

CHAPTER 5: SYSTEM GUIDELINES

5:1 GUIDELINES FOR CAMPUS ELEMENTS

The various site furnishings found on campus contribute to the functionality of the landscape, have a significant impact on campus character, and come with maintenance implications. This section of the LMP establishes campus guidelines for campus outdoor elements that apply broadly. The aim of the guidelines is to bring consistency and a clear identity to the campus, not to constrain designers' creativity. Certain self-contained areas of the campus, such as courtyard spaces, have been identified as appropriate locations for greater visual variety and design expressions outside of the general guidelines. Please refer to the DFCM Standard Documents (Design Requirements: University of Utah Supplement) for design specifics.



Example of beautifully incorporated seat wall at ASU Mesa.

BENCHES

- Benches will be backed, light colored or have a reflective finish.
- A uniform urban style along primary and secondary corridors, made of metal with simple modern lines, will be maintained.
- Benches along circulation paths must be located in a 'node' or 'eddie' spot, meaning a designed space pulled away from the flow of circulation. This usually requires creating a sense of enclosure or protection through low walls, plant material, or small structures. The user must feel out of the way of pedestrian traffic and secluded enough to sit without feeling exposed.
- The location of benches should be integrated in the overall design of spaces to evenly disperse seating throughout campus.
- Benches associated with buildings will reflect architectural elements/style of that building.
- The only bright color acceptable is Crimson.



Example of corten steel structure that incorporates plant material for screening and shade at ASU Mesa.



These metal benches along the overlook at Primary Children's Out-patient Services on the Health Campus are a good aesthetic fit with the Main Campus character.

BULLETIN BOARDS

- Locate near transit stops, the Union Building, large public gathering spaces, the Library, and Bookstore.
- They can be traditional framed cork panels mounted on freestanding metal structures, or large plate metal panels attached to buildings, retaining walls, or freestanding structures.

TABLES AND CHAIRS

Tables and chairs should be distributed on campus for the convenience of those who want to eat or study. Tables and chairs, attached and detached, that are building-specific, have the flexibility of taking on the style of the building they support, or taking on more artistic liberties.

Fixed/ground mounted table and chairs:

- Placement should be considered in plaza and courtyard spaces where circulation paths and proximity to other site elements is critical.
- Where the functionality of the space depends upon a specific table and chair configuration, create eddy spots, or "small rooms" where vegetation or walls serve to create enclosure or backing.

Movable tables and chairs:

Many of the greatest urban spaces around the world incorporate the use of movable tables and chairs and allow the daily user to determine patterns of sedentary or active behaviors within those spaces. They were identified in the surveys as being highly desirable at a variety of locations across campus. Despite not being secured to the ground, the incidence of theft or vandalism is surprisingly low.

- Should be of light-weight metal frame construction with metal mesh seating and eating surfaces.
- Should be distributed in a variety of locations across campus.

RAMPS

The design of ramps should be considered a sculptural element in the landscape and not be viewed or treated as an afterthought to the comprehensive design.

- Ramps must comply with the American Disabilities Act (<http://www.access-board.gov/ada-aba/final.cfm#a505>) and other applicable DFCM design standards for ramps.
- Ramps should be incorporated into the main flow of traffic as much as possible. All routes of travel should be less than 5%.



Chrome tables and chairs at the Tanner Humanities Center.



Example of good integration of site lighting with ramp and stairs. The low massing of plants incorporates a seat wall and highlights the striking facade of the building.

STEPS, HANDRAILS AND GUARDRAILS

Where stairs occur in lawns, cheek walls should be established parallel and equal to the surrounding grades for ease of mowing and to visually minimize the steps and enhance the continuity of the lawn.

Simple rails are preferred over ornamental guardrails, which interrupt the continuity of the campus environment with small-scale, singular design expressions.

SMALL STRUCTURES

Like public or civic art, these structures allow for the individual expression of the designer to punctuate spaces with vertical elements; within the confines of the overall campus aesthetic. These small structures are generally functional in nature, used to create a specific behavioral setting, provide shade, or introduce a human scale element into a massive space.

Structures may incorporate structural steel and other metal elements, and sculptural concrete forms for informal seating. These may include council rings, fire pits, shade structures, arbors, trellises, fountains, etc.

ART IN THE LANDSCAPE

Works of art are appropriate in the civic spaces of the campus, however, to be successful, they must be of the highest quality, compatible with the overall landscape aesthetic of the space they inhabit, and sensitively integrated into the plan. Just as the civic landscapes should be designed to publicly represent the University, art in civic spaces should possess the qualities appropriate to works that will take on symbolic meaning that extends to the entire University in the public eye.

