



THE UNIVERSITY OF KENTUCKY

Campus Landscape Guidelines

APRIL 2015

Updated April 2019



▲ ILLUSTRATIVE PLAN : : EXISTING CONDITIONS



▲ ILLUSTRATIVE PLAN : : 2013 MASTER PLAN - THE LANDSCAPE GUIDELINES ARE PROVIDED AS A SUPPLEMENT TO THE 2013 MASTER PLAN



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INTRODUCTION



BACKGROUND

In the fall of 2013, following the completion of the University of Kentucky (UK) Campus Master Plan (documented separately), the university retained Sasaki Associates to prepare landscape concept plans for 15 significant landscape enhancement areas of the campus, and to address a number of campus-wide landscape issues related to planting design. The enhancement areas were selected on the basis of their importance as identified in the campus master plan. The preparation of the concept plans involved the development of key landscape design ideas that not only apply to the enhancement areas, but to the whole campus. Those ideas, along with detailed implementation recommendations, are summarized in this document as a set of campus landscape guidelines.

PURPOSE

The campus landscape design guidelines' purpose is to provide guidance to those who are responsible for the design and maintenance of the University of Kentucky campus landscape. The guidelines are intended to encourage the orderly development of the landscape in a way that serves the functional, aesthetic, ecological, and management requirements of the university in a consistent way over time. The guidelines are provided to overcome the fragmentation of landscape that can accompany the incremental implementation in discrete projects separated in time and funding, and staffed with different design teams.

PRINCIPLES

The university seeks a landscape of consistent order and unified design, guided by the following general principles.

HUMAN CONNECTION

There is a deep, emotional significance attached to the campus landscape by many constituent groups whose formative years and daily lives are intimately associated with the campus environment. This association with the campus can evolve into a true affection for place that can remain meaningful throughout a lifetime, and influence recruitment, retention, and giving. A coherent landscape with a clear identity will enhance the human connection.

THE EXPERIENCE OF NATURE

The campus landscape is significant in the real connection it offers to the natural world of plants, upon which all life depends. In our modern world of virtual experience and detachment from nature, all connections with the natural world become more meaningful and significant. The designed landscape is, indeed, a cultural expression of our relationship to nature. A campus design that consistently recognizes the timeless value of the experience of nature will serve the campus community well.

SUSTAINABILITY

A well-planned campus landscape can support the university's commitment to sustainability by enhancing ecosystem services such as cleansing of air and water, regulating micro and macro climate, soil building and erosion control, habitat enhancement, and improvement of human health and well-being. These benefits would extend to the community surrounding the campus as well. Thoughtful, well-designed outdoor spaces will also promote sustainability by providing elegantly simple access to great facilities for walking, bicycling, use of public transportation, and recycling.

APPROPRIATENESS

A campus landscape design inspired by the local place and the flora of the Bluegrass physiographic region in which it resides will embody an authenticity and ecological pragmatism. The communities of plants which have evolved in this region for thousands of years will serve as a resilient palette for the campus landscape. It will also manifest a regionally-appropriate campus image.

AESTHETIC VALUE

A beautiful campus is not necessary to an education, but it is necessary to a full education. Attention to the quality of daily experience through the architecture and landscape of the campus is important for its own sake, but also as a reference that will guide the values of graduates and future leaders. The positive psychological benefits of beautiful surroundings are just as important as more measurable functional requirements of the landscape.

USE

A well-designed landscape will serve the needs of campus constituents for functional space. Well-structured places for circulation, access, socializing, recreation, and gathering serve the needs of campus students, faculty, staff, and visitors.

EFFICIENT MANAGEMENT

A well-ordered, intelligent, and purposeful landscape can bring a commensurate level of order, efficiency, and system to the maintenance of the landscape.





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LANDSCAPE
GUIDELINES



▲ CLASSIFICATION OF STUDY SITES (EXISTING CONDITIONS)

CAMPUS STRUCTURE

It is important that the university grounds be unified, since it is only through unity that an overall design can attain force. **To achieve design unity, it is recommended that the fundamental structure of the landscape be defined by several key landscape types: civic open spaces, streetscapes, pedestrian corridors, and quadrangles and courtyards.** It is proposed that each landscape type subscribe to the general guidelines that follow. The first three landscape types share many of the same design motives, whereas the last type, quadrangles and courtyards, is distinctly different. Civic open spaces, streetscapes, and pedestrian corridors all should seek to achieve clarity through design simplicity and appropriate institutional scale. They should evoke a quality of calm free of distractions and discord. They are the landscapes largely responsible for the campus image. Quadrangles and courtyards should be treated more freely. They are the landscapes available for individual, location-specific designs, garden-scale elements, and unique features that are usually inappropriate when applied indiscriminately in the larger civic, street, and connector spaces of the campus.

- 
-  Civic Open Space
 -  Streetscapes
 -  Pedestrian Corridors
 -  Quadrangles and Courtyards




▲ CAMPUS VIEWSHEDS (EXISTING CONDITIONS)

CAMPUS VIEWSHEDS

Within the campus landscape there are a number of views important to retain because they are iconic, help with orientation, visually connect various areas of the campus, create memorable pedestrian experiences, and offer unique vantage points from which to experience the expanse of the campus.

Almost all of the valuable campus viewsheds are linear avenues, pedestrian corridors, or existing tree-lined malls. Major view corridors among these are Funkhouser Building to Memorial Coliseum, Memorial Hall to Rose Street to William T. Young Library, the Main Building to Taylor Education Building, the Rose Street corridor, and the tree-lined malls leading to the Kirwan-Blanding Dorm Complex. Views within and around key open spaces are also important, such as the views from all directions across the Main Building front lawn at South Limestone Street, and views within and around the campus botanical garden. All of these views should be considered as new plantings are arranged. Views should also be maintained by regular pruning of avenue and mall trees to maintain long views beneath the canopies.

It is also important in the design of the campus landscape to consider views from inside campus buildings to the surrounding landscape. The ability to see plantings and natural scenery from inside buildings adds to the campus experience and sense of place.

- 
- ↔ Open views along pedestrian corridors
 - ▬ View corridors that terminate at significant buildings
 - ▭ Significant open spaces

CIVIC OPEN SPACES GUIDELINES

The campus civic open spaces include open spaces of campus-wide significance, such as the area surrounding the William T. Young Library, the lawn in front of the Main Building, and the open space in front of the White Hall Classroom Building. Streetscapes and major pedestrian corridors can also be understood as civic spaces, however, for purposes of these guidelines, linear circulation corridors are listed as two separate landscape types: streetscapes and pedestrian corridors. The purpose of the civic open spaces is to establish the fundamental order of the campus's most prominent public spaces and to embody and express the stature and quality of the University. These are the most identifiable landscapes of the campus and are responsible for the lasting image presented by the University grounds.

The following summarizes the civic open spaces guidelines:

DESIGN SIMPLICITY

The general compositional effects sought in the design of campus civic open spaces are repose and expanse. Civic open spaces should adopt a simple, understated design style that emphasizes unity and coherence. Broad expansive lawns framed by informal groups of large shade trees should define these park-like spaces. When this unified design approach is applied over large areas, a feeling of tranquility can emerge. The front lawn of the Main Building is a good example of this kind of open space.

CIVIC SCALE

The civic open spaces should be scaled to be consistent with large institutional buildings and the campus as a whole. These spaces should adopt a scale and consistency in keeping with the overall campus as a single landscape experience. Plantings in these spaces should consist principally of large, graceful trees arranged to define a clear spatial order rather than smaller, merely decorative plantings. Plants should be used in large bold strokes rather than as small individual gestures.

HIERARCHICAL PLANTING

Maintaining civic scale will be helped by organizing plants in a hierarchical manner, in which the position of smaller trees and shrubs is kept subordinate to the major space defining trees. Small flowering trees, shrubs, and herbaceous plantings should be kept at the edges of the civic spaces, as they would occur at the edge of a natural woodland. They should not occupy open areas where their small size will be displayed in awkward contrast to the larger space-defining trees and the scale of the open area itself.

SYMBOLIC VALUE

The scale and design of the civic open spaces indicate the importance of the University. Civic landscapes should function as visual symbols capable of representing the University. They are spaces that belong to and represent the entire University and the Commonwealth of Kentucky.

NATURALISTIC STYLE

The layout of plantings in these spaces on the campus today is largely naturalistic, rather than geometric. Round-topped deciduous trees (as opposed to pointed conifers) are typically used to frame these spaces. These practices should be continued.

CIVIC OPEN SPACES



Campus civic spaces present a lasting image of the University. Round-topped trees frame uninterrupted expanses of lawn.



The simple understated design of broad lawns and stately trees in campus civic spaces can evoke a feeling of repose.



The botanical garden at the Student Center, with its great variety of canopy trees, preserves its appeal by maintaining large unplanted open areas that emphasize expanse and unity.



Smaller ornamental planting should be located at the edges of civic-scale spaces.

STREETSCAPE GUIDELINES

Campus streetscapes are among the most significant landscapes because of their role in presenting a public face to the community. The overall objective for these landscapes should be to present an attractive, unified image of the University and to reduce urban heat island effect in the street environment by shading pavements with trees.

The following summarizes the streetscape guidelines:

VISUAL CONTINUITY

Within given street corridors, the overriding design objective should be to achieve continuity of effect. Since trees are often the most powerful character-defining elements in campus streets, the use of the same tree species, or very similar species, within a given street is desirable. Campus-wide it is important to employ a variety of tree species from street to street, to protect against diseases and pests that could have a devastating effect on a campus-wide monoculture. To the extent possible, other elements of the street, such as walls, lighting, and furnishings, should also be unified.

LANDSCAPE IMAGE

To improve the image and identity of the campus within the larger Lexington community, the campus streets and front yards that define the edges of campus and the major public corridors through the campus should be designed with lawns, trees, and other simple plantings to enhance the impression of the campus as an attractive, welcoming, park-like environment distinguished within the community.

PEDESTRIAN CHARACTER

While campus streets are the principal avenues for vehicular movement, they also serve as primary paths of pedestrian activity. Sidewalks should ideally be separated from the street curb by a planted tree lawn that physically and psychologically separates pedestrians from vehicles. All streets should provide shade for sidewalks, whether the trees are planted between the curb and sidewalk or outside of the sidewalk. Shade trees will also have the benefit of making the spatial scale of the street environment friendlier for walkers as well as people in vehicles.

STREETSCAPES



Street trees bring human scale and unity of image to the public edges of the campus. They are also significant in reducing urban heat island effect.



Where possible, trees should be located between the sidewalk and the street.



If trees cannot be located in a verge between the curb and the sidewalk, they should be located in the front yard area outside the sidewalk.



Simple unified plantings of trees and hedges create a clear campus image along public edges and through campus streets.

