Chapter 4
Integration

THE UNIVERSITY OF KANSAS
2014–2024 CAMPUS MASTER PLAN

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“There is a certain timelessness associated with this place that links generations and is evident in the physical surroundings. In the realm of higher education, these are qualities that are highly valued and difficult to recreate or replace. The unique role of topography at KU has provided the defining natural element to shape the plans for an institution whose sites, circulation, buildings, and landscapes would be built upon the semi-circular ridge with notable views to and from the campus.”

(KU 2008 Campus Heritage Plan, Preface, pg. 6)

The character-defining feature of the University of Kansas is the historic ridge and the accompanying hillside slopes. Growth patterns for buildings, open space, vehicular, and pedestrian circulation have been influenced over time by the narrow ridgeline and steep topography. Significant views from and within the campus also contribute to its unique history and character.

The campus evolved from a windswept prairie ridgetop to a forested and ornamental area of beautiful buildings, sites, and landscapes, due to the inspiration of early planners and designers. A strong history of planning has carried forth many of the ideas and principles to positively affect today’s campus.

As change is inevitable through strategic vision, the 2014-2024 Campus Master Plan is charged with identifying the best means for growth to occur, while respecting the historic integrity of the campus as well as contemporary growth patterns.
DEFINING FEATURES

As described in the Campus Heritage Plan, several features define the historic KU campus.

The Campus Encircling the Ridge
KU’s single most defining feature is the topography of Mount Oread as shown in Figure 4-1. The shape of the ridge encircles the north slope, creating a bowl where Memorial Stadium sits. The historic campus was built around this orientation with views to the north, east, and south.

The larger ridge extends to the south and west to the West District. This part of the ridge encircles the Central District from the South Slope Zone to Daisy Hill, with views to the south and east. It is in this extended ridge and valley that much of the contemporary campus is being developed.

The Research Sciences Zone in the West District sits within a low lying area bordered by fingers of the ridge to the north. This landform is largely masked in the West District by naturalized woodlands.
The Boulevard Campus, A Rhythm of Grand Buildings and Outward Views

The boulevard, now known as Jayhawk Boulevard, was integrated onto the primary ridgeline in the 1928 Hare and Hare plan and expressed the ideals of the “City Beautiful” movement. Other roads were integrated into the topography to climb the hillsides. Buildings were oriented to Jayhawk Boulevard, and spaced to provide outward vistas. This arrangement created linear outdoor rooms and a major circulation spine for pedestrians and vehicles, which is unique in university campus design.

Architecture

KU’s defining buildings represent a range of historical periods and architectural styles. Five buildings are listed on the National Register of Historic Places (NRHP) and the Register of Historic Kansas Places, including Spooner Hall, Dyche Hall, Lippincott Hall, Bailey Hall, and Strong Hall. In addition, 14 other buildings are individually eligible for listing on the National Register of Historic Places, and another 11 buildings are contributors to the National Register Historic District.

The most distinguishing common identity of this collection of buildings is the limestone exteriors and red roofs. Locally quarried stone, including from Mount Oread itself, produced much of the material for buildings and site walls. Exterior façades vary in texture and style, but a consistent use of limestone unites the buildings’ overall character. Red roofs in multiple materials exist on most of these buildings, and have been used on some contemporary buildings as well.

Landscape

Gentle grading and designed hillsides characterize the beauty of the north slope of Marvin Grove and Potter Lake. The slopes of Mount Oread were open prairie land at the origins of the campus, and the hillsides were intentionally planted to create the woodland setting. This pastoral setting is characterized by rolling lawns and informal groupings of trees that focus views to the stadium and beyond. The streetscape definition of Jayhawk Boulevard, originally with rows of elms, is another defining element, and is now being replanted with a mix of varietals to restore the historic intent. Other distinguishing landscape features are the smaller gardens, lawns, and understory plantings associated with buildings and hillsides along Jayhawk Boulevard. These features define the experience of the North District and to a greater extent, the university as a whole. As newer areas of campus mature, they will develop their own character. However, many of the same topographic constraints and opportunities of the North District exist in the Central and West districts. Therefore, the principles guiding the development of the historic campus should be applicable to all the districts.
HERITAGE PLAN & HISTORIC PRESERVATION MANAGEMENT PLAN

OVERVIEW
KU is fortunate to have an outstanding Campus Heritage Plan [2008] developed under the auspices of the Getty Foundation’s Campus Heritage Grants Program. This document provides an overview of preservation tools, delineates a specific study area, creates context for the physical development of the campus, defines design philosophies, enumerates historic resources within the study area, and provides preservation recommendations.

Continued Evolution and Updates to the Campus Heritage Plan
From the outset, the Campus Heritage Plan was intended to be a living document for treatment and preservation strategies that would be updated over time. Intended updates include new historic documentation and discussion of emerging preservation procedures such as sustainable practices in preservation technology for buildings and landscapes.

The plan focused largely on the 19th and early 20th century resources of the Hill, Marvin Grove, and buildings and sites along Jayhawk Boulevard. It was recognized during the process that there were later buildings and landscapes that should be considered for their historic significance both as works of design and for their expression of historic context such as the expansion of higher education in Kansas and the growing range of research at KU.

The more recent addition of the East Historic District, embracing several distinctive scholarship houses, reflects this trend toward preserving later historic resources. Future investigation should include other mid-20th century resources such as Memorial Drive and open spaces designed by campus landscape architect Alton Thomas. The historic rural landscapes in the West District, including former farms and Pioneer Cemetery, also merit further study and potential archaeological investigation.

Since the completion of the Campus Heritage Plan, the State of Kansas has repealed its regulations on “Environs” which stipulated that zones within 500 feet of resources listed on the state and national registers be studied and protected. The Campus Heritage Plan responded to the then active Environs law by documenting character-defining viewsheds into, between, and out from historic buildings and Jayhawk Boulevard, itself a defining historic resource. Intended as a long-term document, the plan’s viewshed analysis remains relevant and these views should continue to be protected from the encroachment of new structures or significant alterations to topography.

Recommended Preservation Planning Policies and Procedures
This component of the 2014-2024 Campus Master Plan is not meant to re-create the existing Campus Heritage Plan. Rather it is meant to complement and expand the document consistent with the demands of the university’s request for proposals and scope of work, develop planning guidelines to manage the balance between growth, and maintain the key heritage elements of the campus.

Preservation planning guidelines are proposed to be strategies that provide overall guidance for the consideration of historic resources as the campus evolves and will:

• Outline the basic preservation methodology and infrastructure relevant to the university
• Provide recommendations to strengthen the role of historic preservation on campus
• Explore the current preservation decision-making procedure using Wescoe Hall as an example
PRESERVATION METHODOLOGY

The most basic distillation of historic preservation methodology is to identify, evaluate, and treat. By surveying and documenting resources, there is a record and a basis for organization and categorization. From the amassed data of identified resources, it is possible to determine which have significance and integrity and which are merely old or so compromised as to be unable to communicate their historic appearance. Those that have been evaluated and found to meet specific criteria can be designated and considered for special treatment, whether that is actual physical restoration, preservation, or adaptive reuse.

Many campus resources are inventoried in the database with the Kansas State Historic Preservation Office. This office is mandated to identify and document historic buildings across the state and maintain a database and inventory with supporting documents. It is unclear how well this data is integrated into the day-to-day maintenance and facilities planning at KU. Data about the historic nature of resources on the campus should be integrated into the university’s resource management databases and GIS systems.

Criteria often used to evaluate resources are that of the National Historic Landmark Program, National Register of Historic Places, Register of Kansas Historic Places, and City of Lawrence Historic Register.
CURRENT RESOURCES
The university has five buildings individually listed on the National Register, including Bailey Hall, Dyche Hall, Lippincott (old Green) Hall, Spooner Hall, and Strong Hall. It has two National Register districts as illustrated in Figure 4-2, the University of Kansas Historic District and the University of Kansas East Historic District.

The State of Kansas also maintains its own register. According to the state preservation office, The Register of Historic Kansas Places is the “official list of historically significant properties. Properties included in the National Register are automatically listed in the State Register. However, not all properties listed in the State Register are included in the National Register. The same general criteria are used to assess the eligibility of a property for inclusion in the State Register, but more flexibility is allowed in the interpretation of the criteria for eligibility.” For example, the Chi Omega sorority house, which is not on university property, is listed on the Kansas Register, but not the National Register.
Resources nominated to the federal and state registers are required to have both significance and integrity. That is, they must be important for some reason and must be able to communicate their historic appearance. These two requirements are assessed on a spectrum by a panel of experts. Generally, properties must be at least 50 years old. It is important to note that with the passage of time, or with the discovery of new information about a resource, its eligibility for listing on the registers can be reassessed, and previously ineligible resources can become eligible. Conversely, listed or eligible resources can be de-listed or deemed ineligible if their integrity is greatly damaged or if information about their significance is refuted. While it is unusual for designations to change, it is not unheard of.

The City of Lawrence has its own Lawrence Register of Historic Places, which includes landmarks and districts as set out by local ordinance. It also has a Historic Resources Commission (HRC) charged with recommending resources to be designated as local landmarks and districts.

For locally designated landmarks and districts, the HRC reviews proposed activities and determines whether they meet published guidelines and if so, authorizes a certificate of appropriateness for the project, allowing it to move forward.

These four designations as previously described have similarities and set forth clear criteria and processes for designation. They do not preclude the university from developing its own designation program with its own criteria.

**ORGANIZATIONS**

The National Historic Preservation Act of 1966, as amended, not only establishes the National Register of Historic Places and the network of state historic preservation offices, it also mandates a review process for any federal undertaking that may have an effect on National Register listed or eligible properties. This process, Section 106 review, requires that any federal undertaking (which includes direct federal actions, actions that are federally funded, or require a federal permit or license) be reviewed to determine if there are any historic resources within the Area of Potential Effect (APE). If so, it must be determined if the undertaking will have an effect, if the effect is adverse, and if so explore ways to mitigate the adverse effect. While the Advisory Council for Historic Preservation (ACHP), an appointed federal panel, has the ultimate responsibility for the Section 106 process, in most cases the role is delegated to the state preservation office.

In some cases the state office can further delegate the process to a Certified Local Government (CLG). While Lawrence is a CLG, it does not have those powers. Thus the state office has jurisdiction to review any federal undertaking to assess its effects on properties listed on the National Register (either individually or as a contributing element of a larger district) or that is eligible for listing on the National Register.

The State of Kansas has a Preservation Act, enacted in 1977. Portions of the act, as amended by recent legislation, says, “The state or any political subdivision of the state, or any instrumentality thereof, shall not undertake any project which will damage or destroy any historic property included in the national register of historic places or the state register of historic places until the state historic preservation officer has been given notice, as provided herein, and an opportunity to investigate and comment upon the proposed project.” Similar to the National Historic Preservation Act, the review process may be delegated.
In 1999 the university entered into an agreement with the state preservation office to establish the Campus Historic Preservation Board (CHPB) to perform mandated state preservation reviews. In addition to project reviews involving historic resources, the board is charged with creating a program to identify and evaluate historic properties on the campus. It should include a majority of members who are professionally qualified in archeology, architecture, architectural history, history, or related fields.

In 2001, the university entered into a memorandum of understanding with the City of Lawrence to establish the process for the review of projects for properties owned by the State of Kansas and others owned on behalf of the university by a separate legal entity. In both cases, both boards review the proposed project. If their determinations differ, they are to have a joint meeting. If there is no consensus at the joint meeting, the state preservation office is authorized to make a final decision. The memorandum of understanding was reaffirmed in a later cooperation agreement between the university and the city in 2005.
CLARIFY ROLES OF CAMPUS PRESERVATION ORGANIZATIONS
The university also has a Campus Historic Advisory Board (CHAB). Unlike CHPB, it has no regulatory powers or responsibilities.

While the existence of two campus preservation organizations might seem redundant, there is a strong precedent for dual preservation groups. Most states and cities with active preservation communities have both a regulatory preservation group, generally housed in government, and an advocacy group, generally a non-profit. Dividing the regulatory role from the advocacy role allows the regulatory functions to proceed without perceived conflicts of interest and allows advocacy to promote preservation solutions and build consensus beyond what might be appropriate for a regulatory body.

With that model in mind, the CHAB should develop a mission statement that includes advocacy, education, and public awareness. The CHPB should continue in its mandated role and articulate that role clearly to the larger community. CHAB can explore further options to educate the community about campus history through seminars and walking tours, support the efforts for increased survey and designation on campus, and expand awareness of the campus resources through a website, social media, and other means. Also the CHAB should seek opportunities for recognition of the university’s preservation efforts through internal and external award programs.