- Future campus art should be selected by an art advisory committee made up of representatives of the faculty, University museums, campus planning, the administration and facility management.
- The committee should be responsible for developing the mission and policies related to public art and regulate its selection, placement and maintenance.

SIGNAGE

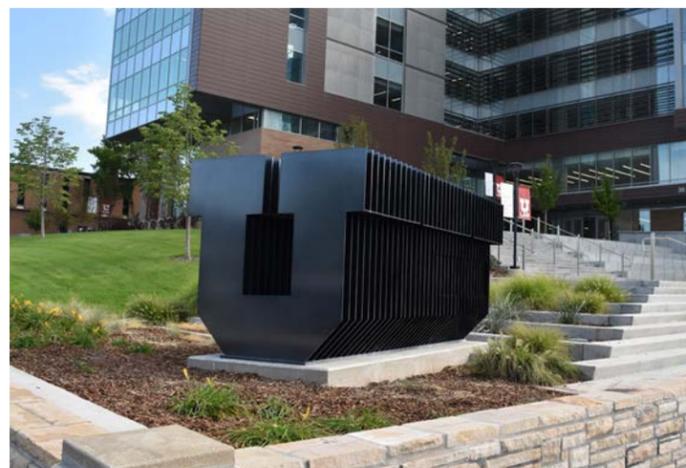
During the LMP preparation, the University of Utah commissioned a signage master plan that will result in the installation of wayfinding and monument signage for Health Campus. The Main Campus can benefit from the integration of the wayfinding signage being incorporated at the Health Campus and is encouraged to continue the same signage design throughout.



Artful integration of site features, plant material and color scheme at USC Annenberg.



Example of site elements at ASU Mesa.



Campus art in front of the James E. Faust Law Library.

SITE WALLS

Site walls may be used to retain grades, define building entrances, terraces, landings and ramps, screen service areas and utility appurtenances, define campus gateways, define edges of the campus, and as seat walls at campus gathering areas.

- Construct of durable high quality masonry materials.
- The materials and workmanship of site walls built in association with buildings should closely match the quality and finishes of the building walls. The use of inferior site wall materials in close association with the architecturally finished walls of campus buildings should be avoided.
- Consistent use of native sandstone will enhance a 'Utahn' sense of place. Native stone also has the practical advantages of ease of maintenance and a texture that deters skateboarders on low walls.
- Buildings requiring a modern style of wall will use architectural concrete.
- Seat walls should be generously sized to allow for comfortable, informal use.
- Copings need to be designed in proportion to each wall and to withstand weather impacts.
- Where possible, separate service and pedestrian areas with walls that are compatible with adjacent architecture or with screen plantings. Where this is not possible, service areas should be designed to an aesthetic quality that aligns with the campus environment.

VEHICULAR PAVEMENTS AND CURBING

Access road pavement on campus shall be asphalt with 6-inch-high concrete curb and gutter on both sides of the street.

Specialized sections of roadway including sharrows, crosswalks, directional arrows, parking lot symbols, and other multipurpose functions should be defined by colored stamped asphalt or preformed thermoplastic products. These products offer increased visibility and durability over traditional painted asphalt surfaces.

PLANTING BED EDGING

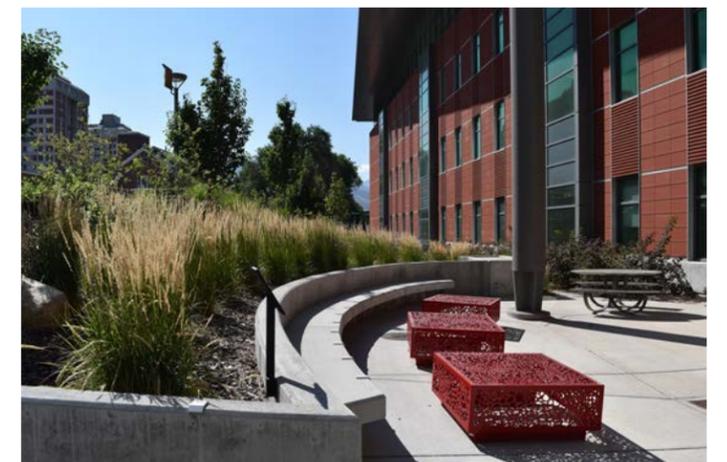
Planting bed edges should be straight lines or simple curves sympathetic with adjacent architecture and site context. Elaborate ornamental planting bed shapes should not be used.