ROSE STREET

OPTION 1 : : PEDESTRIAN STREET (PREFERRED)



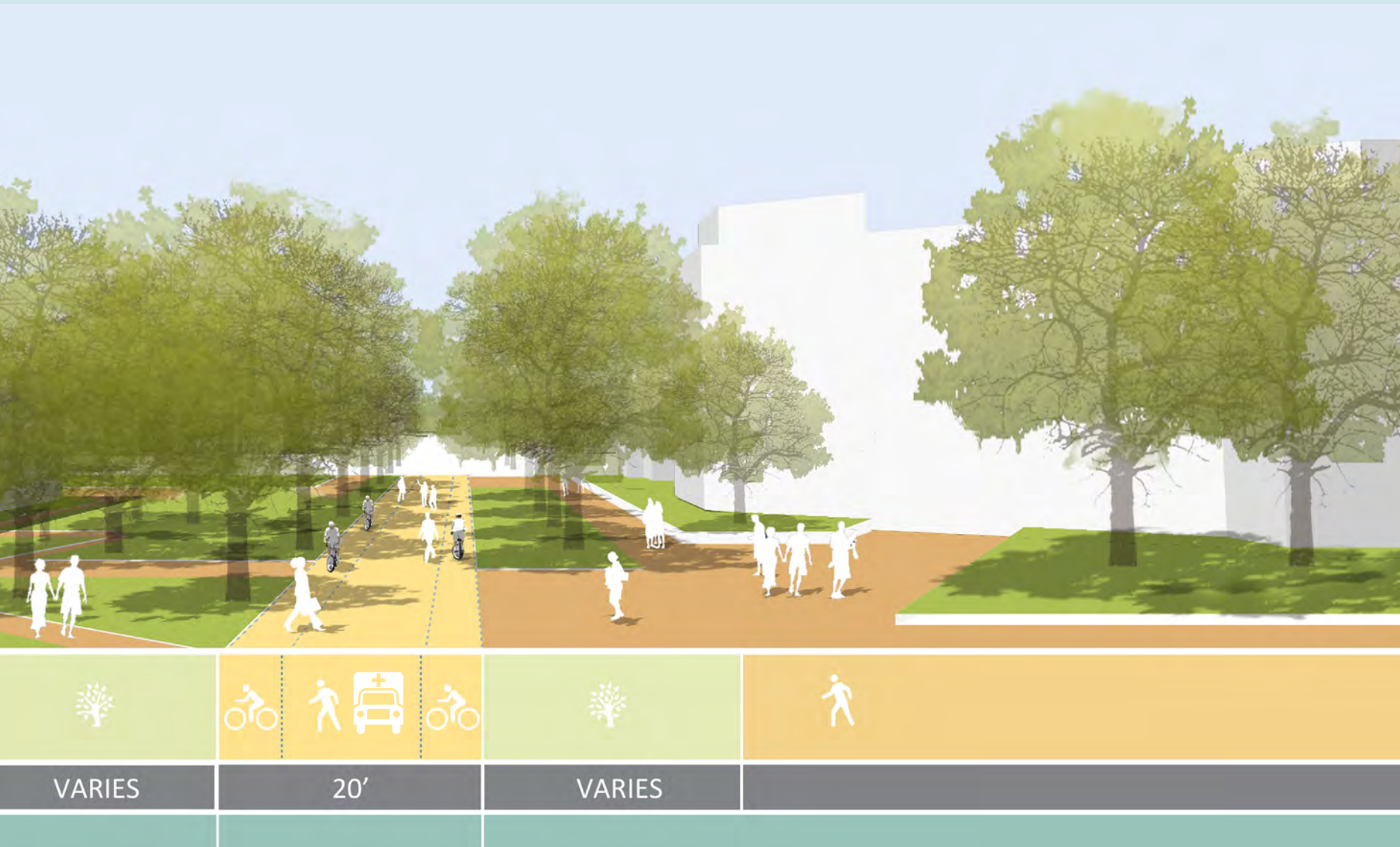
Rose Street presents a major opportunity for improving the university’s identity. Three options illustrate streetscape improvements in an effort to create a more pedestrian-friendly experience and to connect the academic core with the central campus. All options propose changes for Rose Street between Columbia Avenue and Huguelet Drive. Option 1 proposes Rose Street as a significant gateway landscape, connecting the campus core to William T. Young Library, the Greek Park, and student housing. In this option, Rose Street is transformed into a major pedestrian street with shared service and bike access, extended lawn space, and tree allée.



Existing condition



Proposed street section design



ROSE STREET

OPTION 2 : : IMPROVED MEDIAN



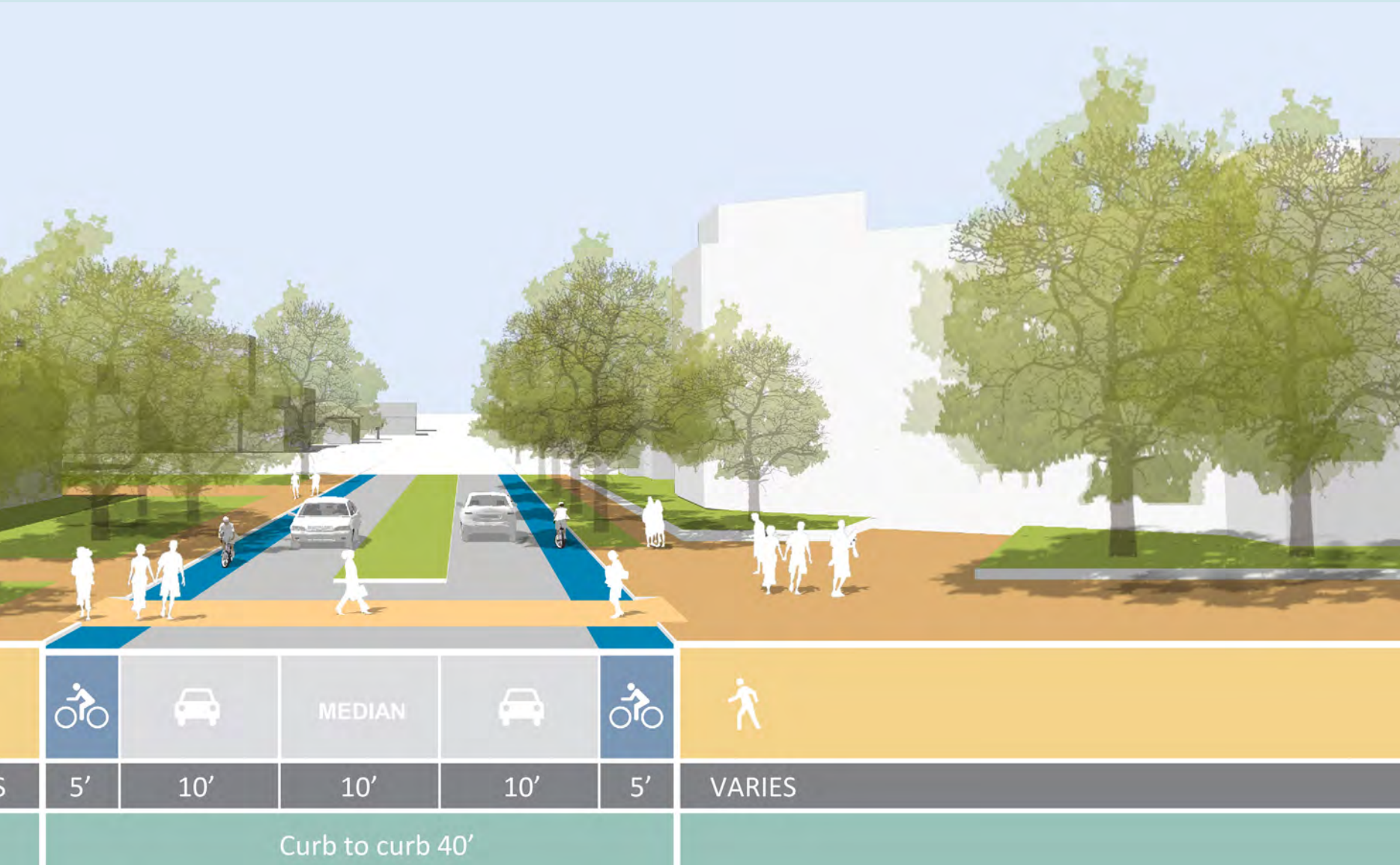
Option 2 reimagines Rose Street with an improved median, tree plantings, and crosswalk improvements.



Existing condition



Proposed street section design



ROSE STREET

OPTION 3 : : NARROWED STREET



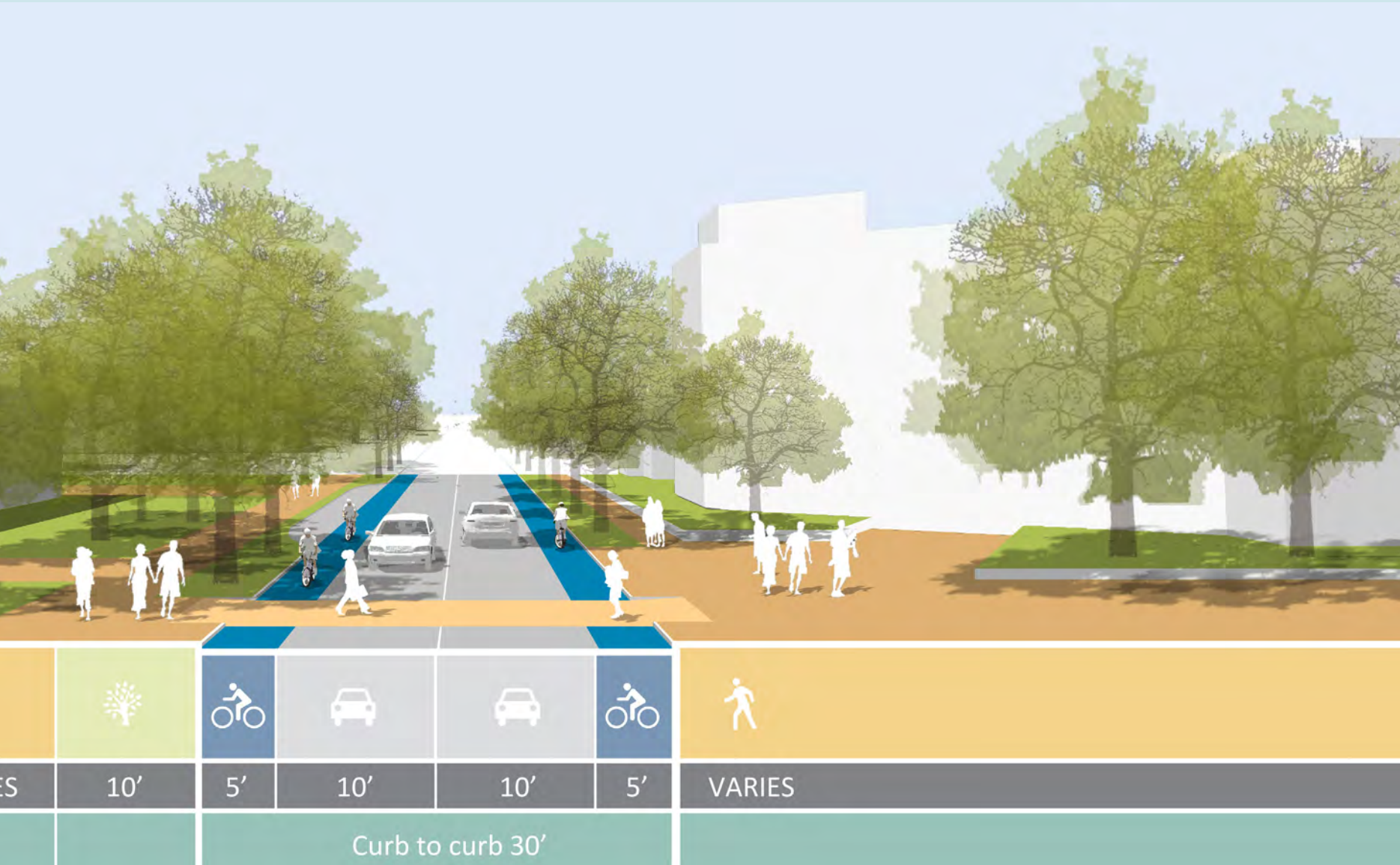
Option 3 envisions Rose Street as a narrowed two-lane street with bike lanes, tree plantings, and crosswalk improvements.



Existing condition



Proposed street section design



PEDESTRIAN CORRIDOR GUIDELINES

The great pedestrian malls of the campus rank among the most pleasant campus landscape experiences at UK. At their best, the grand malls are sublime in their geometric clarity and grand scale. They bring an instant sense of grace to the campus. They are a celebration of nature in the form of beautiful trees, and a celebration of human design intention.

The following summarizes the pedestrian space guidelines:

VISUAL CONTINUITY

As with campus streets, the pedestrian malls and corridors should be designed to achieve an overall unified effect of spatial continuity through the use of a unified palette of shade trees and other vegetation. It is important for individual malls to have a dominant tree type around which the spatial design is organized.

INSTITUTIONAL SCALE

The pedestrian malls of the campus should possess the power and orderly strength appropriate to major organizing spaces of a great University. They should also be inviting at a human scale and be properly dimensioned for the level of circulation they accommodate.

HIERARCHICAL PLANTING

As with the civic spaces, secondary plantings should be kept in subordinate locations along the major malls. The mall trees should be the principal spatial elements of the corridor, with smaller ornamental trees, shrubs, and herbaceous plantings set along the edges of the corridor. Small flowering trees should not be used as the primary space defining trees for the major malls and corridors. They are often too small to effectively create a canopied corridor, which is needed for the major malls.



Proper hedge shape



Improper hedge shape

Hedges should be broad at the base and narrower at the top to allow light to reach the lower branches and to lessen potential snow load.