CREATE A MANAGEMENT POLICY FOR THE BOARDS
The CHPB has some policies including an open meetings provision and a requirement to maintain minutes and records of meetings. Both boards would be well served to have a written mission statement, strategic plan, annual work plan and reports, open and regularly scheduled meetings, published minutes, web page, and list of board members. Transparency builds support and a constituency for these organizations.

INTEGRATE RESOURCE DATA INTO UNIVERSITY SYSTEMS
All university systems that manage and collect data on buildings, structures, landscapes, planting, paving, sculpture, and the like, should be adapted to include specific information on the resource’s history and significance. These should include, but not be limited to, date of construction, designer, style, survey status, and designation status. The preferred option is a database tied to GIS with the ability to link to photos and drawings. This would help to insure that preservation is a de facto component in the decision-making process for maintenance, rehabilitation, adaptive use, and ultimate disposition of resources.

CONTINUE TO DESIGNATE RESOURCES
The university should continue to support the effort to designate resources deemed eligible for listing on the registers by the state preservation office. Not only does designation help to clarify and distinguish what resources should be considered for special treatment, it also allows the university to expand the number of buildings eligible for rehabilitation tax credits.

CREATE A HISTORIC PRESERVATION STAFF POSITION
Many campuses have a designated staff person whose sole responsibility is historic preservation. This person would track the campus inventory of resources, coordinate designation efforts, provide training and oversight to preservation boards and committees, establish and review maintenance procedures for historic buildings and landscapes, and serve as a general ombudsman for historic resources on campus.

ESTABLISH TRAINING AND EDUCATION REQUIREMENTS
In its agreement, the Kansas State Historic Preservation Office will provide training for the Campus Historic Preservation Board. However training should be designed not only for board members, but also for facilities staff. Particularly relevant are technical classes that address the maintenance of historic buildings. This training is useful for staff assigned to repair buildings as well as those who may be supervising outside contractors. Some institutions have created staff certificate programs, completion of which can be tied to performance reviews and salary levels.
DEVELOP MAINTENANCE GUIDELINES
The university should develop a workbook of maintenance guidelines for materials treatment. This workbook could be the foundation for training as well as a reference tool for developing scopes of work for the repair and maintenance of historic buildings. It should be based on the National Park Service Preservation Briefs which are a series of technical documents that address hands-on restoration and rehabilitation techniques such as repointing and repair of masonry and historic windows. A list of the briefs with links to the publications can be found at www.nps.gov/tps/how-to-preserve/briefs.htm.

CONTINUE TO PURSUE ADAPTIVE USE
The university has a long history of adaptive use of campus buildings. This is often driven by necessity and the immediate need for space. Adaptive use of existing resources must continue to be a priority as it supports campus goals for sustainability by recycling these assets for new and continued use and avoids wholesale demolition with subsequent landfill issues.

CONTINUE APPROPRIATE REVIEW OF PROPERTIES
The KU Campus Historic Preservation Board uses the Secretary of the Interior’s Guidelines for Rehabilitation when reviewing properties. The standards are broad, designed to have flexibility to cover a myriad of resource types and projects. They set forth what should be done, but not how. In addition, compliance with these standards is required when the university applies for tax credits to help finance preservation projects. The 10 standards are as follows:

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
CASE STUDY

It was requested that Wescoe Hall be used as a case study for preservation compliance and policy. This case study, being entirely theoretical and without a specific program, will examine numerous scenarios in order to identify a typical process for evaluation.

For any proposed action involving Wescoe Hall:

- Determine if Wescoe Hall has been surveyed and documented at the Kansas State Historic Preservation Office.

  Wescoe Hall has been surveyed and assigned site # 045-4058. It is a brutalist-style building, designed by Horst, Terrill & Karst of Topeka and constructed in 1973. If the building had not been surveyed and inventoried, it should be done in the near future.

- Determine if the project is in an area of shared or overlapping jurisdiction between the City of Lawrence and the University of Kansas.

  Wescoe Hall is not in such an area. If it were, and the property was on the state or federal register and owned by the State of Kansas, the Historical Records Policy Board would review the work first and the Lawrence Historic Resource Commission second. Were Wescoe Hall in an area of shared or overlapping jurisdiction and listed on the state or national register, the order of review would be reversed.
Determine if Wescoe Hall has been or could be designated on the state or national registers.

Wescoe Hall is not listed individually on the National or Kansas Registers. It is within the University of Kansas Historic District, but is categorized as non-contributing. The state office database notes, “This building stands within the boundaries of the University of Kansas Historic District but is less than 50 years of age and does not have exceptional significance. The building is therefore non-contributing, though its status should be re-evaluated when it does reach 50 years of age.”

If Wescoe Hall had been designated, the Campus Historic Preservation Board would be required to review building renovation projects using the Secretary of the Interior’s Guidelines and forward its finding and decisions to the Kansas State Historic Preservation Office.

In the case of Wescoe Hall, the building has been reviewed and is not yet considered eligible. The notes in the state preservation office database are telling. Generally, a resource must be over 50 years old and fall within the period of significance if in a district to be listed on the Registers or considered contributing to a district. Wescoe Hall could be re-evaluated in 2023 and found to be eligible for individual listing. If it does not achieve that standard, it could be considered a contributing resource with the district if the period of significance were extended to 1973.

The question at the crux of Wescoe Hall as a case study is not whether preservation must be considered, as designation triggers mandatory consideration, but whether preservation should be considered in the absence of designation. There are pragmatic issues in terms of program, space needs, and maintenance costs that bear on the proposed project as well. But from a preservation perspective, there is an opportunity to have a community discussion about the resource.

Have a seminar or workshop on brutalist architecture. Learn more about the style, its practitioners, and the reasons for its emergence to get a sense of where Wescoe Hall falls within the brutalist oeuvre. Examine Wescoe Hall’s role within the campus itself. Why was it built? Why is it so very large? What was its original program? Did it serve its function well? Does it still? Have important things happened in the building? Despite its appearance, has it grown to have a place in the campus’ collective memory? Does its style speak to the surrounding buildings and if so, what does it say? Does it relate to the rest of the campus? Are there new functions and programming it can house? If changes are needed—can they be reversible? What are the character-defining interior spaces and how can they be preserved? It is sometimes hard to see beyond the aesthetics of a building to its significance, role, and design intent. But these are questions that can help decide a building’s disposition.

There are many resources that could be designated but are not. This may be due to a lack of resources to prepare a nomination, a lack of interest on the part of the property owner, or a variety of other reasons. It is important not to assume that a property that is undesignated could not be designated. If a property has been surveyed but not designated, the state preservation office could be asked to give an opinion about the eligibility of the property. However, such an opinion generally demands that building data, including photographs, be assembled for review. Some resource are placed on the Register before they are 50 years old, but they are of “exceptional importance,” which is a high standard.
INTRODUCTION
The 2014-2024 Campus Master Plan creates a framework for growth that builds on the legacy of the historic core, while providing a road map for physically implementing Bold Aspirations. The design guidelines are high-level recommendations for implementation intended to focus on broader principles without constraining design creativity and interpretation. The intent is to steward KU’s substantial natural and built resources, guide sustainable future growth patterns, and inspire the creation of new campus buildings and grounds that add to the unique Lawrence campus identity.

Great university campuses are memorable, as much for the civic realm of open spaces, as for the individual buildings themselves. The whole is greater than the sum of its parts. Design of individual building and landscape projects should contribute to the campus legacy of architecture and open spaces.

RESOURCES
The KU Office of Institutional Research and Planning provides data, information, analysis, and planning for the advancement of the institutional mission. KU Design & Construction Management provides design and construction standards for technical design issues. KU Facilities Services provides information on environmental stewardship and energy management.

Campus Heritage Plan
The Campus Heritage Plan, finalized in 2008, provides the campus and university community with a broad, comprehensive understanding of the historic development of the campus. This wide perspective not only documents the incredible history of campus development, but offers a rich resource for leaders addressing future changes to the physical campus.

Center for Sustainability
KU Center for Sustainability promotes a culture that empowers students, faculty, and staff to make decisions that help protect natural ecosystems, to create economic prosperity, and treat all people with equality and respect. Through campus and community partnerships, it strives to integrate sustainability into education, research, campus operations, and campus life.

Wayfinding
KU is in the process of implementing a wayfinding system. Signage for the Lawrence campus may have to be revisited as a result of this master plan, because of the designation of new campus districts. The North, Central, and West districts should replace the old nomenclature of Main Campus and West Campus. Wayfinding at the Edwards campus is complete.
CAMPUSWIDE DEVELOPMENT

This section addresses development guidelines applicable for the entire campus, including hilltop and hillside development, hierarchy of planning, and stewardship.

HILLTOP AND HILLSIDE DEVELOPMENT

Historic hilltop development defines the Lawrence campus. Building on hilltops and hillsides adds complexity and cost to capital projects. However, with careful planning and a sustainable approach to siting buildings, it can be functional, aid with navigation of the hillside, create a coherent campus framework, and add visual interest. Other multiple campus systems, such as access and accessibility, auto circulation, parking, and service must also be carefully considered. Successful strategies from the historic campus core should be utilized in new development in order to promote a consistent campus character.

Guidelines for Hillside Development

Grading:

• Design to minimize hillside recontouring.
• Avoid extensive cut and fill.
• Utilize limited earthwork and retaining walls to prevent erosion and slope failures.
• Protect valued native vegetation.
• Protect natural drainageways through setbacks and minimal grading.
**Building Design and Placement:**

- Avoid steep slopes and unstable areas.
- Design buildings to fit into the topography as opposed to extensive terracing, especially on steeper slopes.
- Site long sides of buildings parallel to hillside contours or perpendicular to the slope.
- Roof pitches should be parallel to contours or perpendicular to the slope, in general.
- Site buildings to promote accessible circulation on hillsides through careful placement of entries relative to slope and neighboring building entries.
- Preserve vistas and viewsheds from ridge lines.
- Roof forms should provide visual interest from hilltops.
- Establish building setback lines to protect existing vegetation, rock outcroppings, and drainage flows.
- Allow for adequate drainage through side yards between buildings.

**Building Frontage and Service:**

- Site the main public entry on the highest accessible side of the building.
- Buildings should meet the grade and be accessible on high and low sides.
- Service locations should be allocated to the lowest accessible elevation, or in the least prominent location.

**Access:**

- Minimize road construction by utilizing shared access and service drives.
- Construct narrowest road allowable, consistent with emergency vehicle needs to minimize grading.
- Build roads to rise and fall parallel with the hillside, or perpendicular to the slope.
- Align secondary or service roads, with a lower building level on the downside of the slope when feasible.
- Design street alignments, utilities, and drainage improvements to promote retention of trees and other important site features.
- Create pedestrian paths that have an accessible route that rises parallel to the grade in addition to a more direct route utilizing stairways.
**HIERARCHY OF PLANNING**
In addition to the design characteristics of individual buildings, university campuses are shaped by the hierarchy of icon and infill buildings. Important public buildings are sited at positions of prominence within a campus. Surrounding buildings serve as a setting or background, which accent these more significant, iconic buildings and define the associated open space. The iconic buildings tend to be programmatically significant such as a main library or administrative building, chapel, museum, or performing arts facility. The intent of this hierarchy is to establish a system of landmarks and focal points that enrich campus character and also assist in orientation and wayfinding. An iconic building typically becomes more prominent through its siting, height, materials, or architectural features.

**STEWARDSHIP**
Individual building projects must be designed with consideration to the strategic vision of the university as well as contribute to the overall planning strategies of the district and campus as a whole. Key elements for architectural sustainability that should be incorporated into all new projects at KU:

- Preservation of historic resources.
- Energy efficiency – meet or exceed all code requirements.
- Environmental responsibility – at a minimum meet the equivalent of LEED® Silver certification on an individual project basis. The university also should continue to require ASHRAE 90.1 plus 30 percent improvement, a requirement that is energy and environmentally based.
- Accessibility – each new project should seek to be fully accessible.
- Fiscal responsibility – efficiency in built systems by calculating life-cycle costs.

As an institution of higher education, the University of Kansas should make a significant contribution to a sustainable future for the campus and community. This pursuit would create new opportunities for cross-curricular learning and research, as well as responsible environmental, social, and fiscal operations on campus. The university’s Center for Sustainability continues to find collaborative solutions to sustainability challenges that face KU and the global community.
DISTRICT GUIDELINES: NORTH DISTRICT

FIGURE 4-3: NORTH DISTRICT DESIGN PRINCIPLES

- CAMPUS GATEWAY
- SIGNIFICANT BUILDING FAÇADE
- ICON / LANDMARK
- ORGANIZING AXIS
- MID-HILL WALK/JAYHAWK TRAIL
- KEY PEDESTRIAN ROUTE
- SIGNIFICANT VIEW
- CRITICAL OPEN SPACE
- WOODED / NATURAL AREA
Guidelines by campus district provide recommendations for implementing campus master plan concepts through urban design principles and building and landscape projects. They are intended to provide district specific planning and architecture guidelines, while helping to promote connection between districts.