Example of shade structure.



Successful juxtaposition of modern and historic walls.



Seat walls on the Health Campus.

PEDESTRIAN PAVEMENTS

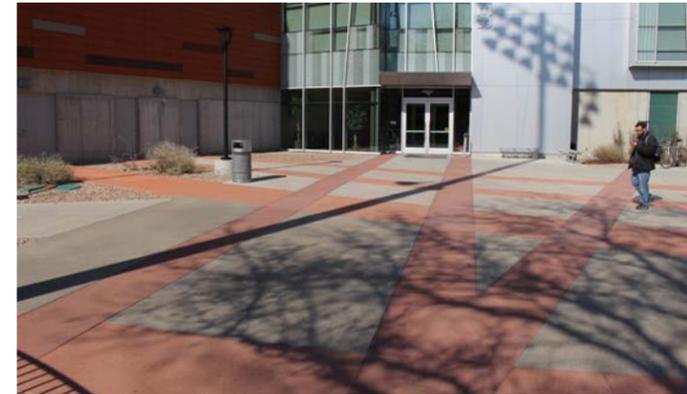
A wide range of materials other than concrete may be employed in plazas, courtyards, connective spaces, and other spaces associated with campus buildings to enhance human scale, material richness and landscape character.

Materials may include brick, stone, and unit pavers. Unit pavers may also be used in service and parking areas when it is important to signal that pedestrians are welcome in these areas.

- Where project conditions are appropriate, pervious pavement is suggested as a future goal.
- Factors to consider in the decision to use pervious pavement include subsurface soil conditions, maintenance implications, traffic loading and cost effectiveness versus other stormwater management methods.
- Pervious pavements may include pervious concrete, pervious asphalt, concrete slabs with pervious joints and base, and pervious unit pavers.
- Transitions from one pavement type to another should follow logical landscape divisions and other design considerations.
- Where landscape meets architecture, paving material selection shall be coordinated with exterior architectural materials and interior flooring materials to create one environment. In order to minimize heat island effect, outdoor pavements shall be shaded or light colored.
- Color schemes should compliment adjacent architecture and/or support the design theme for the space. Colors must be integrated into the concrete mix.
- Pavements used on pathways, sidewalks, and pedestrian corridors should incorporate colors or textures to segregate use or indicate zones for specific modes.
- Pedestrian pavements used in paseos or minor passageways should correspond to the intended speed of the pedestrian using the space.
- Pavements rich in texture will slow the user. Pavers, stabilized pea gravel or decomposed granite, stepping stones, etc are appropriate options in this kind of application.

NEWSPAPER DISPENSER GUIDELINES

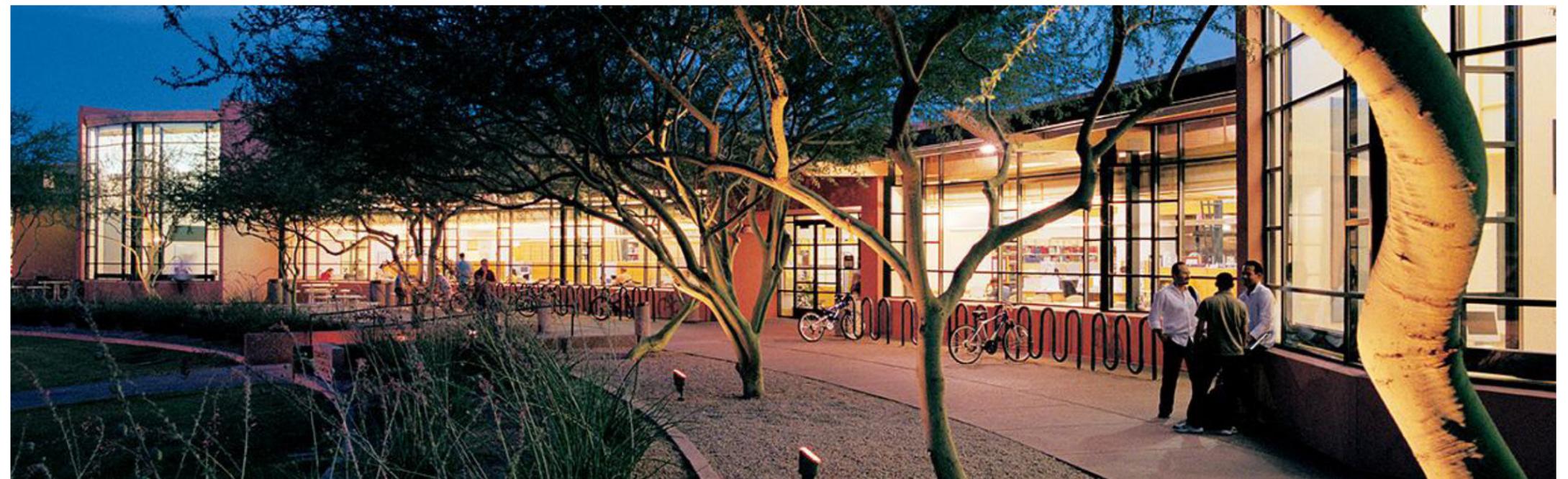
- Newspaper dispensers should be placed near major pedestrian nodes on campus and near the entrances of buildings that have the highest student visitation rates (e.g.. Bookstore, Library, Student Union, etc.).
- They should be highly visible to encourage use, but also match the general aesthetic of the spaces they inhabit.
- They should be aligned in neat, simple rows.
- Avoid putting dispensers in locations where they interfere with views and vistas or become visually obtrusive.
- Dispensers are best organized at site or building walls along the edges of walkways.