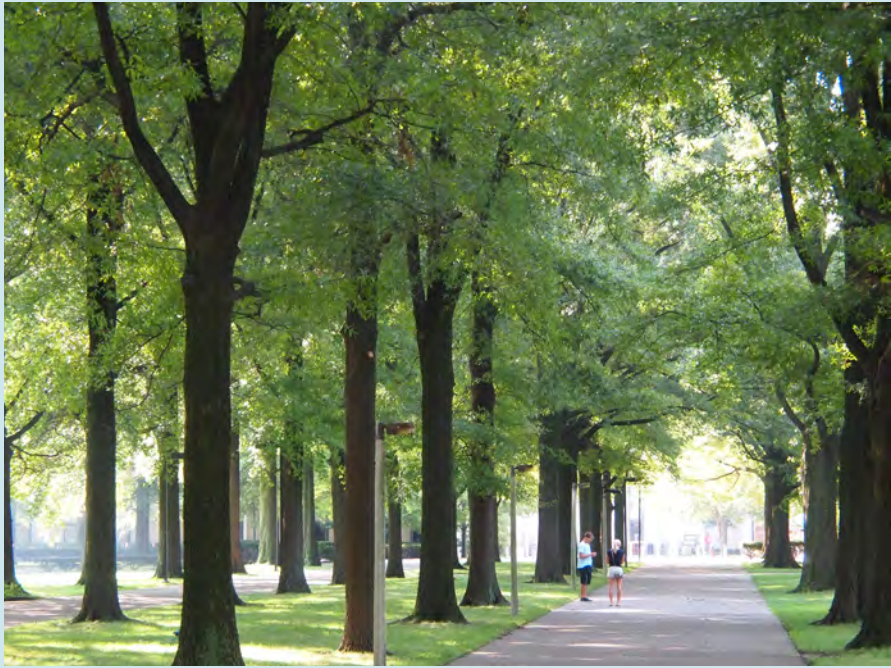
PEDESTRIAN CORRIDORS



Secondary plantings in the pedestrian malls and corridors should be subordinated to the major tree plantings.



Continuity of space-defining trees is desirable in the major malls.



The best campus malls are memorable and sublime for their geometric order and grand scale.



Pedestrian corridors can serve as significant social and gathering spaces, especially when they abut quadrangles, courtyards, or civic open spaces, as is the case in front of the White Hall Classroom Building.

QUADRANGLES AND COURTYARDS GUIDELINES

Whereas the primary objective of the major campus civic, street, and mall spaces is to achieve a coherent unity and clarity through a restrained and simple design approach, the design of courtyards and smaller building-defined quadrangle spaces can be unique and varied according to their immediate architectural setting. These spaces are usually not spatially continuous; therefore, they do not have the same obligation as civic, street, and mall spaces to maintain consistency among them. Indeed, it is encouraged that the different quadrangles and courtyards of the campus seek to achieve individual identities that will add richness and variety to the campus landscape experience.

The following summarizes the quadrangles and courtyards space guidelines:

LOCATION SPECIFIC DESIGN

Since courtyards and building-defined quadrangles are all separate f, there can be many design expressions in quadrangles and courtyards.

SENSORY APPEAL

Campus quadrangles and courtyards are the appropriate locations for rich seasonal flower displays organized at an intimate garden scale. Because flower beds in these spaces are available for viewing at a close distance, they are far more effective than the same beds arrayed along a busy street or in a large civic landscape. Quadrangles and courtyards offer human scale places where affordable and maintainable garden sizes can be fitting and effective in the campus design. Ornamental plants with unique form, color, textures, or seasonal flowers may be employed. Fountains, sculpture, special paving, and other features are also appropriate in courtyards.

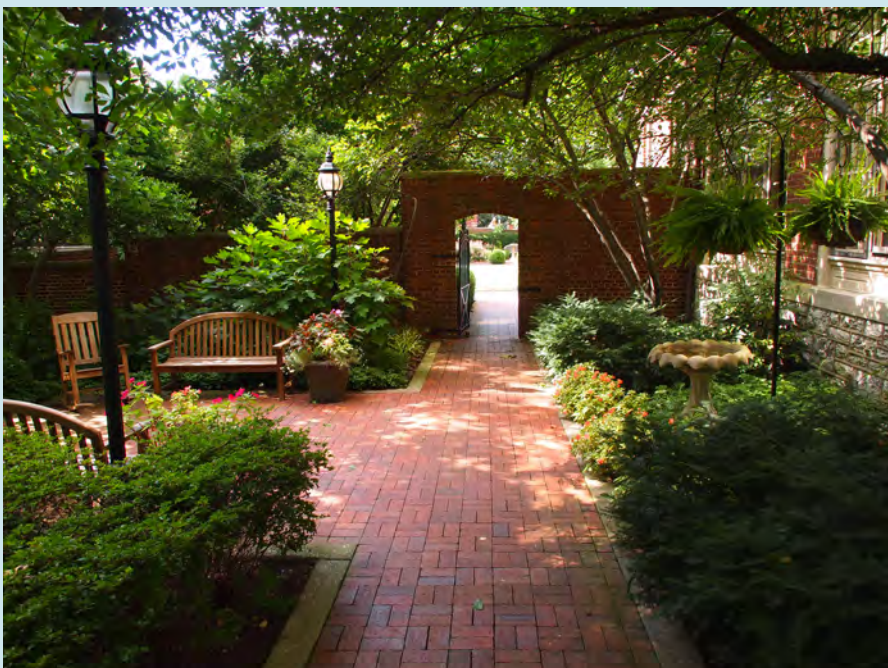
SPECIAL PURPOSE

Special design themes can be adopted for courtyards. For example, a given courtyard may be themed for all-season ornamental plant effects, or be devoted to a particular purpose such as a spring bulb garden or a butterfly garden. These types of themes have broad appeal, offer horticultural interest, are reasonable in cost, and bring a human touch to a large institution.

PLACES FOR PEOPLE

Quadrangles and courtyards should offer places to sit and occupy the public realm of the campus. They should offer opportunities for hosting large and small groups with a variety of seating options, and should offer shade in the warmer months, and solar exposure and wind protection in the cooler months.

QUADS AND COURTYARDS



Courtyards offer settings for intimate gardens with sensory appeal. Flower gardens, special paving, seating, and other features are appropriate.



Quadrangles and courtyards can adopt unique, location-specific designs and include special elements such as flags as shown.



Garden effects, including flower displays, are appropriate in courtyards where they can be appreciated by pedestrians at a close distance.



Sunken courtyards create a more intimate atmosphere, and strategic changes in grade can introduce low walls that offer seating opportunities.





3

PLANTING
GUIDELINES

GUIDELINES FOR THE VISUAL-SPATIAL ASPECTS OF PLANTING DESIGN

The placement of plant materials is an important consideration relative to the visual and aesthetic quality of the campus environment and the spatial definition of major open spaces, pedestrian corridors, building entries, and courtyards. The following guidelines include recommendations for locating plant materials in various areas of the campus. To illustrate the key points, plant placement options are provided for the Margaret I. King Library entrance.

The following summarizes the visual aspects of planting design:

SPACE DEFINITION

To avoid the feeling that the campus landscape is a random assortment of plants, planting decisions should be guided by an understanding that the chief purpose of plantings is to define and organize the outdoor spaces of the campus. In this understanding, planting is not merely decorative. Rather, it should be considered purposeful in defining the scale and spatial order of the campus.

CHARACTER

With the exception of streets, malls, and some courtyard areas, the dominant character of the campus plantings should be informal and naturalistic. Planting arrangements should be in non-geometric patterns. The advantage of this style is compositional balance and interest can be achieved in many ways, and the plan can evolve without the restrictions imposed by careful geometric rows or patterns of plants. Informal planting design is more able to accept losses and additions while maintaining compositional wholeness. The predominant order of campus plantings should be naturalistic.

INSTITUTIONAL SCALE AND SIMPLICITY

Plantings should adopt a scale and consistency that is in keeping with the overall campus as a single landscape experience. In most situations, plants should be used in large bold strokes rather than in small individual and intricate planting gestures that fail to relate to the size of institutional buildings. Avoid foundation plantings that are out of scale and character with large campus buildings. Keep foundation plantings simple and have their beds relate to the geometry of the building where possible. Maintain design unity with a modest amount of variety. Too much variety in a given area tends to erode the sense of expanse and continuity in the campus landscape. Confine small garden and flower bed plantings to courtyards or to situations where a clear hierarchical relationship between the garden and the larger campus setting can be composed. Avoid small gardens that float unconnected to the larger composition of the campus landscape and that do not relate to the size and character of surrounding buildings. Detailed flower gardens will be better appreciated in settings where the scale is more intimate, where sitting is provided, and where people can experience the plants at close range. As a general rule, plants should be composed in groups with similar aspects of form, shape, size, and foliage color. This will create an overall feeling of unity across the campus, overcoming the feeling of fragmentation that results when plantings are too random.

VISUAL-SPATIAL ASPECTS OF PLANTING DESIGN



Plantings should, first and foremost, define outdoor spaces.



The predominant order of campus plantings should be naturalistic.

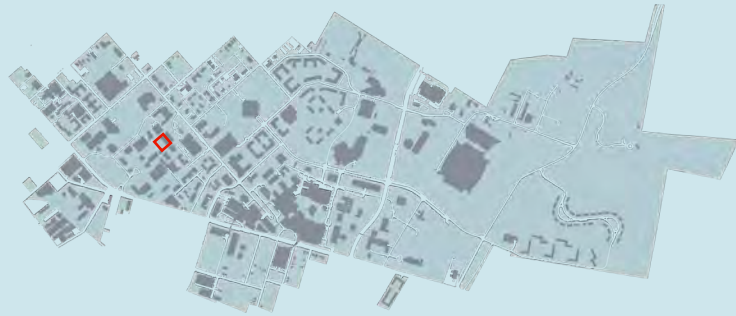


Campus plantings should be organized in simple bold strokes commensurate in scale with campus buildings, streets, and paths.



Campus corridors can be strengthened by an allée-type planting on either side of the walkway.

ENTRY TO MARGARET I. KING LIBRARY



- ① Ground cover
- ② Lawn
- ③ Small flowering tree (red bud, dogwood, franklinia, magnolia)
- ④ Low hedge

Planting at building entries is illustrated with the example of the Margaret I. King Library building entrance along the main pedestrian spine.



Existing entry to Margaret I. King Library



Plan of existing entry to Margaret I. King Library

Ground cover (1) is configured to reinforce the geometry of the building. Lawn (2) should extend to the sidewalks. Small flowering trees (3) are located near the building entry, with proper distance from the building to ensure enough area for proper growth. The allée trees along the adjacent walkway should be spaced to help frame and define the entry.



Proposed entry to Margaret I. King Library : : Option 1

Alternatively, a linear bed of ground cover (1) can be placed along both building edge and entry path. In addition, hedges (4) can be planted parallel to the path to help reinforce the entry space, creating a stronger feeling of enclosure. The allée trees along the adjacent walkway should be spaced to help frame and define the entry.



Proposed entry to Margaret I. King Library : : Option 2

URBAN ECOLOGY AND PLANT SPECIES GUIDELINES

The plant species utilized on campus need to be considered in terms of appropriateness for the Bluegrass physiographic region of Kentucky, their suitability for the conditions in which they will be located, their size at the time of installation, and, ultimately, how they will be protected and replaced. The following provides additional information and recommendations relative to these considerations. In addition, a suggested tree list is provided for the campus.

The following summarizes the urban ecology and plant species guidelines:

SPECIES

The predominant palette of plants for the campus should consist of species naturally found in the Bluegrass physiographic region of Kentucky. The dominant native plant community of the region is the Oak-Hickory Forest. The selection of primary trees, associate trees, and understory woody and herbaceous plants for campus use should favor species from this community.

Plant selection should also favor natural species as opposed to cultivars of the species. For example, *Acer saccharum* is preferable as a lawn tree to *Acer saccharum* 'Columnaris'. Only in a special space-constrained condition would the 'Columnaris' be used. This rule should be applied particularly in cases where the cultivar features characteristics that are markedly different from the parent species, such as purple foliage color or columnar form. In cases where the cultivar consists of an enhancement of an existing feature such as improved flower, improved pest resistance, improved rate of growth, thornless branches, or improved fall color without alteration of other fundamental form characteristics, use of the cultivar is acceptable and often desirable.

SITE SUITABILITY

A chief motive for plant selection should be habitat suitability, that is, the ability of the plant to thrive and succeed in the soils, exposure, sun-shade, moisture conditions, and size offered by the selected site. For example, plants that are intolerant of drought should not be located on dry sites, or plants that require full sun should not be located in shaded north exposures of large campus buildings. Habitat conditions should be satisfied before decisions are made on aesthetic grounds.