**NORTH DISTRICT CHARACTERISTICS AND INTENT**

The historic core of the North District remains the identity of the university. As a whole, it has varied architectural character, from iconic buildings to the large post-war academic buildings between Jayhawk Boulevard and Sunnyside Avenue. The overall intent for planning and architectural guidelines in this district is to respect, reinforce, and reinvigorate the historic environment through new buildings and landscapes. Through additions and infill development in the South Slope Zone, the guidelines will help create a better connected series of open spaces and accessible circulation paths that promote an interconnected district and campus. These connections and spaces will enhance multidisciplinary collaboration and provide more student social spaces in the North District.

**DESIGN PRINCIPLES**

Many of these are illustrated per Figure 4-3.

**Planning guidelines for the ridgetop**

- Reinforce Jayhawk Boulevard as a continuous linear space with a rhythm of front lawns at building entries.
- Preserve views from the ridge.
- Strengthen these spaces through landscape plantings, small gathering areas around building entries, and other site amenities.
- Visually connect Strong Hall’s front lawn space to Wescoe Beach in order to enhance the heart of the historic core.
- Reinforce the lawn space between Watson Library and Fraser Hall as a student destination.
- Create more opportunity for outdoor activity in front of the Kansas Memorial Union.

**Planning guidelines for the South Slope Zone**

- Reinforce the hillside space connecting Jayhawk Boulevard and Sunnyside Avenue as the primary pedestrian route and civic space.
- Utilize new construction on the hillside to create a more direct accessible route to navigate the hill.
- Create a shared-use path, Jayhawk Trail, across the hillside to connect Jayhawk Boulevard and the Central District.
- Create an inviting green space east of Malott Hall.
- Strengthen Sunnyside Avenue as a “complete street.”
- Strengthen Murphy Hall’s presence as the terminus view for Naismith Drive.

**ARCHITECTURAL GUIDELINES**

**Building Siting**

- Site buildings to reinforce important open spaces with consistent setbacks.
- Follow guidelines for building on hillside conditions.
- Generally orient buildings in east-west direction for solar gain.
- Site buildings to create new and preserve existing viewsheds.

**Architecture**

*Height and Mass:*

- A variety of building heights in the flatter areas of the district will help reinforce hierarchy and orientation.
- Buildings should be limited in height to preserve views to and from the hillside.
- Building mass for facilities housing larger footprint programs should be broken down to reflect functional use areas.
- Break down mass to provide identifiable base, middle, and top to buildings.
- Height and mass should relate to the building’s status as an icon or supporting structure.
Scale and proportion:

- Utilize elements to relate to human scale at the ground level such as fenestration, materials, and datum lines.
- Utilize a vertically-oriented window and bay system consistent with historic district rhythms.
- Balance window and wall composition on building façades to maximize daylighting.

Architectural Elements:

- Introduce consistent use of building entries and porches to create a usable threshold between outdoor space and indoor lobby space.
- Roofs should be generally flat, with strategically placed pitched red roofs to highlight important buildings, axis, or spaces.
- Materials should be durable with minimal maintenance needs.
- The use of limestone for building façades is preferred, with brick as a secondary option.
The historic lawns of Stauffer-Flint Hall and Watson Library
DISTRICT GUIDELINES: CENTRAL DISTRICT

FIGURE 4-4: CENTRAL DISTRICT DESIGN PRINCIPLES

- CAMPUS GATEWAY
- SIGNIFICANT BUILDING FAÇADE
- ICON / LANDMARK
- ORGANIZING AXIS
- JAYHAWK TRAIL
- KEY PEDESTRIAN ROUTE
- SIGNIFICANT VIEW
- CRITICAL OPEN SPACE
- WOODED / NATURAL AREA
CENTRAL DISTRICT CHARACTERISTICS AND INTENT
The Central District is key to future development on the KU Lawrence campus. Relatively flat and underutilized land may be transformed for a significant portion of new campus facilities. Architectural character is lacking in this district, with the exception of the iconic Allen Fieldhouse. Reinforcing the campus gateway at 19th Street and Naismith Drive is important to creating an identity for the district. New science facilities within Innovation Way, along Irving Hill Road, will create a second district center and allow for new pedestrian paths that connect the Central District to the West and North districts.

DESIGN PRINCIPLES
Many of these are illustrated per Figure 4-4.

Planning guidelines for the Irving Hill Zone and 19th Street Corridor
• Views from Daisy Hill should be preserved and enhanced.
• Views into campus along 19th Street should be enhanced.
• 19th Street frontage should be developed with more consistent and higher quality site development and landscape treatments.
• The completion of a street from Irving Hill Road to 19th Street provides the backdrop for Stouffer Green, a new civic space modeled after Marvin Grove.

Planning guidelines for the Naismith Drive
• New gateway elements are necessary at the intersection with 19th Street.
• Building façades should create a more urban streetscape.
• Facilitate the pedestrian path connections across Naismith Drive.
• Create a new civic space at the intersection of Sunnyside Avenue and Naismith Drive with façade enhancements to Robinson Center.

ARCHITECTURAL GUIDELINES
Building Siting
• Site buildings to reinforce important open spaces and the Jayhawk Trail with consistent setbacks.
• Follow guidelines for building on hillside conditions.
• Generally orient buildings in east-west direction for solar gain, however, buildings fronting Stouffer Green at the Irving Hill Zone must provide an architectural edge to the space.
• Site buildings to create new and preserve existing viewsheds.
• Site building at the corner of 19th and Iowa Streets to sponsor a possible bridge connection over Iowa Street.

Planning guidelines for the open space around Engineering
• This improved space is a key element in the continuation of Jayhawk Trail from the North District to Stouffer Green.
• New buildings should reinforce the geometry of this space.
• Views and pedestrian amenities should be enhanced along 15th Street.

Planning guidelines for the Irving Hill Zone and 19th Street Corridor
• The new science facilities should provide an eastern frontage to Stouffer Green.
• The new science buildings should reinforce Jayhawk Trail by providing a series of interconnected open spaces.
• New mixed-use development at 19th Street and Iowa Street acts as a gateway to campus and a bridge to the West District.
• These mixed-use facilities should reflect the topography of the hillside and be sited to partially front new student recreation fields.
• A new east-west pedestrian path linking Stouffer Green to Ambler Student Recreation Center would be an important new connection.
• A shared service zone for Athletics and Irving Hill Zone is needed south of Anschutz Sports Pavilion.

Planning guidelines for the Naismith Drive
• New gateway elements are necessary at the intersection with 19th Street.
• Building façades should create a more urban streetscape.
• Facilitate the pedestrian path connections across Naismith Drive.
• Create a new civic space at the intersection of Sunnyside Avenue and Naismith Drive with façade enhancements to Robinson Center.
Architecture

Height and Mass

- A variety of building heights in the flatter areas of the district will help reinforce hierarchy and orientation.
- Buildings should be limited in height to preserve views to and from the hillside.
- Building mass for facilities housing larger footprint programs should be broken down to reflect functional use zones.
- Break down mass to provide identifiable base, middle, and top to buildings.
- Height and mass should relate to the building’s status as an icon or supporting structure.

Scale and proportion

- Utilize elements to relate to human scale at the ground level such as fenestration, materials, and datum lines.
- Utilize a vertically oriented window and bay system on façades consistent with historic district rhythms.
- Balance window and wall composition on building façades to maximize daylighting.

Architectural Elements

- Introduce consistent use of building entries and porches to create a usable threshold between outdoor space and indoor lobby space.
- Roofs should be generally flat, with strategically placed pitched red roofs to highlight important buildings, axis, or spaces.
- Materials should be durable with minimal maintenance needs.
- The use of limestone for building façades is preferred, with brick as a secondary option.
FIGURE 4-5: WEST DISTRICT
DESIGN PRINCIPLES

- CAMPUS GATEWAY
- SIGNIFICANT BUILDING FAÇADE
- ICON / LANDMARK
- ORGANIZING AXIS
- JAYHAWK TRAIL
- RECREATION TRAIL
- SIGNIFICANT VIEW
- CRITICAL OPEN SPACE
- WOODED / NATURAL AREA
WEST DISTRICT
CHARACTERISTICS AND INTENT
The focus of this master plan for the West District is to create a research partnership area fronting Clinton Parkway, additional academic/research facilities around Becker Drive, and enhancement of the campus identity at Bob Billings Parkway and Iowa Street. The district is divided by topography and vegetation into three distinct areas, including a northern area around the Lied Center, research areas in the southern portion, and a western area with support functions and undevolved land.

DESIGN PRINCIPLES
Many of these are illustrated per Figure 4-5.

Planning guidelines for the Lied Center area:
• Preserve views to and from the Lied Center.
• Create better West District access and circulation by connecting Constant Avenue to Crestline Drive.
• Enhance the green space around the Lied Center and improve the visual connection to both the Dole Institute of Politics and the Irving Hill Road bridge.
• Preserve natural areas and drainageways.
• Extend and reinforce the green space surrounding Nichols and Youngberg Halls.

Planning guidelines for the research areas:
• Extend and enhance the hydrological systems as a naturalized civic green space and recreation corridor.
• Front buildings on the Research Greenway.
• Better connect the research area to the mixed-use development at 19th and Iowa Street.
• Create a more formal green space within the Research Sciences Zone, framed by new facilities.
• Create an identifiable edge for the Research Partnership Zone along Clinton Parkway.

Enhance campus identity at:
• Crestline Drive and Bob Billings Parkway
• Bob Billings Parkway and Iowa Street
• 19th Street and Iowa Street
• W. 21st Street and Iowa Street
• Clinton Parkway and Iowa Street

ARCHITECTURAL GUIDELINES
Building Siting
• Site buildings to reinforce important open spaces with consistent setbacks, where feasible.
• Establish setbacks at naturalized greenways in a less formalized manner.
• Follow guidelines for building on hillside conditions.
• Orient buildings in east-west direction for solar gain when possible.

• Site buildings to create new and preserve existing viewsheds.
• Buildings in the Research Partnership Zone are to be developed through a public-private partnership. However, they should apply the same urban design principles as described here. Planning guidelines show access to parking for these facilities on the street side, with more consistent frontage on the non-street side, thereby aiding building access and reinforcing greenway edges and drainage systems.

Architecture
Height and Mass
• Hilltop buildings adjacent to the Lied Center should generally defer to its height.
• Buildings adjacent to Nichols Hall should be limited to four levels.
• Research Sciences Zone building height should be complementary to existing building height and not exceed six levels.
• Larger footprint research buildings should break down building mass by space type.
• Research partnership buildings should be subject to lot coverage, height limits, and other zoning regulations.
Scale and proportion

- Utilize elements to relate to human scale at the ground level – fenestration, materials, and datum lines.
- Utilize a window and bay system on the building façade contextual with existing West District buildings.
- Balance window and wall composition on building façades to maximize daylighting.

Architectural Elements

- Utilize covered building entries to create a usable threshold between outdoor space and indoor lobby space.
- Roofs will be generally flat, utilizing silver colored pitched roofs at hierarchically important building locations, such as entry points or at major spaces.
- Materials should be durable with minimal maintenance needs. The use of red brick for façades with metal panel as a compliment is preferred, along with generous use of transparent glazing.
FIGURE 4-6: EDWARDS CAMPUS DESIGN PRINCIPLES

- CAMPUS GATEWAY
- SIGNIFICANT BUILDING FACADE
- ICON / LANDMARK
- ORGANIZING AXIS
- KEY PEDESTRIAN ROUTE
- SIGNIFICANT VIEW
- CRITICAL OPEN SPACE

EDWARDS CAMPUS
CHARACTERISTICS AND INTENT
The Edwards campus buildings currently surround a large lawn. This space is reinforced by the long sides of the BEST Building and Regnier Hall, which focus inwardly. Large surface parking lots surround the four existing facilities. The university’s public presence along Quivira Road currently lacks an appropriate institutional image, although the drive into campus from Quivira Road provides a strong civic entry centered on the east façade of the BEST Building.

Master plan recommendations are for the campus to grow in two ways to meet future growth needs and to strengthen campus identity. Short-term growth will provide an outward focus to the campus, with an addition to the Regents Center, and a new academic building between the BEST Building and a renovated Jayhawk Central. This will provide a stronger presence along Quivira Road. Long-term recommendations extend the existing lawn to the west, with three new buildings which will complete the quadrangle.