Colored concrete at the Student Life Center successfully breaks up the large expanse of hardscape.



Nice pedestrian paving design by the John Widtsoe Building.



Excellent example, from ASU 's Thunderbird School of Management, of incorporation of site elements, such as bicycle racks, into the design of the building front. The lighting highlights the tree forms, textures and landscape features.

5:2 LIGHTING

Lighting on campus is very important to the look, feel, and flow of the campus environment. When well lighted, the campus will invite users to feel safe to explore. Individuals will be able to easily find their way from location to location without wandering in the dark. Proper lighting will enhance user experience by focusing attention toward specific areas and items and can encourage exploration of areas not normally seen or experienced. Lighting is a way to draw all the elements of the campus together. It must perform the necessary functions, while maintaining either low-profile fixtures, to not draw attention away from what is being lighted, or act as a focal point to draw attention when necessary.

The primary focus for site lighting is to improve the safety and security of the Campus, to assist in wayfinding, and to be Dark Sky compliant. As such, the site lighting is to be placed with the following goals in mind:

- Lighting of pathways
- Lighting of building entrances
- Lighting for gathering areas (plazas) to encourage their use
- Increased lighting for security in surveillance areas (i.e. bicycle storage areas, parking lots, etc.)
- Provide lighting for wayfinding signage (either interior or exterior lit signage)

The IESNA recommendations for light design and light levels should be followed. Per the IESNA guideline (G-1) for Security Lighting for People, Property, and Public Spaces, at a minimum, the average lighting for pathways should be 1.0 fc, and 3.0 fc for parking lots. These values should be used as a starting point, and the designer should follow best practices.

An important aspect to the light fixtures is to assist with unifying the look and feel of the campus. As such, it is important that all the site lighting is the same. To this end, the University has designated three distinct areas of the campus (Lower Campus, Upper/Medical Campus, and the Fort Douglas area). Each of these areas has specific requirements for the fixture, pole, color, etc. that is to be used. Refer to the electrical design supplement Section 3.5, A, (5) for more information.

The University is committed to both energy conservation and reducing light pollution. With these goals in mind, lighting is to be placed in specific areas (as indicated above) and care given to ensure that light is directed by using the correct optics and not just spreading light in all directions. Additionally,

lighting controls such as photocells and occupancy sensors are to be provided in each individual fixture. Each fixture should be capable of being turned on/off based upon ambient light levels as well as allow for dimming based upon occupancy. The controls should maximize energy reduction and minimize the impact of light trespass (i.e. around dormitory and residential areas). However, the safety and security of the campus is paramount and should always be the number one priority.

Lighting maintenance should also play a key role in the placement of lighting; consideration for locating light fixtures, so as not to impede snow removal and vehicle routes, is important.

Branding and advertising of the campus as well as individual colleges and departments happens on banner arms and signage on lighting poles. This allows for assistance in wayfinding by showing visitors, students, staff, etc. the area of the specific college via the banners.

Please refer to the Electrical portion (Section 3.5, A) of the University of Utah Supplement to the DFCM Design Manual for specific requirements for site lighting including allowed fixture and pole types, controls, color temperatures, concrete bases, mow strips, etc.

ELECTRICAL DISTRIBUTION/UTILITY EQUIPMENT

There are many pieces of electrical distribution equipment required to make the campus run. These include transformers, switches, generators, and other items. These items are critical for operation of the campus and are often difficult to house within a building. It is important that these items be properly sized and located while not interfering with the flow and feel of the campus itself.