PLANTING SIZE

The initial planting size for trees and shrubs can be as small as it is practical to protect and maintain the new plants. The advantages of small size are lower cost of purchase and installation, increased potential for installation to be done with University staff, and better acclimation to site conditions. Research has shown that smaller size plants will soon catch up with plants installed at larger sizes because of the longer acclimation time associated with larger plants. The motive of achieving immediate effect should be controlled by the reality that the University grounds are constantly in a state of evolution and the results are always aimed at future generations.

TREE SUCCESSION

The most important thing that can be done to help aging trees (like the oak allée along the Singletary Center for the Arts), is to protect them from damage, particularly to their root systems. All utility, building, and paving projects should indicate existing campus trees and topography on all plans from concept design to construction documents. The trees and grading information should be employed to minimize disturbance in the vicinity of major trees. An experienced professional arborist should be engaged on projects where tree impacts are anticipated. The arborist should assist the team to devise methods and procedures to protect the campus trees.

URBAN ECOLOGY AND PLANT SPECIES



The ultimate size of the plant and the size of the planting site is a critical consideration in site selection for new plantings. The trees above are located too close to the building.



Native bald cypress are well located in a suitable lowland habitat



Native trees are favored for use on campus, like this catalpa near the Gillis Building



Aging trees need to be protected from damage, and succession strategies need to be developed in time to ensure the continuity of the spatial quality.

TREE LIST

The following tree list is assembled from lists of known native species of the Bluegrass physiographic region, existing native trees on campus, and trees on the Commonwealth of Kentucky nursery list. All are suitable for campus use, some with greater favor than others. A number of these trees are not available in large sizes and would need to be grown from whips, such as the *Carya* species, and sassafras; however, in the long run, these will be durable, hardy, drought-tolerant trees well matched to local conditions.

FAVORED NATIVE TREE LIST

Acer rubrum	Red Maple	Gymnocladus dioicus	Kentucky Coffee Tree
Acer saccharum	Sugar Maple *	Hamamelis virginiana	Witchhazel
Aesculus flava	Yellow Buckeye	Hamemilis vernalis	Vernal Witchhazel
Aesculus glabra	Ohio Buckeye	Ilex opaca	American Holly
Amelanchier sp.	Serviceberry	Juglans nigra	Black Walnut
Asimina triloba	Paw Paw	Juniperus virginiana	Eastern Red Cedar
Betula nigra	River Birch	Liquidambar styraciflua	Sweetgum
Carpinus caroliniana	Ironwood	Liriodendron tulipifera	Yellow Poplar
Carya illinoensis	Pecan	Magnolia acuminata	Cucumbertree
Carya laciniosa	Shellbark Hickory	Magnolia macrophylla	Bigleaf Magnolia
Carya ovata	Shagbark Hickory	Magnolia tripetela	Umbrella tree
Carya tomentosa	Mockernut Hickory	Nyssa sylvatica	Black Gum
Catalpa speciosa	Catalpa	Ostrya virginiana	Hop Hornbeam
Cercis canadensis	Eastern Redbud	Pinus echinata	Shortleaf Pine
Chionanthus virginicus	Fringetree	Pinus strobus	Eastern White Pine
Cladrastis kentukea	Yellowwood	Pinus taeda	Loblolly Pine
Cornus amomum	Silky Dogwood	Pinus virginiana	Virginia Pine
Cornus drummondii	Roughleaf Dogwood	Platanus occidentalis	Sycamore
Cornus florida	Flowering Dogwood	Prunus americana	Wild Plum
Cornus racemosa	Gray Dogwood	Prunus serotina	Black Cherry
Craetegus phaenopyrum	Washington Hawthorne	Quercus alba	White Oak
Dispyros virginiana	American Persimmon	Quercus bicolor	Swamp White Oak *
Fraxinus quadrangulata	Blue Ash	Quercus coccinea	Scarlet Oak *
Gleditsia triacanthos inermis	Honeylocust	Quercus falcata	Southern Red Oak *

Quercus imbricaria	Shingle Oak
Quercus lyrata	Overcup Oak
Quercus macrocarpa	Bur Oak
Quercus muhlenbergii	Chinkapin Oak *
Quercus nigra	Water Oak
Quercus pagoda	Cherrybark Oak *
Quercus palustris	Pin Oak *
Quercus phellos	Willow Oak *
Quercus prinus	Chestnut Oak
Quercus rubra	Northern Red Oak *
Quercus shumardii	Red Shumard Oak *
Quercus nuttallii	Nuttall Oak
Quercus velutina	Black Oak
Quercus michauxii Swamp	Chestnut Oak
Quercus stellata	Post Oak
Sassafras albidum	Sassafras
Taxodium distichum -	Bald Cypress
Tilia americana	American Basswood *
Tsuga canadensis	Eastern Hemlock
Ulmus americana	American Elm
Viburnum prunifolium	Blackhaw

Note: * = Potential Street Trees

In addition to the most favored native tree list, it is desirable to augment native plants with non-invasive species that are visually and horticulturally compatible with the native flora. For example, many Asian adjunct species are non-invasive, will grow on campus, and will add variety, resilience, and richness to the landscape without appearing out of place. Likewise, there are numerous plants of European origin that work well in Lexington and should not be removed from consideration--for example, representatives of the genera *Tilia* and *Platanus*.



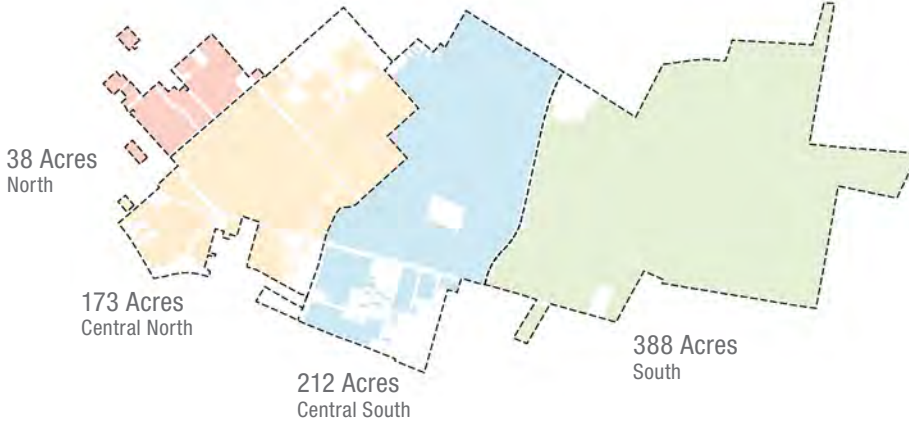
A large, white, hollow outline of the number 4 is positioned on the left side of the image. The background is a photograph of a brick building with arched windows, partially obscured by a large, leafy tree with some autumn-colored leaves. The scene is set on a green lawn with shadows cast by the tree.

SYSTEM
GUIDELINES

The system guidelines provide a comprehensive campus wide understanding of key aspects of the environment.

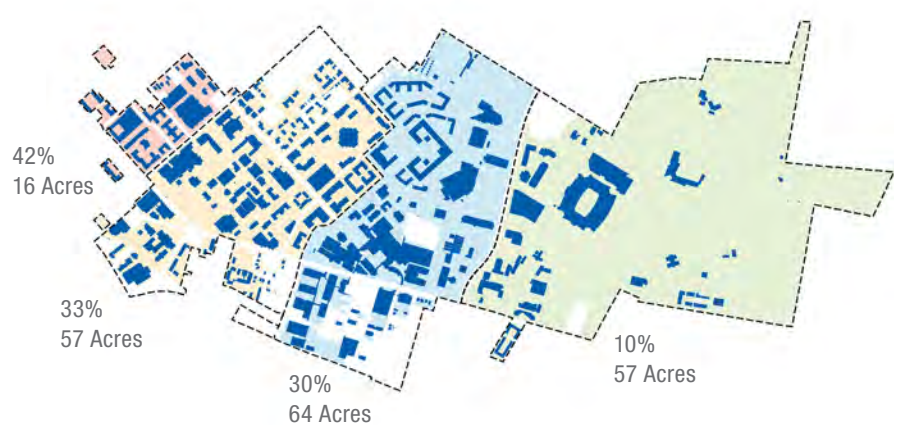
CAMPUS ZONES

Total UK Ownership 811 Acres



BUILDING COVERAGE

Total Proposed UK Building Coverage 21% 174 Acres



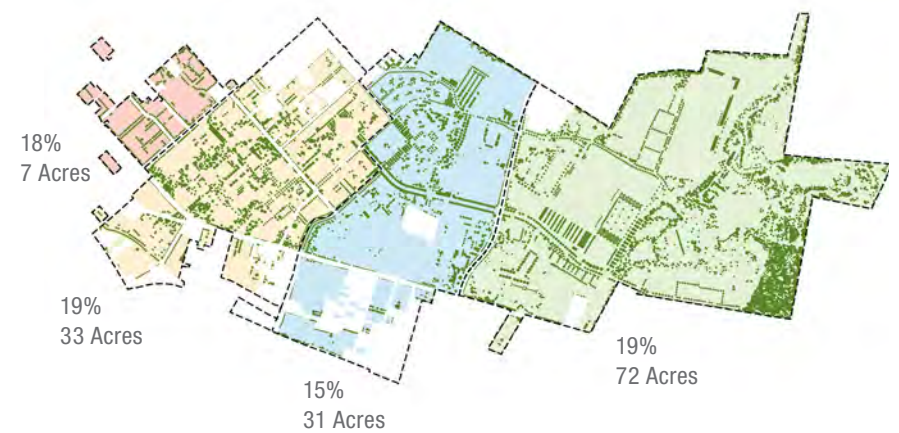
IMPERVIOUS SURFACES

Total Proposed UK Building Coverage 21% 174 Acres



TREE COVERAGE

Total Proposed UK Tree Coverage 19% 143 Acres



INTRODUCTION

This chapter summarizes broad campus-wide system-level considerations that should be applied as projects are implemented across the campus. They are intended to inform detailed decisions that occur as these campus-wide systems are realized incrementally on a project-by-project basis.

The system guidelines addressed in this chapter include the following:

- Ecosystem Services—guidelines for incorporating the ecological services that can be provided by the campus landscape, such as mitigating the urban heat island effect and managing water resources.
- Water Resources—guidelines for using the landscape as a functional element in a broader strategy to manage stormwater across the campus.
- Lighting—guidelines for specifying the type and location of exterior light fixtures on the campus.
- Site Furnishings—guidelines for specifying and positioning a variety of outdoor elements such that a unified and consistent system is evident across the campus.

The guidelines address the following:

- Site furnishings
- Pedestrian pavement
- Road pavement, parking lots, and service areas
- Stairs, ramps and railings
- Vertical separations
- Utilities

ECOSYSTEMS SERVICE GUIDELINES

The Campus Landscape Guidelines take into consideration the ecological services that can be provided by the campus landscape. The intent is to create resilient systems that can respond to changing conditions, and the resources needed to maintain the campus landscape. This requires the selection of plant material that is appropriate for the region, addresses functional and aesthetic objectives, and can be easily maintained.