DESIGN PRINCIPLES
Many of these are illustrated per Figure 4-6.

Planning guidelines for the Quivira Road frontage area:
• Enhance views into campus from Quivira Road.
• Renovate Jayhawk Central’s exterior to better reflect its institutional use.
• Create a crescent-shaped pedestrian path that connects Jayhawk Central to the proposed Regents Center addition.
• Reinforce the pedestrian path and campus entry with green space, street trees, and landscaping.
• The addition to the Regents Center should provide an impactful presence on Quivira Road and 127th Street.
• Create prominent entries for the new academic building on both the Quivira Road side and the parking lot, or west side, with a shared lobby.

Planning guidelines for the extended quadrangle area:
• New facilities should extend the spatial quality of the existing quadrangle.
• New buildings may create secondary spaces associated with the primary space of the quadrangle.
• Entry drives from both 125th Street and 127th Street should focus on an architectural element, similar to the entry off of Quivira Road.
• Reroute a portion of the entry road off of 127th Street around the western edge of the new campus buildings.
• A change in ground elevation within the new quadrangle provides an opportunity for a terraced landscape to ease the grade transition and create an outdoor social space for students.

Planning guidelines for other areas:
• Preserve the wooded area at the west edge of the campus.
• Enhance surface parking lots to the extent possible, with street trees and landscaping.
• Reinforce the stormwater detention basin as a landscape feature and living laboratory opportunity.
• Enhance perimeter landscaping and add trees to further strengthen campus identity from surrounding streets.
• Complement wayfinding elements at entries with enhanced landscaping.
• Create a connected campus road network with a new road behind the newly formed west quadrangle.

ARCHITECTURAL GUIDELINES

Building Siting
• Site buildings to reinforce important open spaces with consistent setbacks, generally.
• Utilize consistent setbacks to reinforce the existing pedestrian path network.
• Site the new academic building and the Learning Commons addition to front Quivira Road.
• Reinforce building entries on both the quadrangle parking sides to aid wayfinding.
• Orient buildings in an east-west direction for solar gain, when possible.
• Site buildings to create new views and enhance existing views to campus.

Architecture

Height and Mass
• Buildings should be three to four levels.
• Larger footprint buildings should break down building mass by space type.

Scale and Proportion
• Utilize elements to relate to human scale at the ground level such as fenestration, materials, and datum lines.
• Utilize a window and bay system on building façades contextual with existing Edwards campus buildings.
• Use the BEST Building as the primary precedent for future architecture.
• Balance window and wall composition on building façades to maximize daylighting.

Architectural Elements
• Utilize building entries and covered outdoor areas to create usable thresholds between outdoor space and indoor lobby space.
• Use flat roofs.
• Utilize silver-colored pitched roofs sparingly at hierarchically important building locations, such as entry points or at major spaces.
• Utilize durable materials with minimal maintenance needs. The use of red brick for façades, with metal panel as a complement, is preferred, along with generous use of transparent glazing.
ACCESSIBILITY & SAFETY

UNIVERSAL DESIGN
The campus has established a goal of universal accessibility. This applies to all aspects of the campus environment including academic accommodations, employment, information technology, student services and programs, parking and transit, and facilities. For the purposes of this master plan, recommendations are provided regarding facilities and future development, but this does not eliminate the importance of accessibility in the other areas.

Universal accessibility as a design goal for facility renovations and new construction is reflected in the KU Design and Construction Standards, which are periodically updated. Within these standards, select modifications are recommended to provide increased usability of particular facilities and/or features.

“Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.”
–Ron Mace

PRINCIPLES AND GOALS
A comprehensive report on the status of campus accessibility and an action plan for the future is contained within the Report of the Americans with Disabilities (ADA) Review Task Force [July 2011].

From this report and discussions with campus groups and individuals, including the Architectural Barriers Committee, the ADA Facilities Coordinator/Project Manager, and the Director of Accessibility and ADA Education, the following campus conditions have been established as a basis for the master planning effort:

• The campus has conducted several reviews of accessibility, with the most recent comprehensive review in 1988 which included a transition plan.
• The Architectural Barriers Committee (ABC) was established in 1995 to advise KU on accessibility issues related to new and renovated facilities.
• Numerous additions and renovations to existing facilities have improved the accessibility of the campus as a whole, and new construction projects are designed to current accessibility standards.
• As complaints are identified on campus, they are tracked systematically, and a plan for correction is established.
• A few select facilities cited for non-compliance in the original transition plan have yet to be remedied.
• The Hawk Route is an identified, and signed, route that traverses from Sunnyside Avenue to Jayhawk Boulevard by way of interior hallways, elevators, and exterior sidewalks. In its current state, the route is improved, but not without problems. Building hours and a long distance with many turns and entrances/exits create barriers to seamless use.
• A current inventory of parking, walks, and building infrastructure compliance is being developed.

PLANNING CONCEPTS
The master plan strives to seamlessly integrate accessibility into the campus environment. Navigating the topography is a challenge but strategic decisions for future development can make significant impact on the accessibility of the campus as a whole.

A solid basis for making improvements is needed. Completion of the inventory of campus sidewalks and parking, then a subsequent plan of action for creating accessible routes is a much needed next action. Audits of facility entrances and paths of travel need to be completed to develop a process for remediation and secure funding.

The following recommendations serve to align the specific needs identified in the ADA Task Force report with the scope of the master plan. When combined with completed audits, as described above, the campus will have a clear set of prioritized needs.
IMPLEMENTATION

First Steps
In many cases, minor modifications to location and/or infrastructure can improve the accessibility significantly. Upon completion of the campus audit, the following recommendations should be implemented:

- Locate compliant parking spaces at points on accessible routes to accessible building entrances in the most dense areas of campus.
- Adjust transit stop locations to provide access to accessible routes and entrances at the most dense areas of campus.
- Update the online accessibility map to reflect current conditions and provide additional signage or wayfinding elements for campus clarity.

Density and Access
As stated in the Task Force report and discussed throughout the master planning effort, priority for improvements can be identified in areas of the campus with a high population density. In its current condition, the campus is most dense in the North District based on classroom occupancies and floor area ratios. This area must be the priority for improved accessibility. As the campus evolves over the next decade and beyond, new projects will increase the density in the Central and West districts, thus the need for universal accessibility.

Growth and Connectivity
The Jayhawk Trail is seen as a cross campus connector that can be made accessible and is a key component to linking the districts. Providing secondary connections to this strategic artery could build a network of accessible routes throughout campus. Figure 4-7 illustrates the Jayhawk Trail and potential location of these secondary routes.

Connections within the Irving Hill and the South Slope Zones, can be crafted by way of carefully located new construction that facilitates vertical movement. For example, the proposed new Integrated Sciences building and addition to Anschutz Library could be planned to provide an interior, accessible connection between Sunnyside Avenue and Jayhawk Boulevard. Not unlike the Hawk Route or the Kansas Memorial Union, new facilities should strive for connecting accessible routes. Specific building operating hours, departmental boundaries, and public services should be considered when identifying shared routes through a building for access.

Transit and Parking Access
Accessible routes should be evaluated within the context of building entrances, accessible parking, and transit stops. Adjustments to the location of transit stops and accessible parking locations should be made to correspond to building entrances and routes to these entrances. Parking garages are good locations for accessible parking, since they provide multiple parking options with a vertical connection, and frequently they can ameliorate movement during inclement weather. As options for new parking garages are evaluated, the overall accessible parking analysis should be factored in. The university is finalizing an audit of accessible entrance locations, accessible parking, and bus stops. Once the audit is complete, the overlay of these campus systems should be analyzed to make the improvements described above.
FIGURE 4-7: CONNECTIVITY & SECONDARIES

- PRIMARY ROUTE (JAYHAWK TRAIL)
- SECONDARY CONNECTION
- KEY OFF-CAMPUS CONNECTIONS
FIGURE 4-8: PEAK OCCUPANCY

- 0-400
- 401-800
- 801-1600
- 1601-3200
- ABOVE 3200
Storm Safety
Storm safety is currently addressed from a facility standpoint through the use of directional signage within buildings. This signage directs occupants to find the lowest area of the building, away from exterior windows.

Storm Planning
As new building projects are programmed, budgeted, and designed, storm shelter facilities can be integrated. According to the 2012 International Building Code, specific structural and safety requirements must be met in order to call a space a storm shelter. There is currently one code-defined storm shelter on the KU Lawrence campus, located in the School of Pharmacy building.

Without a new building project, existing facilities are difficult and often cost prohibitive to upgrade and meet storm shelter requirements. The campus can choose to continue to provide shelter within individual buildings or provide a district, or shared-use, shelter to support multiple adjacent facilities.

Integration
Areas of campus with the most population are candidates for a district or shared-use shelter, and/or selective reinforcement of existing safe areas to improve their stability. Currently, the North District is most dense based on classroom occupancies and floor area ratios. As new facilities are designed, the integration of storm shelter spaces can be included incrementally.

The storm shelter square footage needs per building are based on a building code standard of 5 square feet/person. Figure 4-8 illustrates each building’s peak load in anticipated users. Thus, it is simple to calculate the quantity of shelter space necessary to support each facility’s peak occupancy.
OVERVIEW

Development of the master plan provides an ideal opportunity to assess future utility needs. For KU, this includes investing in thermal energy and electricity to support the existing campus as well as planning for anticipated campus growth.

Planners considered a number of options, each an integrated and complete set of activities and investments, which could propel the existing system forward to meet future needs. The university’s shift toward an enhanced research program in the sciences and engineering underscores the need for the recommended path. This path includes a system of:

- Enhanced regional steam and chilled water in combination with continued, but reduced, building-specific boilers and chillers.
- Provision of enhanced firm capacity and standby power. Firm capacity, an expression of reliability, is the provision of system components to ensure operation in a situation where the primary system components are not operational.
- Improved distribution of campus electricity.
- Additional investment in building energy demand management.
- Incorporation of renewable energy.
- Systematic investment to address deferred maintenance.

PROJECTED NEEDS

Though not substantiated through studies, these are the observed needs of the campus’ steam and chilled water systems:

1. The campus measures utility consumption as a cumulative total rather than as peak demand. While this provides billing data, it fails to provide critical peak demand data at individual buildings and at the regional-system scale. This analysis will reveal the actual capacity of existing equipment to support power, steam, and chilled water demand.

2. Many buildings with individual boilers do not have appropriate firm capacity as compared to those buildings that are served by the central steam system.

3. Some campus buildings have been designed or supplied with emergency generators to provide power to meet life safety code. The need for standby power to protect research interests on campus has not been consistently addressed. An improved campus-wide strategy would provide standby power in a distributed system on a program or building use priority basis.

4. University facilities staff have experience-based concern that the campus steam distribution system needs investment to adequately provide for growth and would function better with modification to the routing.

5. The university continues to explore opportunities through design criteria and smaller operational improvements.
6. Provision of chilled water for new or renovated building development over the last 15 years has been through building-specific, unitary chiller systems, unless a pre-existing regional chiller plant with spare capacity was readily accessible. The staff recognizes that these systems are less efficient than regional systems and cannot take advantage of load diversity, but the university does not currently have a mechanism to coordinate planning across buildings as would be needed to support development of new or expanded regional chiller systems.

7. Electrical distribution in the North and Central districts has two feeds from Westar Energy and four loops. Some building transformers from the 1960s are operating but should be replaced. As additional buildings are added to the North and Central districts, the existing campus loops will reach capacity and a fifth loop may be needed. West District buildings have radial feeds that may not provide the reliability required for research buildings. The university has a plan to develop loop feeds and should continue to develop these loops.

8. There should be a building designated as an anchor for the electric loop in the West District.

9. The university purchases electricity that is largely coal-based, which is typical for Kansas. This represents dual problems of price uncertainty and a level of greenhouse gas emissions that conflict with the university’s stated objectives for sustainability. KU continues to evaluate alternative energy options.

**SUSTAINABLE CONCEPTS**

Some of the existing system’s weaknesses are critical reliability and sustainability concerns, related to delivering the quality of infrastructure that most universities require. In order to realize improvements in system efficiency and reduce greenhouse gas emissions:

1. Develop peak demand data and use to ensure that the university has improved understanding of the capacity of existing equipment to support power, steam, and chilled water demand.

2. Ensure that each building is supported by firm capacity to ensure uninterrupted operation. Regional, rather than individual building systems, are preferable as they are more efficient and represent reduced greenhouse gas emissions.

3. Assign standby power centrally rather than allowing individual building occupants to decide on their standby power needs. This is a common practice at higher education institutions; it best rationalizes this resource.