Please refer to the Electrical portion (Section 3.5, E) of the University of Utah Supplement to the DFCM Design Manual for specific requirements for any electrical distribution.



University standard lighting fixtures.



Lighting fixtures in the historic Fort Douglas area.



University standard lighting fixtures with one arm.



University standard lighting fixtures with two arms for banners.



University standard lighting fixtures at night.



University standard lighting fixtures in parking areas.

5:3 GUIDELINES FOR PLANTING DESIGN

Planting design decisions should be the result of balancing several factors including hardiness and resiliency; visual-sensory design considerations; the functional role of the plants; and practical factors such as budget and availability of plants in the nursery industry. This section addresses the visual-sensory and functional aspects of planting design.

SPACE DEFINITION

In addition to the important ecosystem services provided by campus planting, the visual role that plants play in the definition of outdoor space is a critical function. From a visual design perspective, the arrangement of plants on the campus grounds should be understood, first and foremost, as an exercise in space definition. Trees and shrubs should be employed to purposefully define the overall extent, scale, shape and character of the outdoor spaces of the campus. This approach to planting design contrasts with a popular understanding of planting as added decoration, or embellishment, without considering the overall scale, proportions and structure of landscape spaces. As a starting point, the design of campus plantings should strongly consider the space-defining role of plants.

HYDROZONING AND EXPERIMENTATION

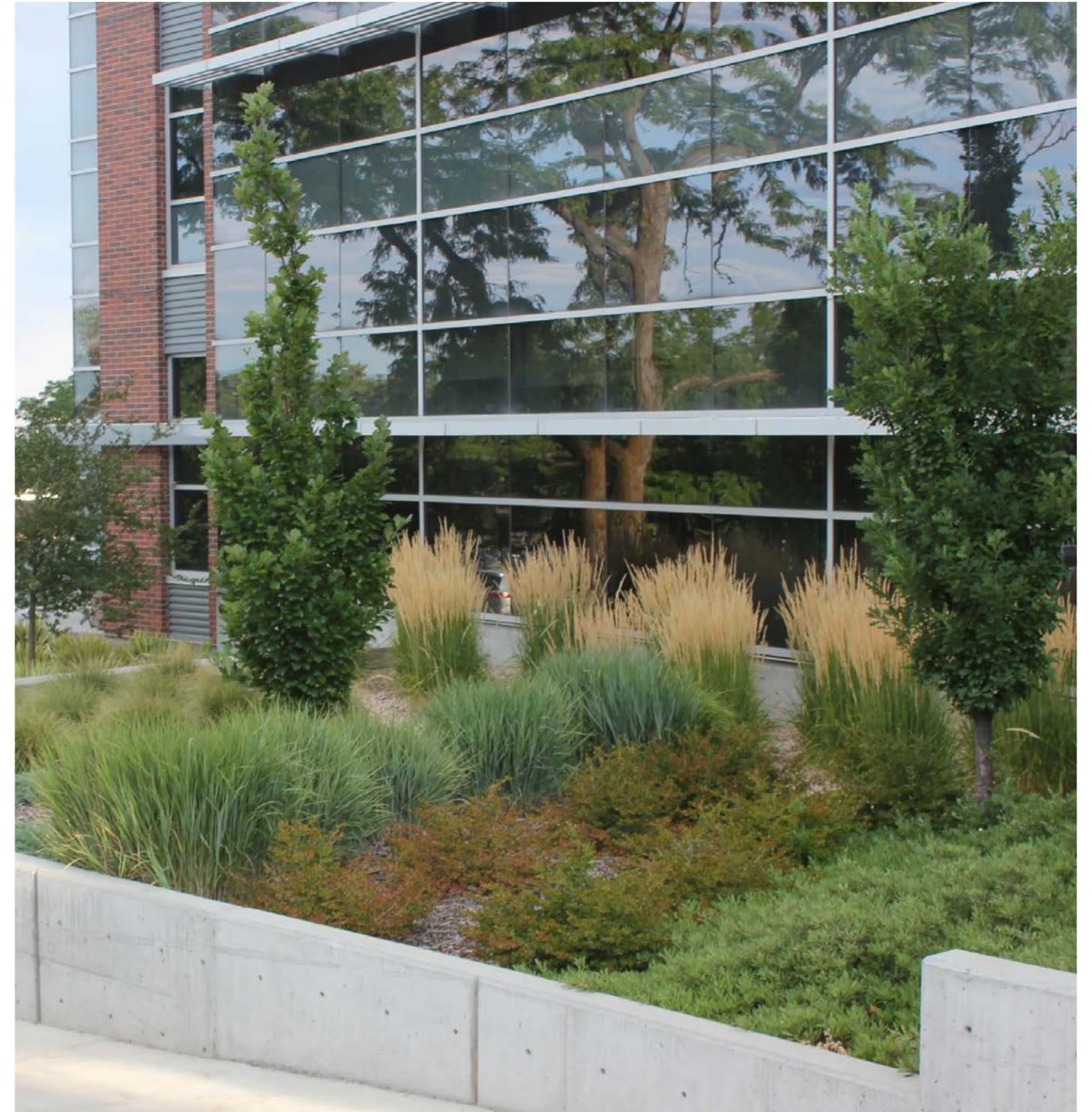
As an arboretum, the University should feel comfortable experimenting with understory species as well as tree species. The appropriate use of irrigation through hydrozoning, will further support the vast array of plant material available in harmony with the University's water conservation goals. Plant materials thrive best when they are planted with other like plants with similar watering needs. Watering zones will be arranged so that plants with like needs are watered together to increase efficiency.