The guidelines focus on two major issues common to urban campus settings:

- mitigating the urban heat island effect
- managing water resources

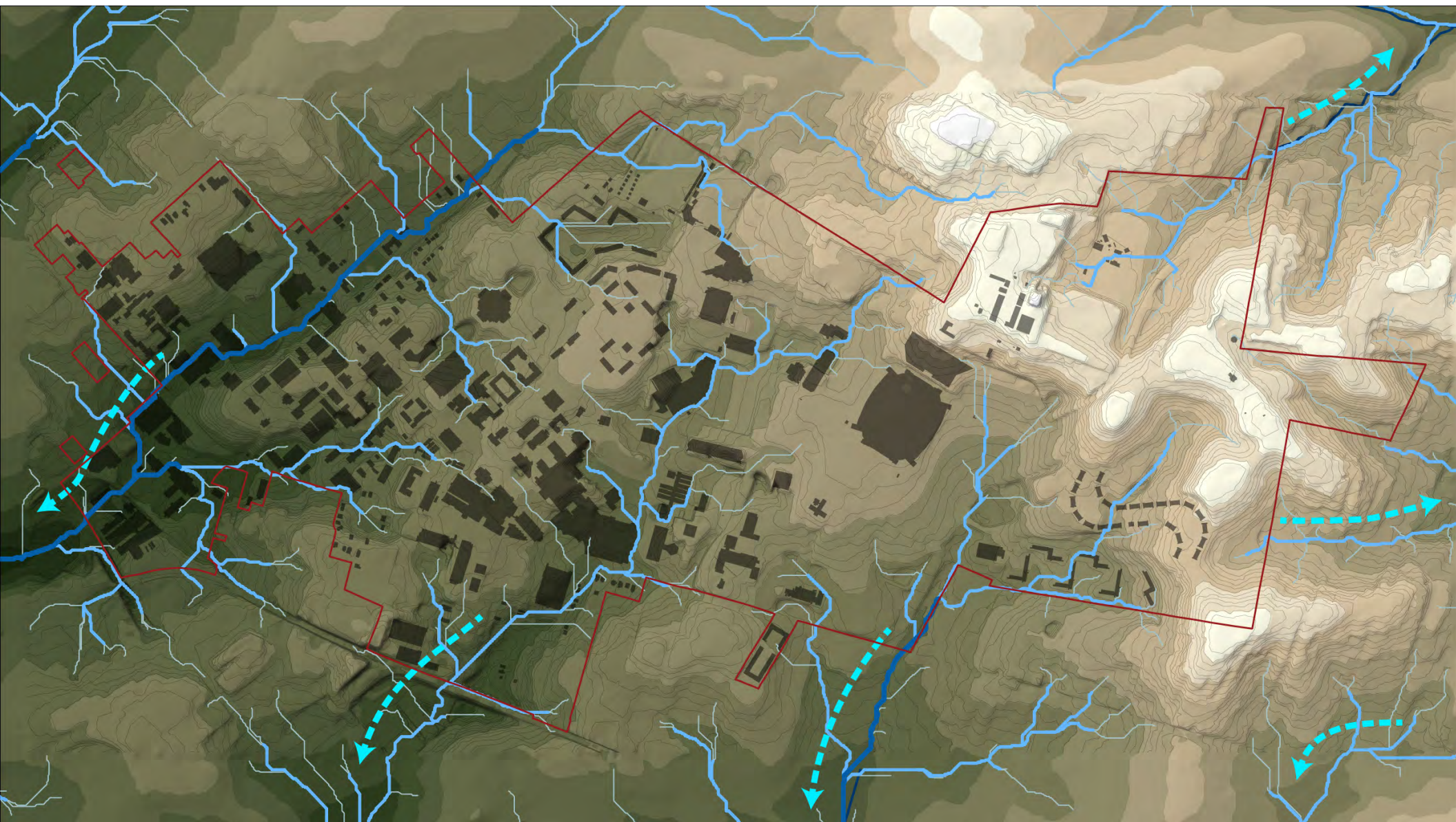
URBAN HEAT ISLAND EFFECT

The University's urban campus in many areas can be classified as a heat island—an area of dense urban development with high thermal mass. As such, the established and more densely developed areas of the campus are prone to overheating in the warm months. An ecological approach to landscape can help mitigate heat gain and provide shade and comfort.

IMPLEMENTATION STRATEGIES

To create a comfortable micro-climate, the recommended strategies are as follows:

- Develop a shade strategy for the campus to coincide with pedestrian corridors, plazas, and courtyards where people will be walking or gathering outdoors. The shade strategy should primarily focus on the use of trees, and can include, where appropriate, trellises and other shade structures
- To reduce reflected heat and reflection from surrounding building and landscape surfaces, vegetation should be layered in key areas where people gather
- To reflect rather than absorb heat, light-colored, reflective paving material should be utilized



▲ HYDROLOGY ANALYSIS FOR EXISTING CAMPUS

- ➡ Main flow direction
- ▬ Main flow intensities

WATER RESOURCES

The Campus Landscape Guidelines promote Low Impact Development (LID) with the goal of detaining, cleaning, and facilitating the infiltration of rainwater. This requires a comprehensive approach to rainwater or stormwater management. To that end, it is recommended that the University consider completing a stormwater master plan for the campus, which in turn could be coordinated with the guidelines herein at a future date. Until more detailed stormwater analysis is available, a general approach is recommended.

In many locations, stormwater on campus is directly conveyed into the urban stormwater system without quality treatment or the reduction of runoff through stormwater management features. In addition, the benefits of stormwater infiltration onsite are not possible in many areas of the campus. The landscape guidelines are intended to improve the quality of the stormwater and reduce the rate and volume of stormwater runoff. Furthermore, they are intended to assist in compliance with the University's Municipal Separate Stormwater System (MS4) Permit which requires the adoption of design standards for water quality to meet minimum criteria. The following general design recommendations are proposed to guide stormwater planning and design:

- Infiltrate stormwater onsite to recharge groundwater capacity wherever possible
- Utilize landscape to improve water quality, dissipate volume, and slow the rate of flow
- Use green roofs, rain gardens, and bioswales, when feasible, to decrease discharge rates
- Utilize landscape to handle stormwater from externally-drained roofs

- Decrease impervious area wherever possible
- Utilize pervious paving as appropriate

Best management practices for stormwater (BMPs) in site design are recommended to address three interrelated variables: water quality, volume, and peak rate of flow.

The intended outcome is a stormwater strategy featuring increased overall permeability and above-ground stormwater management in association with landscape solutions. This includes grading to encourage drainage to the appropriate drainage system. This should be done with rate and volume of runoff considerations in mind. Rain gardens and bioswales are encouraged to address volume and quality of stormwater flow. In addition, these features are intended to create areas of interest (and design features) in the landscape.

IMPLEMENTATION STRATEGIES

The purpose of the Campus Landscape Guidelines is to provide guidance to those who are responsible for the design and maintenance of the University's campus landscape. The guidelines are intended to assist those responsible for complying with the MS4 Permit and encourage the orderly development of the landscape in a way that serves the functional, aesthetic, ecological, and management requirements of the University in a consistent way over time. The guidelines seek to overcome the fragmentation of landscape that can accompany the incremental implementation of discrete projects separated in time and funding, and staffed with different design teams.

The following provides additional detail for the recommended strategies:

WATER MANAGEMENT STRATEGIES



GREEN ROOFS

The University should consider installing green roofs for internally drained (low-slope) roof replacement projects where appropriate and on new buildings. Green roofs retain stormwater and return a portion directly to the atmosphere through evapotranspiration. Green roofs are an important strategy for stormwater management because they can retain 15 to 90 percent of rainfall, actively help in reducing runoff volume and rate; they can be effective in reducing air pollution and heat island effect; and, they provide sound insulation. Green roofs can be installed as extensive green roofs with a thin layer of soil usually planted with sedum, or intensive green roofs with a thicker layer of soil that can support shrubs, trees, and other vegetation. The structural implications of each need to be considered.



RAIN GARDENS

The University should consider disconnecting externally drained roofs from the storm sewer system and drain them directly to rain gardens wherever possible. Rain gardens are landscape features designed to retain, filter, and infiltrate stormwater. They can be naturalistic or formal, and more architectural in their expression when adjacent to buildings. They are typically 6 to 18 inches deep depending on soil conditions, and include plants tolerant to periodic submersion.

IRRIGATION

Irrigation should be considered in appropriate areas. It is recommended in situations where it will provide efficient water management. The system is necessary to dependably protect planting investments during summer heat and seasonal drought.

An automated, centralized system is the best way to tailor watering needs to actual conditions and avoid over and under



watering. It will be more efficient than hand watering and set-up-take-down watering. Timing can be tailored to preferred low evaporation periods rather than being timed to meet working hours.

BIO-RETENTION SWALES

Bio-retention swales are recommended in parking areas with adequate land area (suggested area equivalent to 5 percent of the surface area to be drained) and suitable soil conditions. Bio-retention swales are landscape elements that divert and detain water to treat and slow peak flow rates. Pervious paving should be considered if water-receiving landscapes are not possible.



PERVIOUS PAVING

Pervious paving is recommended where site conditions are suitable. Factors to consider include subsurface soil conditions, maintenance implications, traffic loading, and cost effectiveness versus other stormwater management methods. Pervious paving may include pervious concrete or asphalt, concrete slabs with open joints on a permeable base, and pervious unit pavers. In areas of heavy traffic such as loading docks, where oil and other concentrated pollutants may be present, pervious paving is not recommended.

IMPLEMENTATION

Proper installation and continued maintenance are essential to the long-term benefits of these strategies, and should be given thorough consideration during design and implementation. Design applications should be reviewed by the applicable entities to determine their feasibility.

LIGHTING GUIDELINES

The University has an established approach for distributing exterior light fixtures across the campus. The following provides details for future implementation.

GUIDELINES FOR EXTERIOR LIGHTING

Lighting should frame the open space and reinforce the overall structure of campus streets, walkways, quadrangles, and other campus open spaces. Light fixtures should be spaced far enough apart to avoid visual clutter during the day and over lit areas at night. Light levels for all campus exterior spaces should be designed to conform to IES standards (www.ies.org).

The following guidelines apply to exterior lighting and are intended to improve light quality and maintain consistency throughout the campus:

- Exterior lighting should support the circulation pattern, emphasize aesthetic features and contribute to the attractiveness of the space and surroundings.
- Outdoor specialty lighting can be used, when appropriate, to accent plant material, building facades, building entrances, or signs. Lamp color and any visible fixtures should be compatible with campus lighting standards.
- The number of fixtures can be increased in potentially hazardous locations, such as exterior stairs, sidewalk intersections, and remote parking areas, where appropriate. All fixtures should use energy-efficient lamps and photocell controls to conserve energy and preserve the life of lamps.
- All outdoor lighting, including parking areas, should utilize light sources with a high color-rendering index (CRI). An obvious color contrast in light sources/coloration should be avoided.
- Light sources should be LED.
- Light color should fall within the following ranges:
 - Outdoor Specialty Lighting: 2700 - 4500 Kelvin
 - Roadways & Parking Lots: 3900 - 4500 Kelvin
 - Pedestrian lighting: 4000 Kelvin
- Light should be chosen for an area and so arranged that cut off is defined specific to that area.
- Plant material should be selected, placed, and pruned to avoid blocking light.

ROADWAY AND PARKING LOT LIGHTING

Roadway lighting for the campus occurs both along city and internal campus streets. The light fixtures along public streets should follow the City of Lexington standards to create a consistent streetscape.

On internal campus roads, and all parking areas, the campus standard roadside fixture shall be used to foster a unified appearance.

The light fixture for all roadway (vehicular) and parking area applications shall be a model with a sharp cut-off, high intensity luminaire, mounted on a 5-inch or 6-inch diameter aluminum breakaway pole as recommended by the manufacturer. Said manufacturer should run a study of the site conditions to meet IEC roadway specifications. Only fixtures with adjustable glare control and cut-off features should be used.

Vehicular pole lights are generally mounted at a height of approximately 30 feet or more, spaced typically at between 90 and 110 feet on center. However, pole height, light spacing, and lamp wattage shall be determined by the photometric study, to maintain necessary or recommended light levels.

Parking lot lighting should create a safe, well-lit, but not over-lit environment, and fixtures should be spaced accordingly based on the photometric study. Pole lights in parking areas are generally mounted at a height of approximately 30 feet or more; however, pole height, light spacing, and lamp wattage shall be determined by the photometric study to maintain necessary or recommended light levels.

To prevent damage to poles or vehicles that come in contact with them, light fixtures should typically be located behind the sidewalk along roadways. In parking lots, poles are located behind the sidewalk so as to not clutter the view of the driver or the pedestrian using the sidewalk.



Campus Standard Roadway and Parking Lot Fixture

Manufacturers: Kim Lighting, Inc.; Holophane Lighting; Eaton; or equivalent

Fixture: Low profile fixture

Color: Black

Pole: 5" or 6" diameter, aluminum, breakaway

Color: Black

Campus Standard Pedestrian Fixture

Manufacturer: Holophane Lighting
www.holophane.com

Fixture: Historically Styled PTE2
LED Post Top Fixture
with Fresnel Glass Lens

Color: Black

Pole: Historically Styled Charleston
Cast Aluminum Pole
CH14FA/12-CA-BK

Color: Black



In parking areas raised, concrete bases can be provided to protect the light standards and prevent damage to vehicles. Preferably, fixtures should be located within a planting island.

The use of UK banners on light poles can be considered to help create a consistent collegiate identity along campus streetscapes. All banner hardware should receive a black finish to match the light poles.

PEDESTRIAN LIGHTING

To foster a unified campus appearance, pedestrian pole lights shall be the campus standard pedestrian fixture with a PTE2 compatible LED 4,000 Kelvin Luminaire, mounted on the Charleston cast aluminum pole; both distributed through Holophane Lighting.