4. Commission a study to determine if the campus steam distribution system needs investment to adequately provide for growth and/or would function more efficiently with modification to the routing.

5. Aggressively continue the campus program for investment in reducing building energy consumption or demand.

6. Establish a system of regional chillers to serve new construction and as a transition from aging building-specific unitary chiller systems.

7. Shift from reliance on coal-based electricity.

8. Commission a study to assess electrical distribution system in the North and Central districts and recommend improvements.
FIGURE 4-9: INTEGRATED UTILITY PLANNING

Integrated Utility Planning Network

- Demand
- Supply
- Policies/Practices

Infrastructure & Load Analysis
- Campus Load Analysis
- Production Facilities
- Distribution Systems
- Risk
- Utility Business Model Analysis

Reference Case / Baseline (From Data & Assumptions)
- Reference Growth Forecast
- In-kind Replacement / Addition as Required
- Own & Operate

Components of Campus Energy Portfolios
- Growth Efficiency / Conservation
- Plants / Equipment
- Capacity / Connection / Medium
- Risk Management
- Alternatives Business / Financing Models

Scenarios
- Scenario 1
- Scenario 2
- Scenario 3
INFRASTRUCTURE OPTIONS

To develop an understanding of the infrastructure needed to support the goals of Bold Aspirations and of this master plan, the university engaged in a process of integrated utility planning per Figure 4-9. Campus engineers, facility staff, planners, architects, and financial officers explored four scenarios, each addressing a set of performance standards for utility demand, supply, and associated university policy and practices. These infrastructure development options were vetted with the support of a modeling tool which remains with the university for use in capital planning and project scheduling.

Scenario 1 - Business as usual (BAU)
• Maintaining central heating plant and strategy of regional chillers.
• Utilizing building boilers and chillers as supplement (primarily campus extremities).
• Tolerating significant levels of deferred maintenance.
• Tolerating a lack of firm capacity and of standby power, as desired.

Scenario 2 - Enhanced BAU
• Maintaining central heating plant and existing regionalism of chillers.
• Utilizing building boilers and chillers as supplement, (primarily campus extremities).
• Systematically address deferred maintenance (plant, building, and distribution elements).
• Provide firm capacity and standby power to support critical facilities/loads (primarily research activities).
• Complete the West District medium voltage distribution loops.

Scenario 3 - Regional chilled water (RCW):
• Maintains the central heating plant.
• Expands the existing strategy of regionalized chillers.
• Systematically addresses deferred maintenance.
• Provides firm capacity and standby power to support critical facilities/loads.
• Completes the West District medium voltage distribution loops.

Scenario 4 - Regional chilled water with combined heat and power:
• Upgrades the central heating plant, replacing it with a combined heat and power plant.
• Expands the existing strategy of regionalized chillers.
• Systematically addresses deferred maintenance.
• Provides firm capacity and standby power to support critical facilities/loads.
• Completes the West District medium voltage distribution loops.

Scenario 1 fairly reflects the historical university operating paradigm as business as usual. This can no longer support the infrastructure needs for an internation research university. Consequently, scenario 2, enhanced BAU, was developed and includes firm capacity and standby capacity requirements. This scenario received broad support from university leadership and will be used as the reference case. It is the basis for the recommended infrastructure portfolio of the master plan and will also provide the minimum requirements to be used for comparison as new scenarios, such as scenarios 3 and 4, are considered via the modeling tools.
LONG-TERM GOALS
The existing system for provision of thermal energy and electricity can be considered to be of serviceable quality, but nearing a point of need for significant investment in the area of thermal energy. The needs are not simply of a replacement-in-kind nature, but include enhancements to address existing, unmet university requirements for reliability and redundancy. The addition of space, as described in the master plan, compounds the need for improved infrastructure systems. Investments to support the campus as described in the master plan are outlined below:

1. Continued movement to ensure that all new construction meets or exceeds the campus standard of ASHRAE 90.1 + 30%.

2. Investment in the central system sized to maintain firm capacity. Retire individual building boilers at the end of their useful life and transition those buildings to the central steam system. Investigation of the central system should include a feasibility level study of combined heat and power plant for the university campus. The screening analysis conducted as part of this effort suggests it to be a sound financial investment, including the need for appropriate staff to operate this new system. It is recommended that a future feasibility study consider a combined heat and power plant as a primary alternative to boiler replacement/renewal at the central plant.

3. Provision of standby power on a prioritized basis to best support the critical needs of the university, notably research programs.

4. Documentation and analysis of the capacity of the existing steam distribution system and its opportunity to support the master plan program and investments to support this need, to be established through this system testing.

5. Reduction of campus greenhouse gas emissions through pursuit of renewable energy resources. While wind energy is the best option, it currently is prohibited by state law. Recommended programs for addressing building energy demand include active investment in energy conservation measures, installing an adequate system of building-based meters combined with billing building occupants for their utility use, improved building management in combination with a campaign to motivate behavioral change, and a scheduled program of retro- and/or re-commissioning.

6. Construction of a system of regional chiller plants to support new growth and serve as replacement capacity for the retirement of antiquated unitary chillers.

7. Engagement with the university’s electricity provider to diversify fuel sources in the electricity sold to the university.

8. Develop a capital reserve for campus infrastructure improvements.

9. Document and study the capacity of the electrical distribution system in the North and Central districts.
OVERVIEW

Potable Water Distribution
The water supply on the Lawrence campus is provided by the City of Lawrence. The water sources are groundwater from the Kansas River alluvium and surface water from both the Kansas River and Clinton Reservoir. With the exception of housing areas and a few isolated buildings, a single connection point at the power plant serves the entire North and Central districts. This point of connection is served by the city’s low pressure zone. An undersized back-up connection point, normally closed, has also been joined to the city’s high pressure zone.

Flow is pumped from the power plant and distributed into two campus systems, a high and low pressure system. Both are hydraulically independent from the city’s system. The distribution system is a mixture of large and small diameter mains of varying ages. Some lines on campus are plagued by frequent breaks due to age and no on-campus storage is provided.

Currently, there is no hydraulic model to evaluate the operation of the system. For domestic flows, the system is functioning adequately, based on the lack of consistent complaints or problem areas. However, without a hydraulic model, there is no way to test the operational characteristics of the system under fire flow conditions. It must be noted that without storage, fire flow demand must be met by pumping. All flows on the domestic water system, including fire flows, are pumped from the city’s connection point into the university distribution system.

Sanitary Wastewater Collection
Wastewater flows generated from the Lawrence campus are collected in private wastewater collection mains owned and maintained by the university. These gravity collection systems are topography based, and there are several points of discharge to the City of Lawrence municipal wastewater collection system. Several segments of the university’s system frequently operate in a surcharged mode, even during dry weather. Although it has not been monitored and quantified at this time, significant infiltration and inflow volumes are suspected as the cause of this condition.

In the North and Central districts, wastewater flows generated by the university are a capacity concern relative to the municipal system. For example, wastewater storage and metering is located at Memorial Stadium. Consequently, the City of Lawrence has commissioned a wastewater flow study.

The southern portion of the West District is served by a private university wastewater collection main that is approximately 50 years old. The ultimate capacity of this system requires careful evaluation. In each of the three districts, there are one or more city-owned sewer interceptors that carry upstream flows across the campus.

Stormwater System
The University of Kansas has a unique topographical setting. Lying atop Mount Oread and the adjoining ridge to the south and west, stormwater has not been a major concern. The natural topography has historically directed stormwater off the campus as quickly as possible, by connecting to the city’s stormwater system.

During the last 150 years of development in the North and Central districts, the natural stormwater systems have been eliminated and enclosed in pipes of varying age, condition, and capacity. The only open body of water, Potter Lake, is actually man-made.

Current design standards for university projects require a conveyance capacity to manage a 10-year storm event in compliance with 1993 City of Lawrence requirements and subsequent amendments. In the North and Central districts, this has resulted in widely dispersed, small underground detention facilities, and larger surface detention basins, constructed on an individual project basis. In addition, stormwater quality measures in these two districts have not been planned or constructed to date.
In the West District, natural waterways largely have been preserved. The Research Sciences and Research Partnership Zones have both stormwater quality enhancement facilities and a regional stormwater detention basin.

**PROJECTED NEEDS AND SUSTAINABLE CONCEPTS**

**Potable Water Distribution**
Development of new facilities during the 10-year planning window will require water distribution improvements. These include providing service to the Central District where the Stouffer Place Apartments currently exist. The Irving Hill Zone and mixed-use gateway facilities would be best served with utility construction along shared-use path corridors such as the Jayhawk Trail. Improving water systems in the South Slope Zone of the North District should be made during the Jayhawk Boulevard Phase 2 construction and the Sunnyside Lawn improvements. New development in the West District will require upgrades to serve new research partnership buildings.

In the interest of sustainability, domestic water volumes may be reduced substantially by eliminating the use of potable water for irrigation. Implementing rainwater harvesting by utilizing existing tanks in parking lot 61 would represent a major step. It is also anticipated that additional rainwater harvesting measures on a distributed basis throughout campus can be incorporated into the design of individual building projects.

**Sanitary Wastewater Collection**
Wastewater collection improvements in the 10-year planning window are needed in the same areas as those described for water distribution systems.

To develop a more sustainable wastewater system, campus loads may be significantly reduced by using low-flow plumbing fixtures. These may be incorporated in new facilities, but retrofitting existing buildings should also be considered.

**Stormwater Systems**
As facilities are built, provision for stormwater quality and quantity measures should be included. In the North and Central districts, the current stormwater detention approach on an individual project basis should be abandoned. Regional basins for each watershed, to address both quantity and quality issues, should be constructed. There are opportunities to incorporate stormwater quality enhancing features into many projects such as the Jayhawk Boulevard reconstruction.

In the south portion of the West District, the existing stormwater detention facility has limited capacity to address increased stormwater quantity from further development. Enlarging this basin as well as improvements to enhance stormwater quality, should be undertaken early in the development cycle. In the northern and western portions of the West District, preservation and buffering of the natural waterway systems offer the best opportunity for a sustainable hydrologic cycle.

In addition, deferred maintenance issues regarding stormwater systems need to be addressed throughout campus. Detailed investigation of capacity problems can be found as long ago as 1993 in a stormwater study authored by Black & Veatch. A new stormwater master plan is needed to address the changing regulatory environment relative to stormwater quality, downstream flooding of campus watersheds, and required measures for a sustainable hydrologic cycle.

**OPTIONS**

**Potable Water Distribution**
The City of Lawrence is considering a project to reconstruct the ground storage tanks and water pumping station near 12th Street and Oread Avenue. This may provide an opportunity to connect the university distribution system for the North and Central districts to the city’s high pressure zone which would enhance the system response to fire flow demands. Further study is recommended to evaluate this option.

During the development of the Irving Hill Zone, the university should explore the option of constructing mains to be owned and operated by the City of Lawrence, rather than KU.
Sanitary Wastewater Collection
A complete evaluation and documentation of the condition of the wastewater collection system should be initiated as soon as possible. This program would include cleaning, video inspection, evaluation, and inventory of each pipe segment, as well as visual inspection, evaluation, and inventory of each manhole structure. Integration of this data in a GIS-based database is recommended. Such a study would identify the likely locations of infiltration and inflow, as well as condition of any pipe segments or structures. Resources may then be focused on the most critical segments of the system in a prioritized manner.

The City of Lawrence maintains a hydraulic model of the municipal wastewater collection system. An infiltration/inflow study on the older portions of the city’s system is underway. The university’s North and Central districts fall within study boundaries. Through a cooperative agreement, the university should expand this study and incorporate the findings into the city’s wastewater collection system model.

Stormwater Systems
The current approach to stormwater detention in the North and Central districts is inefficient as underground pipe storage systems encumber valuable land area. Larger regional facilities, sized for each watershed, would allow for better use of land and be more hydraulically effective. Currently, there are no promulgated state regulations that address stormwater quality improvements for existing facilities or new development. However, regulations to this effect are anticipated. Regardless of the status of the regulatory environment, treatment of stormwater to reduce quality degradation is the only way to reach a sustainable hydrologic cycle.

Opportunities to improve stormwater quality should emerge as new projects are developed, but these need to be seen in the context of an overall stormwater master plan. There are some limited opportunities to retrofit stormwater quality measures into existing areas that are fully developed. The greatest opportunity to improve stormwater impact is effective implementation of regional stormwater facilities for quantity and quality in each watershed prior to the discharge of stormwater off campus.

To address stormwater quantity in the highly developed North and Central districts, additional detention is required in two major watersheds. The Jayhawk Watershed consists of 130 acres that drain to the intersection of 11th Street and Illinois Street whereas the Naismith Watershed consists of 265 acres that generally drain to the intersection of 19th Street and Naismith Drive.