INSTITUTIONAL SCALE AND DESIGN SIMPLICITY

For both aesthetic and practical motives, the organization of planting for the major campus landscapes should be properly scaled to be in proportion to campus buildings and streets. Designs that are unnecessarily intricate, interrupting the simplicity and calm of the major campus streets and landscape

spaces should be avoided for design reasons, but also because they increase maintenance. Garden scale planting designs are only appropriate in courtyard settings where they are more likely to fit the size of the space. In streetscapes, civic landscapes, campus greens, and other large continuous campus landscapes, simple plantings in unified masses should support the overall structure of the campus plan and be consistent with the order of campus architecture.

Most campus buildings consist of few materials, with decoration integrated into the overall composition without significant material changes. Likewise, planting should be composed to be consistent with the scale and restrained use of materials shown in campus buildings. Simple, unified and understated plantings carry with them a dignified appearance appropriate to the size of the University.



Plant bed in front of the Thatcher Building that reflects simplicity of design, appropriate scale for the building architecture, and regionally appropriate plant selections.

VARIETY AND UNITY

In general, the diversity of plants is encouraged for ecological reasons, but should not result in the loss of visual unity in major landscape areas of the campus. It is particularly important not to sacrifice unity and coherence in civic and street landscapes for the sake of an exaggeratedly diverse plant palette. Some of the most significant and beautiful campus landscapes, including Presidents Circle and the Union Building Plaza, are appropriately composed with limited numbers of compatible plant species. The result is a pervasive unity of effect in which the eye moves freely, unarrested by visually divergent calls for attention. In courtyards, plantings can be richer, more intricate and stylistically varied because these landscapes are visually contained, unlike streetscapes and connective and civic landscapes where continuity of effect is essential to the success of the campus landscape as a whole.

PLANT LAYOUT

The selection and layout of plants should take into consideration the ultimate space for normal plant growth. Hedging is to be avoided.



✓ Good example of proper plant massing that compliments the modern style of the building and incorporates low water plant varieties in a simple design.



✓ This massing of plant material creates simple forms and textures and is appropriately scaled for the Marriott Library Plaza.



✓ Great example of layered color and texture along the historic rock wall on the corner of University Street and 100 South. These plants are water wise and offer a feeling of fullness that rock mulch and desert plants alone cannot.

✓ Positive example

✗ Negative example



✗ Lack of institutional scale, unity and formal gateway planting design renders this important bed, leading to the west entrance of the Jon M. Huntsman Center, useless to answer both functional and aesthetic needs.



✗ All raised planters on campus with turf should be converted to low water meadow grasses or low water plant massings, per the LMP guidelines.



✗ Large swath of bark mulch feels unplanned and disregarded and is not appropriate as entrance material for the Lassonde Building.

PLANTING DESIGN GUIDELINES

- Maintain Institutional Scale and Simplicity in all landscape types except courtyards.
- Celebrate the character of the Great Basin and Rocky Mountain flora.
- Maintain a diversity of plantings, but not at the expense visual coherence and unity of the larger campus landscape.
- Employ layered plantings for visual and ecological enrichment.
- Space plantings to allow plants to mature to their natural form where possible.
- Maintain practical spacing for maintenance and appearance.
- Celebrate and protect trees and tree groups with exceptional form and character.
- Identify all locations of the large swaths of unusable green lawn within the campus core and along campus edges. Recommend opportunity for usable space creation and campus identity creation (branding).