Future applications should use the PTE2 LED post top series to meet sustainability and energy management standards.

In specialty areas, the use of other light fixtures requires approval from the University Architect. Color and finish should be coordinated with the surrounding architectural and site context.

Pole lights for pedestrian applications are generally mounted at a height of 14 feet.

Pole fixtures should be placed on a concrete base and follow the above-noted general criteria for placement. Concrete bases shall sit flush in all paved areas, and be only slightly raised above ground in lawn areas to prevent damage to the poles from mowing and edging.

For additional safety and comfort, lighting levels should be increased along main walkways and routes connecting parking areas to primary campus destinations.

SITE ELEMENTS GUIDELINES

The following establishes campus standards for a range of site elements such as exterior seating, receptacles, and bike racks. It also provides guidelines for pavements, stairs, ramps, site and seat walls, handrails, fences, bollards, and planting bed edges.

The goal is to contribute to the consistency and unity of the campus and create a habitable and inviting campus environment.

The guidelines include the following elements:

- Site furnishings
- Pedestrian pavement
- Road pavement, parking lots, and service areas
- Stairs, ramps and railings
- Vertical separations
- Utilities

SITE FURNISHINGS

In addition to seat walls, site furniture includes a variety of outdoor elements that contribute to the level of human comfort in outdoor spaces, such as benches, tables and moveable chairs, receptacles, bicycle racks, and bollards. The various site furnishings and elements have a considerable impact on the campus character and contribute to the attractiveness, as well as the usability and functionality, of the landscape. Many of the site elements have been in use for a number of years on the campus. The following guidelines support established practices as appropriate. They are intended to promote the aesthetic character and quality desired for the campus, as well as consider durability, ease of maintenance, and sustainable design criteria, where practical.



BENCHES AND MOVEABLE FURNITURE

Exterior seating should be positioned in key gathering areas or along major movement corridors. Benches and moveable furniture such as tables and chairs should be located and arranged to allow for respite, socializing, and enjoyment of the outdoor campus environment.

Benches should be placed along major walkways, in plazas and courtyards, near building entrances, and adjacent to sports and recreation fields. Benches should be placed on a concrete pad when added to an otherwise developed area. They should not be placed on an existing sidewalk.

Moveable seating should be provided where appropriate to facilitate and support small group gatherings for study, eating, and conversation.

In addition, seating should be provided at pick-up, drop-off, and waiting areas for convenience and comfort. Benches for major civic and connective landscapes and along walkways and streets should be consistent with the campus standard (see below).

Seating in quadrangles, courtyards, and plazas may include a variety of built-in and manufactured furnishings. Moveable furniture should follow the campus standard; additional seating elements, such as benches and seat walls, should be compatible with the surrounding architecture and complement other furnishings and related site elements, but can vary from the standard.

Moveable seating in lawn areas can be provided where appropriate, and should match or complement the Adirondack chairs currently used on campus.



Standard Campus Bench, Type 1

Manufacturer: Landscape Forms, Inc.

431 Lawndale Ave. Kalamazoo, MI 49048
800.430.6209

www.landscapeforms.com

Model: Scarborough Bench with Back

Color/Finish: Grotto (Black), Powdercoat

Notes: Two arms per seat, Surface mounted



Standard Campus Bench, Type 2

Manufacturer: Landscape Forms, Inc.

431 Lawndale Ave. Kalamazoo, MI 49048
800.430.6209

www.landscapeforms.com

Model: Presidio Bench, armless

Color/Finish: Grotto (Black), Powdercoat

Notes: Surface mounted



Standard Campus Table with Chairs

Manufacturer: Landscape Forms, Inc.

431 Lawndale Ave. Kalamazoo, MI 49048
800.430.6209

www.landscapeforms.com

Model: Carousel Picnic Table

Color/Finish: Grotto (Black), Powdercoat

Notes: Solstice Sunshade



Standard Campus Bench, Type 3

Manufacturer: Landscape Forms, Inc.

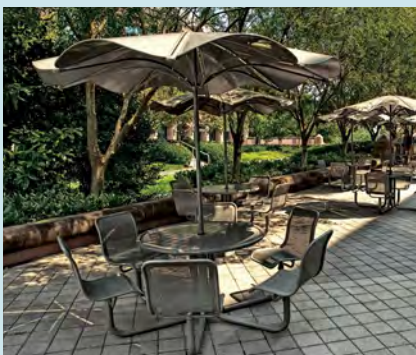
431 Lawndale Ave. Kalamazoo, MI 49048
800.430.6209

www.landscapeforms.com

Model: Plexus Bench

Color/Finish: Grotto (Black), Powdercoat

Notes: Surface mounted



Umbrellas

Manufacturer: Landscape Forms, Inc.
431 Lawndale Ave. Kalamazoo, MI 49048
800.430.6209
www.landscapiforms.com
Model: Solstice
Color/Finish: Grotto (Black), Powdercoat



Standard Moveable Table with Chairs

Manufacturer: Landscape Forms, Inc.
431 Lawndale Ave. Kalamazoo, MI 49048
800.430.6209
www.landscapiforms.com
Model, Chair: Traverse
Model, Table: Catena
Color/Finish: Grotto (Black), Powdercoat



Moveable Chairs for Lawn Areas

Manufacturer: Seaside Casual
11 industrial Drive, Coventry, RI 02816
800.809.3114
www.seasidecasual.com
Model: Adirondack Shellback Chair
Color: Varied Color Range

Manufacturer: Polywood, LLC
1001 W. Brooklyn St., Syracuse, IN 46567
855.935.5550
www.polywoodoutdoor.com
Model: South Beach Polywood Shellback
Color: Varied Color Range
Local Vendor: Clarks Outdoor Chairs
1008 New Circle Rd., Lexington, KY 40505
859.225.4399
www.clarksoutdoorchairs.com
salesandservice@clarksoutdoorchairs.com

TABLES AND CHAIRS (MOVEABLE FURNITURE)

Tables and chairs should be located in key gathering areas to offer opportunities for socializing, eating, and studying, preferably adjacent to buildings. Tables and the associated seating need to be easily accessible so they can be readily used as well as maintained. It is recommended that the University offer tables with moveable chairs in addition to the campus standard tables with fixed seating to allow for flexibility and to accommodate people in wheelchairs. Fixed seating may be complemented with an umbrella.

POST AND CHAIN

The campus standard for post and chain barriers shall be a simple aluminum fence post and 1/4 inch grade 30 proof coil chain in black powder coated finish. The posts shall be 3-inch diameter cylindrical cast aluminum posts, with cast aluminum ball-top cap, and cast aluminum D-ring. Posts shall be set plumb in PVC sleeves cast inside of concrete foundations. Concrete post foundations shall be held 6 inches below grade, but the PVC sleeve shall come up to finished grade. Posts shall be 60 inches tall, with 36 inches exposed above finished grade, spaced 9 feet on center. Low points of each chain between posts shall be set at 22 inches above grade.

BOLLARDS

The use of bollards should be minimized. However, in situations where unauthorized vehicular traffic on campus walkways, service drives, or designated fire lanes requires control, bollards may be employed. Bollard style should be in context with the surrounding architecture.

In service areas, such as loading docks, or wherever sensitive technical equipment—such as generators or transformers—need to be protected, a fixed bollard should be used.

ADA Access and snow removal must be considered in the placement of bollards.

BICYCLE RACKS

Bicycle parking should be strategically located near key destination points and be easily accessible from major campus bike routes. In the campus core, multiple high-density bike parking courts should be used to serve multiple destinations, while outside the core, bicycle parking areas for individual buildings should be utilized. Bicycle parking at residence halls should also include facilities that are protected from the elements (bike shelters/bike garages) wherever feasible. Appropriate quantities of bicycle parking at each site should be determined in consultation with the University of Kentucky Bicycle Advisory Committee. Bicycle parking should be located and secured to hardscape contiguous to walkways, plazas, and bike routes. Bicycle parking should be integrated with the surrounding landscape and complement the character of the buildings and landscape nearby.

COMPACTOR & DUMPSTER ENCLOSURES

Compactors and dumpsters should be consolidated in service zones across the campus, and not be located at individual buildings. Each service zone should be strategically located to adequately support several buildings.

All compactor enclosures need to be constructed of masonry walls extending well above the compactor or dumpster. The walls should utilize the predominate brick and mortar of the area served, and should be capped with limestone with an overhang of 1/4 inches. All enclosures should have automatically-operated metal gates, preferably with a horizontal pattern that allows for sufficient air flow. Gates should be colored black. Two openings shall be provided to deposit landfill and recycle waste; the openings shall be placed such that the compactor is concealed. The inside of the wall can be block, preferably painted a dark gray color, but the brick veneer needs to return on all end walls.

Dumpster enclosures may vary according to site conditions. Prior approval is required.



Standard Covered Bike Parking

Shelter: Brasco International
32400 Industrial Drive
Madison Heights, MI 48071
313.393.0393
www.brasco.com
Model: Aero
Color/Finish: Black, Powdercoat

Bike Rack: Dero Bike Racks, Inc.
504 Malcolm Ave SE, Suite 100
Minneapolis, MN 55414
313.393.0393
www.brasco.com
Model: Ultra Space Saver
Color/Finish: Black, Powdercoat



Standard Campus Bike Rack

Manufacturer: Park A Bike, Inc.
708 Alhambra Blvd. Sacramento, CA 95816
800.481.8524
www.parkabike.com
Model: Varsity Dock, Surface mounted
Color/Finish: Black, Plasticoat



Standard Campus Landfill & Recycle Receptacle, Type 1

Manufacturer: Landscape Forms, Inc.

431 Lawndale Ave. Kalamazoo, MI 49048

800.430.6209

www.landscapeforms.com/en

Model: Scarborough, top opening, vertical strap, side panel, surface mount

Color/Finish: Grotto (Black), Powdercoat

Notes: Custom Opening and Ocean Blue Lid for Recycling Receptacle,
Black Lid for Landfill Receptacle;
Freestanding, or grouped with Scarborough bench

WASTE RECEPTACLES

Landfill and recycling receptacles should be co-located and placed on hardscape dedicated to the bins, adjacent to campus pathways. Hardscape should match adjacent concrete or other materials.

The paired receptacles should not be placed right beside building entrances or outdoor seating, but should be in convenient proximity. The number of receptacles should be determined to strike a balance between necessary capacity and convenience on the one hand, and minimal visual impact on the other.

FENCES

Where enclosure or separation is necessary, fences can be introduced. So-called barrier fences shall be metal with a black finish. In the interest of creating a continuous campus environment, simple steel picket fencing is preferred over ornamental fencing. Chain-link fencing shall not be used in permanent installations.

Fences should not be used to enclose utility, trash, and service areas. To visually screen equipment, architecturally compatible site walls should be used instead.

BUS SHELTERS

To ensure a contextual streetscape appearance, placement and type of bus shelter should be coordinated with UK Transportation Services (TS) and the City of Lexington, where applicable. For replacement or in new applications, design should consider the following: 1) relevance of the design to the context, 2) ability of the shelter to promote the use of alternative transportation on the campus, and 3) shelter location that maximizes convenience and safety for the greatest number of potential riders while minimizing the traffic impacts of loading and unloading.

Further details can be found in the UK Transportation Master Plan.

PEDESTRIAN PAVEMENT

The following provides an overview of the recommended paving materials and installation techniques.

WALKWAYS

Walkway design should take into consideration a hierarchy of use and the need to accommodate service and emergency vehicles.

MATERIALS

The pedestrian walkway system on the campus comprises sidewalks along the streets, around the perimeter and inside the campus, as well as internal campus pedestrian walkways.

All sidewalks should be cast-in-place concrete with a smooth, broom or aggregate finish, as appropriate; and scoring perpendicular to the direction of travel. Design shall follow CPMD Official Design Standards; however, it should adapt to City of Lexington standards where applicable.

The internal campus walkways can be distinguished between primary and secondary walkways.

- Primary walkways should be exposed aggregate concrete to match the well-established existing installations on the campus; however, exposed aggregate should not be utilized in areas with relatively steep slope conditions. Concrete banding with a broom or smooth finish should be considered where possible for durability.
- Secondary walkways should be cast-in-place concrete with a broom or smooth finish and scoring perpendicular to the direction of travel.

- Asphalt paving may only be used for temporary walkways.