The 2014 City of Lawrence stormwater quantity ordinance limits maximum runoff of new development to 1.8 cubic feet per second per acre of watershed area. To bring the highly developed Jayhawk Watershed into full compliance would require construction of approximately 12.3 acre-feet of storage. To bring the Naismith Watershed into full compliance would require construction of approximately 31.3 acre-feet of storage. For maximum effectiveness, these basins should ideally be located near the downstream campus boundaries within each watershed. Due to the underlying geological strata, these basins must be designed to hold the peak runoff and release it slowly since infiltration on a large-scale basis is not feasible.

LONG-TERM GOALS

Potable Water Distribution
Firm capacity for water to campus users is limited by lack of redundancy. In the North and Central districts, failure upstream of the city’s connection point would cause a total disruption in service. In the event of a pumping system failure at the power plant, the North and Central districts would experience a near total shutdown in service. While it is available, an existing auxiliary connection point requires manual intervention that might restore some service. Automation, along with appropriate backflow prevention devices, should be considered as it is essential to reliability.

Service to the West District is similar. Failure at either point of connection would cause total interruption of service for that portion of the district.
It is imperative that auxiliary connections be made to the city’s water distribution system in order to have a non-zero firm capacity. Firm capacity is the available capacity when the largest unit is out of services. Thus, on any system where there is a single unit with no redundancy, the firm capacity is zero. The need for firm capacity is most acute in the North and West districts, where critical academic and research endeavors take place.

**Sanitary Wastewater Collection**
The highest long-term priority for wastewater is evaluation of the system to identify those components that require pipe and manhole rehabilitation and/or reconstruction. Establishing the system capacity and increasing capacity for future growth are key goals. An effective hydraulic model of this system is an essential tool for accomplishing these goals.

**Stormwater Systems**
The long-term goal relative to stormwater is to reach a sustainable hydrologic cycle. Ideally, precipitation would infiltrate the earth where it falls. However, with the development of facilities and associated impervious areas, remediation to address stormwater quantity and impairment of water quality must be addressed. These goals can be achieved by means of both dispersed, local improvements, as well as regional facilities. To the maximum extent possible, natural waterways in the West District should be preserved. In order to achieve this, a stormwater plan responsive to the campus master plan should be developed as a comprehensive integrated system.
OVERVIEW
This section describes the information technology and related systems and infrastructure requirements that are the foundation for an enriched learning experience. Recommendations for specific technologies are avoided, because of their continual and rapidly evolving nature. Rather, this section should be seen as a framework for the review of appropriate technologies to inform all new and renovation projects on campus.

PROJECTED NEEDS AND SUSTAINABLE CONCEPTS
The information technology (IT) platform consists of four distinct components:

- Applications
- Computing
- Network
- Infrastructure

Applications, computing, and network design are the driving factors in development of the underlying layer of physical infrastructure. From a technology and systems perspective, it is important for the university to embrace emerging active and collaborative pedagogical models of instruction based on changes in program curriculum in the next five to ten years. This approach will help future design teams develop technology infrastructure that will allow for continued evolution and growth.

A set of technology-related design principles establish a foundation for decision-making and a checklist for future designers. The principles are based on an understanding of university initiatives as well as peer comparisons.

To provide a sustainable foundation the following eight design principles are:

1. Compatibility - New systems must respect university standards and existing systems, and not create a “technology island” within the new space. However, existing standards should not hinder innovative thinking related to the specifics of a project or specialty applications that may require a “best-of-class” equipment selection.

2. Ease of Operation - Whenever possible, technology systems should require a minimal amount of training to operate effectively. A universal user interface is necessary. This facilitates user training, technical support, and long-term systems evolution.

3. Cost Effectiveness - The solution should use resources effectively, efficiently, and strategically.

4. Supportable - The technology systems must be sustainable and supportable with a minimal investment in support personnel and services.

5. Scalability - The solutions must meet long-term campus needs of both faculty and students.

6. Student of the Future - Systems should be designed with the “student of the future” as the targeted user. This sets a precedent for thinking about “what could be” to identify technology and support physical infrastructure in the planning for new and renovated space.

7. Bring Your Own Device - Systems should be designed to accommodate a “bring-your-own-device” culture, as students own an average of three portable devices. Students and faculty will expect access to the network, peripheral devices, and displays, as well as campus technical support for these devices.

8. Future Planned Infrastructure - Projects should strive to identify and plan for technology systems that meet the full functionality needs of user applications. If a full system installation is not immediately feasible due to funding limitations, it is recommended that the infrastructure to support a full program be included in future plans. This reduces the impact of future technology implementations.
OPTIONS

Classroom Technology
From the web article Active Learning Transforms Environments [September 2011], “Higher educational institutions are in the midst of a major transition in pedagogy and learning modalities, driven, in great part, by technological advances. Educational research has shown the advantages of ‘blended learning,’ which utilizes both technology-based learning tools such as online content and in-class collaborative learning.”

Today’s students, as digital natives, expect a more immersive, interactive, and stimulating learning environment than preceding generations. With portable electronics and wireless communications, they carry their learning environments beyond the classroom and beyond class time, to engage in learning wherever and whenever they choose. Careful evaluation by administrators and faculty is necessary to pair best teaching practices with the soundest investments in information technology and infrastructure. This need is compounded by the constant evolution of technology and its impact on society.

KU has a tradition of excellent lecturers; therefore there is a need to balance this approach with new teaching modalities. The campus undoubtedly will meet this challenge by incorporating lecture-style rooms in combination with spaces designed to support more active learning style class activities and study spaces.

Bold Aspirations is focused on strengthening the academic experience for undergraduates and doctoral students. Implementing methodologies for the changing classroom is important for promoting innovation and ensuring student success. The 2014-2024 Campus Master Plan is charged with supporting the strategies for this implementation.

Having a clear consensus and plan for moving forward is essential. Additional internal discussion and consideration of a pilot or prototype installation of active learning classrooms to allow testing and experimentation is recommended.

It is recommended that all project stakeholders examine new pedagogical concepts, emerging technologies, changing employer requirements, and the evolving habits and expectations of both students and faculty prior to finalizing direction on future projects.

IT Utility Corridor Projects
The AT&T distributed antennae system (DAS) project currently is underway. AT&T is providing infrastructure, fiber optic cabling, and DAS equipment to enhance the current campus wireless environment. Once completed, the DAS system will be carrier neutral and include 95 percent of the campus, with coverage up to 32 times more capacity than currently available. The planned infrastructure expansion is under review for site coordination of future building projects and this master plan.

Non-IT Campus Projects
It is critical to include a process for facilities-related groups to review all projects that involve any type of outside plant work. Opportunities exist for IT to enhance its infrastructure through non-IT projects. For example, conduit could be added while landscaping work is underway. Likewise, security could add conduit in parallel to an IT project in order to provide a pathway for surveillance cameras.

Capital Projects
IT considerations should be an integral part of all planning, design, and implementation projects to ensure appropriate IT support. Similarly, while horizontal cabling is included in most capital projects, a funding stream to provide for core network electronic upgrades and backbone cabling should also be developed.
LONG-TERM GOALS
The University of Kansas has developed a Technology Infrastructure Planning (TIP) Committee with the goal of prioritizing building technology upgrades.

The TIP committee established a five step process:
1. Create a list of major building technology categories.
2. Create a list of building tiers that cover the majority of KU’s buildings.
3. Determine building infrastructure technology categories and types that will be available in each building tier in a way that will meet occupants’ needs while remaining cost effective and efficient.
4. Perform an initial classification of KU’s buildings based on the team’s knowledge, and present this as a starting point to KU senior leadership.
5. Create a planning tool that can be maintained and understood easily.

Once complete, this report will provide a strong planning tool for analyzing campus and building infrastructure requirements and gaps.

The TIP process should be expanded to define similar standards for systems such as classroom technology and building security.

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**FIGURE 4-10: IT TIER MAP**

*IT Tier Map*

- TIER 0 - SUPPORT FACILITY
- TIER 1 - COMMON FACILITY
- TIER 2 - TECH RICH FACILITY
- TIER 3 - TECH HOSTING FACILITY
- TIER 4 - CORE TECH FACILITY
SUSTAINABILITY GUIDELINES

ENERGY MANAGEMENT

KU’s commitment to sustainability is anchored by two university documents, the strategic plan, Bold Aspirations, and the campus sustainability plan, Building Sustainable Traditions. While inspired by both documents, this master plan deliberately speaks to the tactical nature of the sustainability plan. The following section highlights aspects of the 2014-2024 Campus Master Plan that respond to the topics addressed in Building Sustainable Traditions.

Building Sustainable Traditions Goals for Administration, Development, and Planning:

1. Integrate environmental, economic, and social sustainability in ongoing administrative, developmental, and institutional planning decisions.
2. Establish a work environment that supports professional and personal well-being.

The campus master plan communicates and celebrates sustainability. There is a commitment to green building design, integration of concerns for expanded and improved pedestrian/bicycle movement, and an abundance of opportunities for the community to engage and appreciate the diverse characteristics of the university’s landscape.

The campus master plan creates a framework for improved and integrated development by understanding the investment needed today to offset tomorrow’s funding needs. The plan was developed by identifying the resource needs in buildings, open space, and campus infrastructure. For each of these, condition assessment data was considered in combination with current and future program needs as well as a qualitative analysis to describe the investment needed to move beyond functionality and embrace campus initiatives. This was advanced to establish needs for maintenance, minor to major reinvestment, and removal/replacement. A combined analysis of facility condition and use was employed to create a schedule for capital investment. The plan also identifies university needs that haven’t been met, and plans for their development, including square footage needs, location on campus, and a broad schedule for execution.

Building Sustainable Traditions Goals for Curriculum and Research:

1. Utilize the campus as a living laboratory.
2. Ensure that all students have access to sustainability-focused academic experiences.
3. Engage local, regional, and global partners in scholarly activities that advance sustainability for the public good.

The campus master plan has two strategic responses to these goals. First, it plans for growth in the West District for industry partnerships to support research and development in a seamless and integrated manner. Second, the master plan describes a means of addressing the campus as a learning laboratory through a new approach to landscape management, enhanced and best practice stormwater management, and energy-efficient and sustainable buildings.
Building Sustainable Traditions Goals for Student Life:

1. Foster the development of an engaged, sustainability-literate citizenry.

The campus master plan places great emphasis on the topic of student engagement at KU. It recommends a robust approach to residential programs that go beyond providing safe and comfortable housing. The plan calls for an approach, particularly for freshmen, which is based on desired campus location, housing options, and amenities. Importance is also placed on student support services, student diversity, and opportunities for a vibrant campus life.

Building Sustainable Traditions Goals for Energy:

1. Establish a framework for making long-term energy-related decisions.
2. Reduce energy consumption throughout the campus.
3. Transition from our current carbon-based system to a reliable renewable energy system.

The campus master plan’s exploration of current energy needs, as well as future requirements, was developed in an energy model. Owned and managed by the university, the model is a framework for making long-term energy-related decisions, balancing cost and environmental issues.

The university should employ this energy model as a framework for more detailed study and creation of an implementation guide for improved energy management with reduced greenhouse gas emissions. This would assist in achieving a sustainability plan goal of developing a comprehensive energy management plan that would incorporate strategies for efficiency, conservation, and energy use from renewable sources.

Building Sustainable Traditions Goals for Built Environment:

1. Create a built environment that enhances and sustains the human, environmental, and economic well-being of the campus.

This single goal of the sustainability plan represents the essence of the campus master plan. The master plan addresses space needs, both quantity and quality, within the context that the built environment must enhance and sustain the complex nature of campus well-being. In addition, landscape recommendations speak to preservation, restoration, and functionality for people and the environment.

Transportation recommendations speak to enhanced appeal and access for walking and bicycle riding while still providing acceptable services for mass transit, delivery, and automobiles. Cultural inclusiveness invites everyone into campus life and deliberately attends to the needs of the community. Infrastructure recommendations address a backlog of system needs to meet current and future demand as well as means of a smooth transition to a more environmentally responsive foundation.
Building Sustainable Traditions Goals for Campus Grounds:

1. Preserve campus and community culture, history, and space.
2. Maintain the campus landscape using sustainable practices.
3. Reduce the use of potable water in preserving the landscape.
4. Reduce stormwater runoff.

The University of Kansas has a rich history of landscape planning. The campus master plan describes those earlier plans and the key concepts going forward. A conditions assessment describes each of the university’s hallmark landscapes, contemporary outdoor meeting places, and relatively undisturbed lands. It recommends priorities and steps, both short- and long-term, for investing in sustainable landscapes. For example, ecological restoration of forested land, materials that tolerate reduced water use, and proven landscape-driven stormwater management practices are described. In addition, the plan extends its reach to embrace issues of transportation, access, and community engagement through proposal of an extended walking system throughout the campus.

