the pump station at Lake Hartwell where all water is discharged to the Lake.

Important landscape / stormwater infrastructure coordination opportunities exist along all branches of Hunnicutt Creek where riparian zones and stream restoration projects are proposed. These interventions will be coordinated with landscape and potentially recreational trail projects. The proposed pond locations also offer opportunities. Two ponds are proposed: 1) the "Suber Dam" located on the southern end of the central landscape corridor of the campus (north of Perimeter Road); and, 2) north of the Upper Intramural Fields (south of Highway 93 between Centennial and Williamson Boulevards).

Constraints

A key open space and land use constraint relates to the stormwater system established for the campus as part of the engineering of Lake Hartwell. As a result, flooding is a possibility in the areas west of Perimeter Road where the Calhoun Bottoms Field Laboratory and several athletics fields and facilities are located. This situation limits the development and use of land in these areas.

Topography is also another constraint relative to the open space and landscape structure. While the ridges and valleys of the campus provide visual interest, they also present challenges for universal mobility. Addressing this issue in established areas of the campus presents several challenges which have been the focus of recent planning studies. In new and emerging areas of the campus, universal mobility will be a key objective.

1. A sediment forebay is an impoundment, basin, or other storage structure designed to dissipate the energy of incoming runoff, and detain the runoff for initial settling of coarse particulates.

The Way Forward

The future open space, landscape, and water management framework for the campus will be a major focus in the alternatives phase of the Framework Planning process. The goal will be to develop integrated solutions simultaneously addressing multiple issues including the aesthetic quality of the campus, universal mobility, and best management practices for stormwater management. In other words, a “working landscape” that preserves and enhances Clemson’s current landscape framework will be the overarching goal. Based on feedback and direction from the Campus Planning Task Force, the planning and design of this landscape will address the following:

Opportunities for enhancing and extending the open space structure of the campus also will be explored. As noted, the extension of the pedestrian route system provides the opportunity to connect existing open spaces by means of landscape corridors. Other opportunities exist to expand existing open spaces. Bowman Field, for example, could be expanded to encompass campus land north of Highway 93, now that the road is under University control. New quadrangles will be explored in association with the redevelopment of the Motor Pool site, redesign of the Ag Quad, and in a new engineering district.

Streetscapes will be an important part of the landscape framework. The Highway 93 corridor will be reimagined as a landscape gateway with improved bike and pedestrian connectivity. The potential pedestrianization of the campus core presents opportunities to rethink internal streets in association with landscape improvements. This will include bicycle circulation and the need to sensitively integrate bike parking areas into the campus landscape. Bike “corrals,” concentrated and screened bike parking lots, will be considered. As campus vehicular access is shifted to Perimeter Road as part of the mobility strategy, the landscape along the road will be reimagined to improve the arrival and wayfinding experience.

A comprehensive shade strategy for the campus will be developed as part of an integrated landscape and pedestrian route system with the objective of making walking more pleasant and enjoyable. Universal mobility objectives will be addressed, wherever possible, in developed as well as new districts of the campus. The heat island in surface parking lots will be mitigated by tree planting. Shade and tree planting strategies, in turn, will be coordinated with water management in such a way as to manage flow and promote tree growth. Shade will also be considered relative to building facades. East and west facades subject to excessive solar heat gain will be mitigated by the strategic placement of trees.

With regard to **stormwater management**, the Suber Dam project provides the opportunity to reimagine the southern end of the central green spine of the campus. This landscape corridor will be rethought in conjunction with the new quad north of STI. The Hunnicutt Creek corridor will be reimagined to include potential jogging and biking trails, incorporate forebays, and provide a landscape strategy for the riparian corridor. Other bmps will be explored for the interior of the campus in association with pedestrianization or other landscape projects.