Handicap access ramps shall be constructed in cast-in-place concrete and shall conform to American Disabilities Act (ADA) and Architectural Barriers Act (ABA) standards (<http://www.access-board.gov/guidelines-and-standards/buildings-and-sites>).

All replacement and repair of walkways shall match existing concrete type and pattern unless the walkway does not meet the latest standards, described herein. In such case, walkway material and pattern should be brought to the current standards. Similarly, when adding new walkways to existing paving areas, type and pattern of the existing walks or plazas should be used to create a seamless transition. If only a small area of the existing walk remains near a project, it should be replaced.

LAYOUT

Walkways should align with building entrances where applicable, and be integrated with plaza and courtyard design. The intersections of walkways or sidewalks should be designed with corner radii that reasonably accommodate the turning movements of snow removal equipment, service vehicles, and the natural flow lines of pedestrian traffic. Minimum corner radius of sidewalks meeting at a 90 degree angle or greater shall be 4 feet. The minimum radius for sidewalks meeting at less than a 90 degree angle shall be 2 feet. Wherever possible, the inside corner radius of the sidewalk should be poured separately from the rest of the sidewalk for ease of repair or replacement. Walk width shall vary with the anticipated volume of pedestrian traffic. The following widths are proposed for various conditions around campus, and are provided for areas without established precedents:

Pathways with fire access	20 feet
Collector pathways	10-12 feet
Campus pathways	8 feet (standard width, occasional service vehicle)
Minor access routes	6 feet (min. width, very low traffic volume)
Emergency egress only	4 feet

PLAZAS AND COURTYARDS

A wider range of materials may be utilized for plazas, courtyards, connective and other spaces associated with campus buildings, with the intent of enhancing material richness and landscape character. Special pavement materials may include brick, stone, and concrete unit pavers, and shall be of high quality.

The selection of plaza and courtyard paving materials should always complement the surrounding buildings and landscape context.

Larger expanses of paving can be accentuated by a variation in material and/or paving patterns to promote a sense of scale and create visual interest. Paving materials and patterns should be kept simple and relate to their immediate surroundings.

Transitions from one pavement type to another should follow logical landscape divisions and other design considerations. Where landscape meets architecture, paving material selections should be coordinated with the exterior architectural materials and interior flooring materials to create a unified environment.

Introducing pervious pedestrian pavers or concrete panels should be considered as a means of infiltrating rainwater. Subsurface soil conditions, maintenance implications, and cost-effectiveness will influence the decision to use pervious pavers. Pervious pedestrian pavers should be of high quality material and should be selected for compatibility with adjacent landscape and architectural materials.

ROAD PAVEMENT, PARKING LOTS, AND SERVICE AREAS

Campus roads, service areas, and parking lots shall be asphalt (bituminous concrete) or concrete, adequately designed for their intended use.

For any new parking lot addition or replacement projects, pervious pavement should be considered where site conditions are suitable. The selection of pervious pavement will be dependent upon subsurface soil conditions, traffic loading, maintenance implications, and cost effectiveness. Pervious paving materials may include concrete or asphalt, concrete slabs with open joints on a permeable base, and pervious unit pavers. In areas of heavy traffic such as service yards and loading docks where oil and other concentrated pollutants may be present, pervious paving is not recommended.

The addition of structural soil consisting of an approved mix of gravel and soil should be considered underneath a portion of any new or improved parking area. This could provide additional stormwater management and credits.

Surface parking areas should include interior planting islands of sufficient size to allow for tree planting. Trees will provide shade, create a more habitable environment, and reduce the heat island effect. A minimum of 17 feet width for any parking island is recommended to properly support long-term tree development. With the selection of wet-tolerant trees, the vegetated island can also be used as a bioswale to support rainwater management.

CURBS

The preferred material for all roadway, parking lot, and driveway curbs shall be precast concrete curbs. Curbs shall preferably be installed with a 6 inch reveal above the finished grade of the road. Use of cast-in-place concrete and bituminous curbs shall be avoided.

CURB RAMPS

Curb cuts and curb ramps shall be provided along all handicap accessible routes as required and shall conform to ADA and ABA standards (ADA and ABA Accessibility Guidelines).

The ramp width shall be determined on a case-by-case basis considering factors such as pedestrian safety, width of connecting sidewalks, and utility pole locations, but shall always be a minimum of 3 feet wide.

Where curb ramps are embedded in the sidewalk, they shall have a wide gradual apron, wherever feasible.

Curb ramps on public streets shall use detectable warning plates with truncated domes that comply with ADA Accessibility Guidelines. The color of the detectable warning pavement should be consistent with local guidelines.

PAVEMENT MARKINGS

Crosswalks, handicapped parking spaces, and traffic markings should follow all regulatory standards. Crosswalks in high-traffic areas should be indicated with white striping in reflective

thermo plastic paint. Painting of curbs is discouraged and should be minimized. Where it is necessary for traffic and parking control, City of Lexington standards for color usage should apply.

REINFORCED TURF

Reinforced turf is proposed in the landscape—specifically lawn areas where emergency or infrequent service access is necessary. The intent is to maintain a green appearance while providing a drivable surface.

Lawn reinforcement can be provided by means of a planted plastic grid of adequate size and depth to support emergency vehicles, including fire trucks. Additional benefits of reinforced turf include minimizing impervious area and mitigating heat island effect.



STAIRS, RAMPS, AND RAILINGS

STAIRS AND RAMPS

Stair materials should be compatible with adjacent architectural and landscape surfaces.

Handicap access ramps should conform to ADA standards.

The preferred material for exterior stairs shall be natural stone (such as the one used at the entry to the Main Building) or precast concrete on a concrete foundation.

Stairs should be designed in proportions appropriate to the context. The proportion of treads to risers shall be determined on the basis of specific site conditions; however, a preferred proportion shall be 15-inch treads and six-inch risers. This is deliberately a flatter step than typical interior steps, and is more gracious for landscape applications.

Where more generous steps cannot be accommodated, a minimum of 12-inch treads to 6-inch risers shall be maintained. Handicap access ramps shall conform to ADA and ABA standards (<http://www.access-board.gov/ada-aba/final.cfm#a405>).

HANDRAILS AND GUARDRAILS

Handrails should be metal with an easily maintained finish, such as stainless steel or steel with a black powder coated or painted finish, depending on the context. The section for handrails should be rectangular, square, or circular in cross section compliant with ADA standards and other application design standards for handrails. Intermediate posts and rails, where required, should meet structural requirements and applicable standards should be kept to a minimum to create a simple profile.

The use of pickets together with railings should only occur where required by code. In most cases, a stair, ramp, or steps to a building will only require a top rail supported on square tube posts spaced at approximately 8 inches on center.

Steel is the preferred handrail material because it is a more durable material than aluminum or other similar metals and can be easily repaired and repainted in a standard campus metalworking shop.

Guardrails should be stainless or black-painted steel and should meet applicable codes. They should be designed to be compatible with the materials and design of associated or adjacent handrails. Simple rails are preferred over ornamental guardrails.

VERTICAL SEPARATIONS

SITE WALLS

Site walls can be used for grade accommodation, spatial definition, or visual screening purposes. They should adopt the scale, pattern, and quality of construction of the immediate landscape or architectural context. In the campus core and in other landscaped areas not associated with a building, natural stone with a limestone cap is the preferred material.

Wall materials should be durable high-quality masonry materials. Both materials and workmanship of site walls built in association with buildings, or screen walls at service areas, should closely match the quality and finishes of the building walls. The use of rustic or inferior site wall materials, such as concrete masonry units, should be avoided. The use of bare concrete walls should be avoided; should they be necessary for cost reasons, careful patterning of joints, cap, and other detailing should be employed to add scale and a higher level of finish. Vines may also be used to cover bare concrete walls in cases where soil is available for planting and solar exposure is favorable.

Seat walls are encouraged as a way to create informal meeting and gathering places at locations that naturally attract people, such as building entrances and intersections of major walks. Seat walls should be generously sized to allow for comfortable, informal use. The minimum depth for seat walls should be 18 inches. Seat walls should match or complement materials and quality of their immediate surroundings.

Materials for seat walls may range from high quality masonry materials to precast concrete elements, depending upon the context.

PLANTING BED EDGING

Where a retaining function is necessary, planting bed edges should be defined by site walls. In circumstances where one planting material meets another in a flush condition, metal edging should be used to demarcate bed edges. Informal stone or concrete cobble curb edges are prohibited. Bed edges should be constructed in straight lines or simple curves complementary to adjacent architecture or the site context. Elaborate ornamental planting bed shapes should not be used.



UTILITIES

Campus utilities can have a major impact on the overall visual quality and character of the landscape. In response, the following recommendations are provided to guide future decision-making.

- Place all new utility services underground
- Locate compatible utilities underground in common shared duct banks
- Place existing overhead utilities below grade in association with upgrades
- Minimize damage to existing plant material when locating utilities
- Locate all ground-mounted utilities in unobtrusive places, near buildings or site walls if possible
- Screen all utility structures with vegetation or with screen walls integrated with the design of adjacent buildings and context
- When necessary to place utilities lines above ground, use the same transmission pole system, follow existing building lines, mirror existing utility lines, or follow along the edges of tree lines

Underground utility systems and other similar elements should be designed to minimize conflicts with existing or future development sites, landscape, or building development. As utilities systems are developed or existing systems are upgraded, efforts should be directed toward defining utility corridors. These corridors should be logically located and developed to avoid random placement of lines.

Where new utilities conflict with existing landscape development, efforts should be directed toward tunneling or boring rather than traditional trenching systems. This approach results in significantly less damage and ultimate loss to landscape plantings and other site improvements.

UTILITY STRUCTURES

Utility structures such as manholes, fire protection pits, valve boxes, and other similar underground structures should be judiciously placed in either paved or landscape areas. In pedestrian walks or other paved areas, they should be designed to integrate visually with the paving and be placed out of the line of primary pedestrian traffic flow.





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POLICIES

CAMPUS LANDSCAPE GUIDELINES COMPLIANCE

To supplement the physical design guidance provided in previous chapters, the following policies are intended to assist the university in utilizing the guidelines and to inform the implementation process.

The Campus Landscape Guidelines are intended to promote unity and consistency in the campus landscape. All future implementation projects should comply with the recommendations or suggest ways in which the guidelines could be enhanced or improved.

POLICY FOR PROMOTING SUSTAINABILITY THROUGH THE CAMPUS LANDSCAPE

Sustainability is a core principle for the physical development of the University of Kentucky campus. The University broadly defines sustainability as simultaneously advancing economic vitality, ecological integrity, and social equity, now and into the future. Campus landscapes play a critical role relative to this commitment, especially in the areas of ecological integrity and the wellbeing of our community. The University will use the principles and resources developed by the *Sustainable SITES Initiative*[™] as guidelines for integrating the institution's commitment to sustainability with projects that impact campus landscapes. The *SITES* program recognizes sustainable landscapes as those that reduce water demand, filter and reduce stormwater runoff, provide wildlife habitat, reduce energy consumption, improve air quality, improve human health, and increase outdoor recreation opportunities.

DECISION AUTHORITY

The final authority for design decisions regarding the campus landscape lies with the University of Kentucky Facilities Management Group.

DESIGN REVIEW PROCESS

Site plans should be developed with sustainability as a priority, and design teams should report to the University using the current *SITES Rating System for Sustainable Land Design and Development*[™]. All projects should be designed to address prerequisites and maximize the points from credits appropriate to the context of the project. Third party certification is not required. A team composed of University personnel, including the Superintendent of Grounds, Project Manager, and the University Sustainability Coordinator, will review and approve compliance with this policy.

All projects will be designed with integration into the overall campus landscape and maintenance practices in mind. Scoring using the *SITES* scorecard and summary as a deliverable will be evaluated on a project by project basis depending on size and impact to the campus. If a formal scoring process is recommended, the CPMD/PPD Project Manager will request that a Summary Scorecard be presented during the schematic design phase to indicate targeted credits and will be updated and reviewed throughout the design and construction phases to monitor progress and change.

Additionally, all sustainability initiatives will follow the procedures in the Policy for Landscape Design Review Process and the Policy for Tree Protection during Construction included in the following sections.

Information on the *SITES* program and scoring can be found at <http://go.usgbc.org/SITES-Rating-System-and-Scorecard-Registration.html> or obtained through the University Office of Sustainability.

POLICY FOR LANDSCAPE DESIGN REVIEW PROCESS

The University of Kentucky campus landscape has evolved for over a century, resulting in a unique character defined by the order of the underlying land form, the pattern of streets, buildings, and plantings.