Examples of sustainable ideas for campus landscape and street improvements include:

- The Jayhawk Watershed, which flows to the north, with water collected at 12th and Mississippi streets and from Potter Lake, is in need of building and landscape design intervention to enhance the quality and reduce the quantity of water runoff.
- The Burroughs Creek Watershed is void of stormwater detention and needs both treatment and storage to address peak volume runoff leaving the campus and entering the municipal system.
- The Recreation/Athletic Greenway landscape plan is a model for pre-filtering and cleaning the campus stormwater before it reaches the corner of 19th and Naismith Streets.
- Forestation and introduction of riparian buffers will address the significant runoff problems present in the Meadowbrook Watershed.
- Campus landscapes will host more adaptive and drought tolerant plant palettes.
- Generally, slopes greater than 10 percent will be used to promote campus ecology and saved from use for buildings or foot traffic.
- Certain community outdoor traditions will be perpetuated and locations preserved. These include the steam whistle, Potter Lake, the Hill, Prairie Acre, Prairie Lands, and Marvin Grove.
- New landscaped areas, such as Stouffer Green and Sunnyside Lawn, will perpetuate the campus balance of architecture and open space.
- Innovation in the plant palette, and improved landscape management practices, will reduce the need to use potable water for landscape management.
- Signage and public art will be used to promote the university community’s ability to learn about and engage with its natural environment.
Building Sustainable Traditions

**Goals for Procurement:**
1. Reduce the volume of purchases.
2. Encourage the purchase of more sustainable products.
3. Support the economic viability of the regional economy.

The campus master plan’s recommendations for efficient use of landscape material, design of complete streets and pedestrian circulation routes, sustainable building design, increased reliance on landscapes for effective stormwater management, and a long-term view of energy investments represent examples of procuring materials that are cost-justified as life-cycle investments. In the case of landscape and building materials, these master plan priorities should be executed through a practice of purchasing local materials from regional businesses.

**Goals for Waste:**
1. Reduce the amount and impact of waste sent to the landfill.
2. Create a campus environment that fosters waste diversion and recycling.
3. Encourage recycling at university-sponsored events.

Waste is considered in the campus master plan to be both discarded materials and excessive or inefficient consumption of natural resources. Therefore, the plan calls for strategic investment in campus buildings and building design standards that are more water and energy efficient. The university should carefully review all facilities for long-term use as well as existing and future infrastructure needs.

The campus master plan also calls for improvements in landscape management such as the use of more climate-tolerant plant species to reduce associated use of water and chemicals. Natural system-focused stormwater management can improve both quantity and quality of water runoff.

**Goals for Transportation:**
1. Reduce the environmental and fiscal impacts of the campus fleet.
2. Create an environment that supports a multi-modal transportation system.
3. Promote alternatives to transportation.
4. Increase the efficiency of transportation associated with goods and services on campus.

The campus master plan’s primary transportation focus is to create a more successful multi-modal system that promotes non-motorized transportation and addresses ADA compliance. Actions include:
- Reconstruct Jayhawk Boulevard as a complete street.
- Improve pedestrian accommodation on campus streets and intersections.
- Facilitate creation of an intra-campus bike network.
- Construct the Jayhawk Trail.
- Improve transportation demand management based on current needs with an eye towards future needs due to campus development.
- Create a “park once” campus parking system.
- Systematically address ADA requirements when improving the transportation system and investing in campus facilities.
CONCLUSION

Sustainability guidelines serve the university by promoting stewardship of valued resources as well as personal and fiscal responsibility. Furthermore, these guidelines will benefit the city of Lawrence through community engagement and equality, including the following:

- Development of the West District as a center for research partnership has the capacity for a transformative effect on the city’s economy.
- Continued integration and expansion of bus routes will better serve the university population as well as citizens of Lawrence. Expanded reliance on bus service has the added benefit of reducing traffic and relieving the danger to commuters who choose to walk or ride a bicycle between destinations.
- Additional integrated and expanded bicycle routes will serve the entire population and relieve the demand for cars.
- Continued shared planning with area utility owners will support the combined needs of both the university and utility systems.
- If state law is amended, a university partnership to procure wind energy from an in-state, off-campus location would significantly reduce greenhouse gas emissions. This would not only showcase the university as a leader and innovator, but would leverage significant private investment for shared public/private benefit.
- Improved university stormwater management will mitigate its impact on campus neighbors.
### IMPLEMENTATION GUIDELINES

#### BUILDING PROJECTS

**INTEGRATED PROJECT PROGRAM**

To begin implementation of building projects, additional planning steps are required to integrate campus infrastructure before moving toward building design. Studies of the campus steam and chilled water infrastructure, as well as hydraulic system modeling, will provide essential information in planning for new facilities. A pipe inventory and analysis would also provide valuable information.

### Building Projects

Figure 4-12 lists master plan building projects for both the Lawrence and Edwards campuses, and offers budget estimates for each, based on 2014 dollars. Proposed budgets should provide a baseline to pursue funding, but additional investigation into the actual costs should be performed. The middle column of the chart also suggests which infrastructure projects need to be in place, or performed in conjunction, with the building projects. As KU will need to consider multiple funding methods, potential funding sources also are shown.

### Infrastructure Projects

Infrastructure projects reflect the anticipated needs to achieve KU’s building program. Figure 4-13 lists infrastructure projects as well as project cost estimates. Estimates have been prepared in 2014 dollars, and are based on current information about the primary work involved. Preliminary planning and pre-engineering of the projects will need to consider specific existing conditions and siting implications. Adjacent utility connections are assumed until further investigation can be done.

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#### TABLE: KU CAMPUS BUILDING PROJECTS

<table>
<thead>
<tr>
<th>ACADEMIC PROJECTS</th>
<th>ESTIMATED PROJECT BUDGET</th>
<th>PROJECTS TO COMPLETE IN ADVANCE/CONJUNCTION</th>
<th>POTENTIAL FUNDING SOURCE</th>
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<tr>
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<td>13 Pharmaceutical Chemistry Lab Building</td>
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<td>39 Lindley Renovations</td>
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<td>RB, EBF</td>
<td></td>
</tr>
<tr>
<td>40 Lippincott Stacks Demolition</td>
<td>$50,000</td>
<td>25, 26</td>
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**ESTIMATED BUDGET FOR ACADEMIC PROJECTS** $1,289,360,000
### STUDENT AFFAIRS PROJECTS

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Estimated Project Budget</th>
<th>Projects to Complete in Advance/Conjunction</th>
<th>Potential Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watkins Health Center</td>
<td>$2,450,000</td>
<td>SF</td>
<td></td>
</tr>
<tr>
<td>Ambler Student Rec Fitness Center Natatorium Addition</td>
<td>$32,000,000</td>
<td>W, SF, RB</td>
<td></td>
</tr>
<tr>
<td>Outdoor Recreation Fields</td>
<td>$3,750,000</td>
<td>SF</td>
<td></td>
</tr>
<tr>
<td>Student Center Space</td>
<td>$50,530,000</td>
<td>SF, RB</td>
<td></td>
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<tr>
<td>Replacement Tennis Courts (March 2014)</td>
<td>$540,000</td>
<td>RF</td>
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### AUXILIARIES PROJECTS

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Estimated Project Budget</th>
<th>Projects to Complete in Advance/Conjunction</th>
<th>Potential Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Housing (June 2015)</td>
<td>$47,800,000</td>
<td>HF</td>
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<tr>
<td>McCollum Demolition</td>
<td>$3,330,000</td>
<td>HF</td>
<td></td>
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<tr>
<td>Mixed Use Development</td>
<td>$70,210,000</td>
<td>VV, X, W</td>
<td>PPP</td>
</tr>
<tr>
<td>Jayhawker Towers B &amp; C</td>
<td>$16,000,000</td>
<td>HF</td>
<td></td>
</tr>
<tr>
<td>Scholarship Halls Renovations</td>
<td>$9,000,000</td>
<td>HF</td>
<td></td>
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<tr>
<td>Parking Improvements Program</td>
<td>$-</td>
<td>PF, RB</td>
<td></td>
</tr>
<tr>
<td>Parking Deck Options</td>
<td>$-</td>
<td>PF, RB</td>
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### ATHLETICS PROJECTS

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Estimated Project Budget</th>
<th>Projects to Complete in Advance/Conjunction</th>
<th>Potential Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>DeBruce Center (Oct 2015)</td>
<td>$18,000,000</td>
<td>PG, U, AA</td>
<td></td>
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<tr>
<td>Memorial Stadium Improvements</td>
<td>$50,000,000</td>
<td>AA, RB</td>
<td></td>
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<tr>
<td>Indoor Football Practice Facility</td>
<td>$17,210,000</td>
<td>AA, RB</td>
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### OTHER PROJECTS

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Estimated Project Budget</th>
<th>Projects to Complete in Advance/Conjunction</th>
<th>Potential Funding Source</th>
</tr>
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<tbody>
<tr>
<td>Not Used</td>
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</tr>
<tr>
<td>Transit Transfer Station</td>
<td>$-</td>
<td>City</td>
<td></td>
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<tr>
<td>Conference Center</td>
<td>$67,500,000</td>
<td>PPP</td>
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EST. BUDGET, STUDENT, AUX, ATH, OTHER: $299,050,000

### EDWARDS CAMPUS PROJECTS

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Estimated Project Budget</th>
<th>Projects to Complete in Advance/Conjunction</th>
<th>Potential Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regents Center Addition</td>
<td>$3,910,000</td>
<td>RB, T, PG, JCT</td>
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</tr>
<tr>
<td>Renovation of Jayhawk Central</td>
<td>$320,000</td>
<td>RB, T, PG, JCT</td>
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<tr>
<td>Building #4</td>
<td>$21,520,000</td>
<td>RB, T, PG, JCT</td>
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</table>

EST. BUDGET, EDWARDS CAMPUS: $25,750,000

EST. BUDGET FOR BUILDING PROJECTS, LAWRENCE & EDWARDS CAMPUSES: $1,703,430,000
### INFRASTRUCTURE PROJECTS

#### FIGURE 4-13: KU CAMPUS INFRASTRUCTURE PROJECTS

<table>
<thead>
<tr>
<th>PROJECT NAME</th>
<th>INFRASTRUCTURE</th>
<th>BUDGET*</th>
</tr>
</thead>
<tbody>
<tr>
<td>A  Jayhawk Boulevard Restoration - Phase 1 (completed)</td>
<td>• • • • •</td>
<td>$-</td>
</tr>
<tr>
<td>B  Jayhawk Boulevard Restoration - Phase 2</td>
<td>• • • • •</td>
<td>$3,600,000</td>
</tr>
<tr>
<td>C  Jayhawk Boulevard Restoration - Phase 3</td>
<td>• • • • •</td>
<td>$2,800,000</td>
</tr>
<tr>
<td>D  Oread Ave (Jayhawk Blvd Restoration - Ph 4) Improvements</td>
<td>• • • • •</td>
<td>$3,000,000</td>
</tr>
<tr>
<td>E  Mississippi Street Realignment and Gateway</td>
<td>• • • • •</td>
<td>$2,716,000</td>
</tr>
<tr>
<td>F  Memorial Drive Improvements</td>
<td>• • • • •</td>
<td>$4,200,000</td>
</tr>
<tr>
<td>G  Potter Lake and Marvin Grove Restoration</td>
<td>• • • • •</td>
<td>$1,030,000</td>
</tr>
<tr>
<td>H  Carruth Pedestrian Corridor</td>
<td>• • • • •</td>
<td>$836,000</td>
</tr>
<tr>
<td>I  Chi Omega Gateway</td>
<td>• • • • •</td>
<td>$1,085,000</td>
</tr>
<tr>
<td>J  Central Physical Plant Equipment Replacement</td>
<td>• • • • •</td>
<td>$8,127,000</td>
</tr>
<tr>
<td>K  Jayhawk Trail Implementation - North Segment (Mid-Hill Walk)</td>
<td>• • • • •</td>
<td>$3,130,000</td>
</tr>
<tr>
<td>L  Malott Amphitheater</td>
<td>• • • • •</td>
<td>$429,000</td>
</tr>
<tr>
<td>M  Sunnyside Lawn Improvements</td>
<td>• • • • •</td>
<td>$1,825,000</td>
</tr>
<tr>
<td>N  Reg. Plant at Mississippi St Parking Garage</td>
<td>• • • • •</td>
<td>$4,109,000</td>
</tr>
<tr>
<td>O  Regional Plant at Learned Hall</td>
<td>• • • • •</td>
<td>$1,986,000</td>
</tr>
<tr>
<td>P  Regional Plant at Anschutz Sports Pavilion</td>
<td>• • • • •</td>
<td>$4,109,000</td>
</tr>
<tr>
<td>Q  Irving Hill Zone Connector</td>
<td>• • • • •</td>
<td>$8,315,000</td>
</tr>
<tr>
<td>R  Sunnyside to Recreation Center Promenade</td>
<td>• • • • •</td>
<td>$7,154,000</td>
</tr>
<tr>
<td>S  Naismith Corridor and Gateway Improvements</td>
<td>• • • • •</td>
<td>$6,576,000</td>
</tr>
<tr>
<td>T  Recreation/Athletic Greenway</td>
<td>• • • • •</td>
<td>$3,928,000</td>
</tr>
<tr>
<td>U  Recreation Corridor Improvements</td>
<td>• • • • •</td>
<td>$14,151,000</td>
</tr>
<tr>
<td>V  Athletics Corridor Improvements</td>
<td>• • • • •</td>
<td>$634,000</td>
</tr>
<tr>
<td>W  Regional Plant at New Recreation Center Parking Garage</td>
<td>• • • • •</td>
<td>$7,085,000</td>
</tr>
<tr>
<td>X  Jayhawk Trail Implementation - Central Segment</td>
<td>• • • • •</td>
<td>$14,092,000</td>
</tr>
<tr>
<td>Y  Stouffer Green</td>
<td>• • • • •</td>
<td>$2,089,000</td>
</tr>
<tr>
<td>Z  Park and Ride Lot at 21st and Stewart</td>
<td>•</td>
<td>$1,148,000</td>
</tr>
<tr>
<td>AA 15th Street Corridor Enhancements</td>
<td>• • • • •</td>
<td>$2,617,000</td>
</tr>
<tr>
<td>BB Conference Center Gateway</td>
<td>• • • • •</td>
<td>$497,000</td>
</tr>
</tbody>
</table>