✗ The overuse of bark and rock mulch, with spotty planting that lacks hierarchy, massing, unity, and appropriate scale, creates the feeling of an ignored, hot space that is largely unusable.

PLANT SPECIES

As the mission of the arboretum is to provide educational and experimental opportunities through the use of species diversification, the LMP does not provide a set list of plant varieties from which to select plant material.

SEASONAL INTEREST

Plant massings should incorporate a variety of color and form, that vary in bloom time and provide interest in all four seasons. In all plant beds, consider the colors provided in spring, the color and form potential for summer, fall color, and the evergreen possibilities in winter that will provide form when deciduous varieties are leafless.

PLANT BEDS & ASSEMBLAGES

Attention must be given to species distribution and spacing in planting beds. Planting beds in courtyards and plazas are viewed at closer proximity and, therefore, can have greater variety and complexity. Plant beds viewed primarily from streets or major corridors should maintain simple arrangements and limit plant variety to cut down on costs and ease maintenance.

DESIGN FOR HYDROZONING

Below is a list of correct planting procedures that are essential to establishing a water efficient landscape:

- Choose and locate plants to grow to natural size and avoid hedging.
- Do not use plants known to be invasive in similar climates/conditions.
- Provide low-water, Utah native, Mediterranean or climate-adapted plants.
- Implement hydrozoning; group plants by water needs.
- Design for on-site rainwater collection, recycled water and/or graywater use.
- Provide shade to moderate building temperatures.
- Design for on-site rainwater collection, recycled water and/or graywater use.
- Design and install high efficiency irrigation systems, including weather-based irrigation controllers.
- Install a dedicated meter or submeter to monitor landscape water use.
- Keep plant debris on site by grasscycling and producing

- mulch and compost from plant debris.
- Protect soil from compaction.
- Feed soil naturally and avoid synthetic fertilizers.
- Mulch regularly to maintain minimum required mulch depths.
- Manage and maintain irrigation system so every drop counts.
- Use integrated pest management (IPM) as part of maintenance practices.
- Choose and maintain your materials, equipment and vehicles carefully to minimize pollution and fuel consumption.
- Use organic pest management whenever possible—avoid pesticides prohibited by the Organic Materials Research Institute.
- Minimize impervious surfaces.
- Design a system to capture and filter stormwater, such as vegetated swales, infiltration planters, or detention basins.

EXISTING XERISCAPING ON CAMPUS

As discussed in Chapter 3: Existing Conditions, the overuse of bare rock and bark mulch of varying sizes and colors, with spotty planting, is prevalent on campus and do not reflect the principles of xeriscaping. These areas generally lack composition (a pleasing degree of visual complexity, hierarchy of color, texture and height variation) and are not indicative of the regional character. A better solution is found in the adjacent photo. These terraced beds were designed to fill in and cover the majority of the mulch below, and add texture and variety while highlighting the beautiful stone wall in-between. All plant material used is water wise.

WATER CONSERVATION

Healthy, established plants need less water than plants that are not. Industry best practices, like deep watering, encourages strong, healthy root systems that are more water efficient. Watering cycles should be long enough to penetrate the soil and encourage greater root development. Optimal run times and cycle programs for each zone should be created with the controller to avoid over watering and under watering.

PLANT GROUPING GUIDELINES

- Group 'Focal Areas' of trees and shrubs that complement each other.
- Group plants according to their water use.
- Group plants based on their 'style' and appearance.
- Group complementary flower colors and shades of foliage. Provide contrasting material as needed.
- Group complementary fall colors.



✓ Full planting beds, composed of simple massings, highlight the stone retaining wall.

TREE CANOPY

DEFINING CHARACTERISTICS

A major goal of the LMP is to put in motion strategies to create a healthy urban forest, full of diversity with an artful continuation of shade canopy. A successful tree canopy will balance the need for aesthetics and shade, and thrive in the experimental nature of establishing a diverse canopy.

ISSUES

A close look at the existing tree canopy reveals that newly designed landscape spaces—for example, the James E. Faust Law Library—rely heavily on ornamental trees which are not large enough to define spaces and create the shade necessary for habitable spaces. Ornamental trees are often found at building entrances. They do not support the design or function of most courtyards and plazas.

Ornamental trees are planted mainly for the quick return on investment, as they are showy trees that reach mature sizes faster than large shade trees. However, it is most important to include shade in areas of high circulation and open plaza spaces and to keep in mind the greater long-term investment at hand.

Some challenges to establishing a tree canopy are due to the utility work around new buildings that often conflicts with the root system of large trees, if not the trees themselves.