The Campus Landscape Guidelines are intended to inform the planning and design for the ongoing development of the landscape. All new construction and renovation projects should be consistent with the landscape guidelines, or suggest ways to improve the guidelines based on an understanding of the campus or experience with project implementation.

DECISION AUTHORITY

The final authority for design decisions regarding the campus landscape lies with the University of Kentucky Facilities Management Group.

DESIGN REVIEW PROCESS

The following process will guide design decision making for campus landscape projects.

STEP 1 : PRE-PLANNING AND DESIGN

Before an RFP is issued for a landscape project or a facilities or utilities project with a landscape component, the scope of landscape changes should be estimated in physical and monetary terms and documented in writing for use in the RFP. A budget for the landscape component of the project should be established with a reasonable contingency, based on the level of project specificity available. The functional, technical, environmental, educational, and aesthetic purposes and objectives of the landscape project should be documented in written form and included in the project brief. The University Arborist will determine if an ISA Certified Arborist, Registered Consulting Arborist or ISA Board Certified Master Arborist is required on the project team.

STEP 2 : BRIEFING OF THE DESIGN TEAM

After a landscape design team has been contracted, relevant information should be assembled and provided to the selected landscape design team including the following:

- Project description, including a statement of issues and budget
- Prior history and relevant studies of the project area
- Specific sustainable design strategies that may apply in accordance with the Campus Landscape Guidelines
- The Campus Master Plan and Campus Landscape Guidelines
- A list of trees to be protected
- Survey information indicating project limits, easements, boundaries, physical features, topography, vegetation, and infrastructure
- Circulation and parking patterns that affect the site
- Service and infrastructure functions that must be accommodated
- Maintenance requirements and parameters
- Details of related projects

STEP 3 : DESIGN PROBLEM SUMMARY

Designers of the landscape should review all of the briefing materials and conduct a thorough site analysis of the project area, including a review of existing trees identified for protection. Based on the site analysis and the briefing materials, the designers should prepare a design problem summary. The design problem summary should consist of a written narrative and drawings that describe the designer's understanding of the key challenges and opportunities of the project, key issue areas and problems to be solved, an

assessment of opportunities to apply sustainable design strategies, the key aspects of the existing site organization, landscape and building conditions surrounding the site, how the Campus Landscape Guidelines apply, and suggested directions for design. The design problem summary should be tailored in scope and detail to the nature of the problem, and presented to the University of Kentucky Facilities Management for review and comment prior to beginning Schematic Design. If significant new information becomes available during design, the design problem summary should be updated.

STEP 4 : DESIGN

The project design shall be presented to the UK Project Manager. The Project Manager will submit the project design summary to Facilities Management for review. If it is determined that the size and scope of a project warrant submission of a *SITES* scorecard and summary, reviews are proposed at the end of Schematic Design, Design Development and at 50% Construction Documents. Each of the presentations must include but not be necessarily limited to the following:

- A concise statement of the project purpose and objectives; what is to be achieved by the project
- A description of the particular existing conditions influencing the design response
- A summary of applicable guidelines from the Campus Landscape Guidelines

For Schematic Design, the presentation should also include but not be necessarily limited to the following:

- The design directions that logically offer themselves to achieve the project purpose within the context of the stated existing conditions
- A description of ideas related to sustainable design strategies employed
- Potential damaging impacts on existing campus trees and strategies for mitigation
- A preferred Schematic Design and a description of how it conforms to the Campus Landscape Guidelines, appropriate illustrations such as site-related bubble diagrams, sections, general site plans, and photographs to communicate the schematic design
- Summary of the construction cost estimate
- All measures proposed will be evaluated for suitability to the UK campus and operations as well as the project scope

For Design Development and Construction Documents, the presentation should also include but not be necessarily limited to the following:

- The detail development of the design and the decisions made to advance the project purpose
- A landscape design plan and a description of how it conforms to the Campus Landscape Guidelines with drawings and illustrations appropriate to the phase of work
- Detail development of sustainable design solutions employed;

- Detail planting design proposals and description of all trees proposed for removal, special protection, or transplanting
- Construction materials and details
- Updated construction cost estimates
- Landscape protection plan specifying fencing, root pruning and other measures specified for landscape protection during construction.
- The final plan should be approved by the Project Manager or Grounds prior to issuance for bids. The Manager of Grounds may also require an evaluation of the landscape protection plan by a certified arborist.

STEP 5 : CONSTRUCTION

If warranted by the complexity or sensitivity of the project, a representative of the design team may be requested to attend the pre-bid meeting and present the landscape component of the project to prospective bidders to ensure the landscape component of the project is understood. Upon selection of a contractor, a design team representative should meet with the contractor to review all landscape protection measures prior to construction. Facilities Management may periodically review the work progress during construction to observe compliance with landscape protection requirements.

POLICY FOR TREE PROTECTION DURING CONSTRUCTION

Campus trees are a significant resource contributing to local climate regulation, air and water cleansing, erosion and sediment control, stormwater quality control, habitat functions, food products, educational benefits, and human health and well-being. It is, therefore, important that the tree resources of the campus be protected from site and building construction activities.

PRE-PLANNING AND DESIGN

It is important that existing trees as well as tree protection be considered early in the planning process. At the outset of the design process for all landscape, building, utility, drainage, and infrastructure projects, the design team with the assistance of the Manager of Grounds shall identify all campus trees that might be impacted by the proposed project and submit these and other findings in the design problem summary during the Design Review Process. In addition, specimen trees of exceptional value because of their size, species, official designation, or role in the campus landscape will be identified. These determinations will be made for all projects including renovation, renewal, and new construction. During the design process, the design team should identify all conditions where construction activities such as grading, trenching, demolition, site access, building access, power washing, chemical treatments, construction parking, materials storage, and other activities potentially harmful to trees may occur because of a given building, infrastructure, or landscape project. Designs and protections should be conceived to minimize damaging impacts to existing quality trees as identified by the Manager of Grounds.

TREE PROTECTION PLAN

A tree protection plan should be prepared, and tree protection specifications such as fencing, signage, and pre-construction root pruning shall be included in the project manual.

In projects where tree impacts are anticipated, given the location of specimen trees and other important trees related to the project, the Manager of Grounds may direct that a tree protection plan be developed and included in the project

construction documents. The plan should be prepared based on field evaluation of the conditions surrounding the trees to be protected. The plan should indicate the locations of all trees to be protected, and specify the location of protection fencing, boxing, signage, root prune lines, special irrigation during construction, and other protection measures. The plan should also indicate protective measures to prevent damage to soils from compaction, spills, construction debris, and other negative impacts.

REFERENCED STANDARDS

All tree protection activities shall comply with applicable general or special requirements of the UK CPMD Official Design Standards found at <http://www.uky.edu/cpmd/design-standards/division-01---general-requirements-subgroup>:

- 010000S02 Tree Protection Standards

DAMAGE PENALTIES

Specimen trees within or adjacent to construction areas will be identified by the Owner and the Architect, and will be marked with green tags. Loss of any of these trees will result in fines assessed in accordance with the general and/or special conditions of the contract.

TREE PROTECTION FENCING

Prior to the start of demolition work and clearing and grubbing operations, tree protection fencing shall be installed in accordance with the tree protection plan. Fencing shall be located 15 feet beyond the drip line of trees to be protected,

unless otherwise approved by the Manager of Grounds.

ROOT PRUNING

Where construction will be in close proximity to existing trees designated to remain, roots shall be pruned in advance of construction. Root prune lines shall be indicated on the tree protection plan.

Root pruning is the physical cutting of tree roots to minimize root damage and promote healing and root regeneration. Suitable means for root pruning include mechanical trenching, compressed air or air spade excavation followed by hand pruning. Any method which excessively dislocates and tears roots or disturbs the soil beyond the grading limit is unacceptable.

CONSTRUCTION PERIOD IRRIGATION

Based on the specific site conditions, a determination should be made by the design team, with review by the Manager of Grounds, to include temporary irrigation for trees that will suffer root loss during construction. Temporary irrigation should be arranged to provide the tree with adequate moisture during the construction period and its recovery period after construction. Irrigation shall be included in the tree protection plan, and be approved by the Manager of Grounds prior to issuing the bid documents.

POLICY FOR STORMWATER MANAGEMENT

Stormwater management is an integral aspect of site design. All projects must abide by the University of Kentucky's Municipal Separate Storm Sewer System (MS4) permit for quantity and quality of stormwater runoff. Information on the MS4 permit and its requirements can be found through the UK Environmental Health and Safety Division.

More information on water management strategies can be found in Chapter 4: Ecosystem Service Guidelines of this report. Documentation and regulation concerning MS4 compliance and permitting can be found in the UK CMPD Official Design Standards: Division 00, Section 007200B00, Article 11 of the General Conditions; Division 00, Section 003126S07; and Division 30-39, Sections 334000S01 and 334000S02.

ADDITIONAL RECOMMENDATIONS

ART IN THE LANDSCAPE

In placing art, it will be important to consider the surrounding landscape and the way in which the art should be experienced. Sculpture, murals, pavement art, and other outdoor art is often most successful when carefully integrated with the surrounding landscape and architectural context. The scale of sculpture should be considered in relation to the scale of the surrounding context, its orientation, landscape and building background materials, shape, color, texture; general illumination and shadow patterns, and detail design of bases and mounting methods.

All placement of artwork shall be reviewed by the Committee for Art in Public Places. This is a decision making body in matters regarding the creation, placement, and care of works of art erected or installed, either permanently or temporarily, in public places on the University campus, as defined in AR 9:8. No work of art shall be erected or installed in places on campus that, by this regulation, have been designated as public places, without the approval of the committee.

CAMPUS SIGNS AND BANNERS



Design and placement of signs, plaques, banners, and the like on campus are regulated by the Campus Signage Policy. It applies to four primary types of signage allowed on University property including identification signage for buildings, facilities, venues, and directories; way-finding signage; regulatory signage for vehicular, bicycle, and pedestrian movement, parking, etc.; and temporary signage for events, announcements, etc. This policy also applies to various requests for donation plaques, memorial plaques, historical markers, and banners.

All requests shall be addressed to the University Architect and will be reviewed and approved by the University Architect and the University Signage Committee. Any design or placement issues not specifically covered in the Campus Signage Policy shall be addressed to and approved by the University Architect.

CAMPUS MEMORIALS AND MONUMENTS



When considering memorials or monuments for the campus, the sensitivity of meaning and the assumed longevity of placement require careful consideration. The meanings and values represented in the memorial will be associated with the shared values of the University. Given this important connection between the memorial and the values of the University, the location and long-term placement of memorials shall be reviewed and approved by the leadership of the University and the University Architect.

When dedicating a new memorial or monument on campus, the University should ensure the required ongoing maintenance is secured in the form of endowments or other means.

ADDENDUM

UPDATES TO ORIGINAL DOCUMENT

August 2015

- Updates to Site Elements Guidelines

August 2016

- Minor changes to SITES review process on pages 78 to 83;
Policy for Promoting Sustainability through the Campus Landscape, and
Policy for Landscape Design Review Process

November 2017

- Minor corrections to the Tree List on Page 46 and 47, including the removal of White Ash and Green Ash from the list
- Clarification of the role of the University Arborist; page 80 of the Policy for Landscape Design Review Process
- Updates to the Referenced Standards for Tree Protection During Construction; page 85
- Removal of portions of the sections on Damage Penalties, Vegetation Protective Signage, Tree Protection Fencing, Root Pruning and Construction Pruning from the Policy for Tree Protection During Construction. These were removed because they were duplicated in the CPMD Official Design Standards. Current versions can be found there
- Addition of a Policy for Stormwater Management; page 87
- Minor changes to concrete finishes used for pavements found in the Site Elements Guidelines on pages 68 and 69. The current finish for concrete is either smooth, broom or aggregate, depending on the situation

UPDATES TO ORIGINAL DOCUMENT

January 2019

- Updated pages 85 and 86 to reference the recently posted Tree Protection Standards
- Added reference to the revised Standards for Stormwater Management on page 87

April 2019

- Updated Lighting Guidelines on pages 59-61 to be consistent with change to LED lighting
- The standards and the content were updated on pages 64-67 to match current site furniture and guidelines.
- Elements from the 2006 UK HealthCare Landscape Design Vocabulary Manual by Towers/Golde have been incorporated into this set of guidelines so as to have only one reference for landscape design that covers all of campus

S A S A K I