#### 46 PROJECTS

**ESTIMATED BUDGET FOR INFRASTRUCTURE PROJECTS** $176,746,000

*The budgetary pricing shown has been prepared using 2014 costs. Additional investigation is needed to fully anticipate comprehensive costs associated with these projects.*
**INFRASTRUCTURE PROJECT DESCRIPTIONS**

The following are brief descriptions of infrastructure projects that need to occur in conjunction with building projects in order to provide the required utilities and other features, such as landscaping and stormwater management.

A, B, C **Jayhawk Boulevard Restoration - Phases 1 (completed), 2, 3** – This project entails further implementation of Complete Street improvements, which include integrated water management, landscape/tree canopy, furnishing, lighting, utility upgrades, and new pavement, along the Jayhawk Boulevard corridor.

D **Oread Ave (Jayhawk Boulevard Restoration - Phase 4) Improvements** – This project is a continuation of the Complete Street improvements made along the Jayhawk Boulevard corridor.

E **Mississippi Street Realignment and Gateway** – This project makes West 11th Street continuous at its intersection with Mississippi Street and creates a more formal campus gateway from the north.

F **Memorial Drive Improvements** – This project repositions parking to uphill side, provides for pedestrians and visually reduces its presence in the view shed both to and from the hill. The project includes reinforcement of soil slippage areas at places along the drive. Adds a storm sewer and addresses deferred maintenance and utilities.

G **Potter Lake and Marvin Grove Restoration** – This project requires establishment of a riparian forest buffer to the South of Potter Lake to improve water quality and stormwater management. In Marvin Grove, the work includes the inter-planting, trimming, and thinning of landscaping as well as development of a forestry management plan.

H **Carruth Pedestrian Corridor** – This project creates a path from Jayhawk Boulevard to Carruth-O’Leary and JRP Halls.

I **Chi Omega Gateway** – This project further develops the west end of the Jayhawk Boulevard campus gateway.

J **Central Physical Plant Equipment Replacement** – This project replaces aging boiler and equipment, which also provides for additional capacity, electrical improvements, and structural repairs.

K **Jayhawk Trail Implementation; North Segment (Mid-Hill Walk)** – This project creates an accessible path from the Watson quadrangle to Naismith Drive by incorporating the Mid-Hill Walk.

L **Malott Amphitheater** – This project inserts an outdoor amphitheater along Jayhawk Trail, which preserves open space in the campus core, while providing for outdoor assembly and programming.

M **Sunnyside Lawn Improvements** – This project integrates sidewalks, landscaping and stormwater management elements between buildings to the west of Malott Hall, and creates a critical north/south pedestrian path between Sunnyside Avenue and Jayhawk Boulevard as part of a larger movement pattern (see R).

N **Regional Plant at Mississippi Street Parking Garage** – This project adds a thermal energy plant to the parking garage to serve the needs of multiple nearby buildings.

O **Regional Plant at Learned Hall** – This project adds a thermal energy plant adjacent to Learned Hall to serve the needs of multiple nearby buildings.

P **Regional Plant at Anschutz Sports Pavilion** – This project includes a thermal energy plant in the new Integrated Science facilities, which also serves the needs of multiple nearby buildings.

Q **Irving Hill Zone Connector** – This project creates a utility corridor to connect multiple new buildings in this zone.

R **Sunnyside to Recreation Center Promenade** – This project creates an accessible pedestrian corridor between the Recreation Center and the Science Lawn to the north and includes installation of utilities along the corridor.

S **Naismith Corridor and Gateway Improvements** – This gateway project and corridor improvements acknowledge the corridor’s role as the key southern entry to the campus.

T **Recreation/Athletic Greenway** – This project, integrated with new recreation fields south of Anschutz Sports Pavilion, addresses stormwater management issues by way of detention/retention basins in a park-like setting, and provides a vegetative edge to 19th Street.

U **Recreation Corridor Improvements** – This project creates an east-west corridor for pedestrians connecting Oliver Hall and the Recreation Center with the housing on Daisy Hill and new mixed-use at 19th and Iowa. This path accommodates utilities connecting parts of campus.

V **Athletics Corridor Improvements** – This project creates an east-west corridor for pedestrians connecting housing on Daisy Hill and the Burge Union with Naismith Drive and Sunnyside Avenue.

W **Regional Plant at Student Recreation Center Parking Garage** – This project provides a thermal energy plant with the Recreation Center Parking Garage to serve the needs of multiple nearby buildings.

X **Jayhawk Trail Implementation; Central Segment** – This accessible shared-use path, of a width to include bike and pedestrian travel, provides a corridor for utilities, running from Naismith Drive to Iowa Street.
Y  Stouffer Green – This project establishes a large park on the east slope of Daisy Hill, providing a new interpretation of Marvin Grove. The park is bounded to the east by the Jayhawk Trail and maintains vistas to the east.

Z  Park and Ride Lot at 21st and Stewart – This lot allows parking at the Transit Transfer Station for transit connections on and off campus.

AA 15th Street Corridor Enhancements – This project improves safety by providing visible pedestrian crossing points, and enhances and clarifies transit stops. Includes pavement and utility improvements.

BB  Conference Center Gateway – This project creates a gateway to the research portion of campus from 23rd Street.

CC Research Greenway - Phase 1 – This greenway, developed in conjunction with the Jayhawk Trail, provides stormwater management and also serves as a living laboratory and demonstration project.

DD Utility Connections for Simons Pharmacy and Chemistry – This project provides utility needs for expansion of these buildings.

EE Utility Connections for Research Building #1, #2, #3 – This project extends utilities along a common corridor to accommodate these additional research buildings.

FF Regional Plant in Research Sciences Zone – This project serves as a new thermal energy plant, or expansion of existing facility, to meet the needs of multiple nearby buildings.

GG Jayhawk Trail Implementation; West Segment – This accessible multi-modal path, provides a utility corridor, running from Iowa Street to 23rd on the far southwest edge of campus.

HH 15th Street & Iowa Street Gateway – This project enhances the gateway experience for the additional users of this entry campus point.

II Iowa Street Parkway – This project adds landscaping and naturalized buffers to connect the campus lands on either side of the road and creates a visual and pedestrian barrier.

JJ Iowa Street Bridge Improvements – This project widens existing bridge deck to allow for greater pedestrian and bicycle use.

KK 19th and Iowa Street Gateway and Improvements – This intersection accommodates mixed-use development, a pedestrian bridge, and nearby Transit Transfer Station. This campus gateway serves as a crucial link between the Central and West districts of campus as they continue to grow in importance.

LL 21st and Iowa Roadway Improvements – These improvements, in conjunction with the new Transit Transfer Station, upgrade the intersection for increased use and potential signalization.

MM Extension of Crestline Drive – This project allows Crestline Road to connect directly with Constant Avenue to ease passage in the district.

NN Engel Road and Crescent Road Safety Improvements – Proposed modifications to these city streets improve safety on this route frequented by pedestrians to access the core campus.

OO Add Floors to Mississippi Street Parking Garage (future) – This potential project adds capacity to the parking garage.

PP Parking Garage at W. Campus Road (future) – The possible project provides several floors of parking below a new building fronting on West Campus Road. It relies on the demolition of Carruth-O’Leary Hall.

QQ Parking Garage Adjacent to Burge Union – This potential project, developed in conjunction with the renovations and addition to the Burge Union, is considered a key element to provide parking for the Irving Hill Science Zone.

RR Parking Garage at Student Recreation Center (future) – This possible project provides substantial parking for the athletic facilities and includes a regional energy plant.

SS Lot 61 Stormwater Harvesting – This project provides for the reuse of existing tanks for capturing water for irrigation in the vicinity and possibly as a supplemental water source. The project would require booster pump stations.

TT Naismith Drive Improvements; 15th Street to Sunnyside Avenue – This project entails renovations to improve pedestrian and vehicular interaction by instituting traffic calming devices and other features.

UU Sunnyside Avenue Improvements; Naismith Drive to Sunflower Road – This project entails renovations to improve pedestrian and vehicular interaction by instituting traffic calming devices and landscape enhancements to an entry of increasing significance.

VV Roads - Irving Hill Road to 19th Street, and Sports Pavilion Access – This project creates a connector road from Daisy Hill to 19th Street, as well as provides access to the rear of the Anschutz Sports Pavilion and the proposed indoor football practice facility.

WW Pavement Improvements at Lied Center – This project replaces pavement on the routes taken by buses providing service to the Lied Center.

XX Irving Hill Zone Plaza – This project creates an open plaza developed in conjunction with an entry to Integrated Science 3 and 4 buildings and Stouffer Green.
BUILDING PROJECT IMPLEMENTATION RECOMMENDATIONS

Knowledge gained and lessons learned from previous budget-setting efforts are effective tools for forecasting and tracking projects being considered for funding. Cost saving strategies should be applied. These might include looking at long-term costs, not just first costs, and buying in quantity where possible. As individual building projects are undertaken, consider the long-term needs of the area to determine the most efficient method for incorporating nearby site infrastructure projects.

Programming may require that some existing facilities be considered for renovation or repurposing. While a high level investigation of the university’s deferred maintenance needs has provided useful data, additional feasibility studies are recommended to fully understand the implications of upgrading the buildings, and whether renovations can accommodate the building’s proposed program. Consideration should be made for accessibility and code reviews, the possible removal of hazardous materials, the effects of improving HVAC systems, and other factors.

When new construction is planned, several steps should be included in the design process:

• A defined program for the building.
• Evaluation of the design from an architectural review committee, most particularly in the historically significant portions of campus.
• The building’s appropriateness to the site.
• Campus design guidelines.
• The impact on campus infrastructure.
• The building’s success for the end user and in the larger university context.

PARTNERSHIP OPPORTUNITIES

Recent efforts have been made to coordinate with the City of Lawrence and other local governments about the various building and infrastructure projects under consideration. Continuing to share information and planning opportunities will lead to additional collaborative efforts that benefit each entity. Establishment of a joint committee with the city, to allow dialogue of shared interests, is recommended.

As noted previously, the master plan cites several opportunities for potential public private partnerships. The university already has several successful examples of this process, for example the Biosciences Technology Business Center. With the proposed mixed-use development, on the corner of 19th and Iowa, and proposed research buildings in the West District, public private partnerships may help KU further develop the campus.
The University of Kansas 2014-2024 Campus Master Plan is truly our framework for change. As we move forward there will undoubtedly be surprises along the way. However, we now have a living document that will not resist change, but embrace the challenges and opportunities that will shape our future.

This master plan has given KU the chance to dream and will continue to feed our imagination. We look forward to working with you and physically transforming KU into the campus of tomorrow.

Together, we will achieve our bold aspirations.

Rock Chalk,
The KU Planning Team