OBJECTIVES

The overarching objective of developing tree canopies along primary and secondary corridors is to provide comfortable user-friendly environments that will build the character of the University campus.

Because of the steep grade and utility challenges along the HPER Mall, the primary objective of this corridor is to create more of a park feel than a linear mall. To accomplish this, far more shade trees and gathering spaces are needed. A conceptual rendering of the Mall is underway.



✓ The large trees and usable open lawn, west of the Union Building, are key in making it the second most loved outdoor space on campus.



✓ Historic Presidents Circle is one of the few areas on campus with a variety of large old growth trees, which provide ample shade. Surveys show it is the most loved outdoor space on campus.



✗ This secondary corridor is in need of a continuation of the tree canopy started at the south end near the Museum of Fine Arts.



✓ This secondary corridor is framed by two large London plane trees.

TREE CANOPY GUIDELINES

- Shade trees should be grouped together to support each other.
- Use the Tree Succession Plan (see 5:10).
- Phase out monocultures.
- Implement hydrozoning; group plants by water needs.
- Identify the right mix of shade vs. ornamental vs. columnar.
- Replace Austrian pines with other species as they die.
- Replace the majority of Honeylocusts in parking lots and along primary corridors with denser shade trees, by way of a succession plan, to facilitate the creation of a robust shade canopy.
- Use the I-Tree Assessment tools as a benchmark in the development of a Tree Assessment System that can direct the siting, care, and preservation of beneficial trees. At a minimum, the data tools should be able to:
 1. estimate long-term environmental benefits and values of a tree planting project;
 2. estimate the tree canopy spread;
 3. conduct parcel level analysis of current and future tree benefits;
 4. connect gaps in the canopy;
 5. help with water conservation and irrigation water management;
 6. analyze data for existing trees slated for replacement. Evaluate what is lost from the removal of these trees.
 7. Review the tree and site data gathered and provide it for each tree in the plan review process.
- Develop an Arborist Management Plan that can be used to ensure the continued health of the tree canopy.

TREE SUCCESSION PLAN

The Tree Succession Plan is a planning framework formulated on the existing tree populations on the University of Utah campus. It aims to assist in long-term management and facilitation of change, ensuring future development of tree assets is wholly integrated and steered toward an agreed-upon and enduring vision.



Presidents Circle.

GOAL 1: Strengthen the campus landscape character through wise establishment of a sustainable mix of tree ages.

Strategy 1.1: Document species diversity, quantity and current health, age, structural condition and significance of trees.

- Maintain/update current tree database and data-collection management tools.
- Plan and implement tree condition surveys, conducted at determined frequencies.
- Develop Arboretum significant tree maintenance, monitoring and succession programs.

Strategy 1.2: Develop and maintain a sustainable, mixed-age tree canopy.

- Develop a prioritized tree removal and replacement planting strategy with the primary aim to develop multiple age class representation.
- Develop a prioritized tree maintenance and monitoring program.
- Identify tree species with undesirable risk potential, and adopt appropriate plans for their management to minimize weed invasion risk.
- Assess tree species performance over the life of the campus and evaluate suitability.
- Where appropriate, decrease the number of the most common tree species by considering replacement with climate-suited, rare and threatened, regional or other suitable varieties.

Strategy 1.3: Undertake a comprehensive survey of specimen tree planting undertaken over last decade to guide future planting plans.

- Catalog location, condition and performance of new specimen tree planting undertaken over last decade to guide future planting plans.
- Catalog location, condition and performance of new specimen tree plantings.
- Develop and implement commemorative tree planting policy/procedures.
- Develop an Arborist Management Plan.
- Establish a point system for the removal and replacement of trees, rather than the 2 for 1 method currently used.

GOAL 2: Enhance and augment Arboretum diversity.

Strategy 2.1: Identify and prioritize areas where new trees can be established and select species according to current and future site profile, climate change projections, value to scientific research, landscape character, site elements and weed risk potential.

- Establish a replacement strategy for trees of high cultural, design, environmental, scientific and heritage significance in line with this LMP.

Strategy 2.2: Priority taxa on campus that should be replaced/repeated on campus (before a specimen is lost, or because it's doing well) and identified using the current database and condition survey.

Strategy 2.3: Develop a prioritized list of taxa that should be planted on campus as opportunities align, i.e. the right project, microclimate and soil conditions, as well as availability of the desired taxa.

- Ideally, this phase of landscape planning would occur at

the earliest stages of development so trees can be located and committed to in advance.

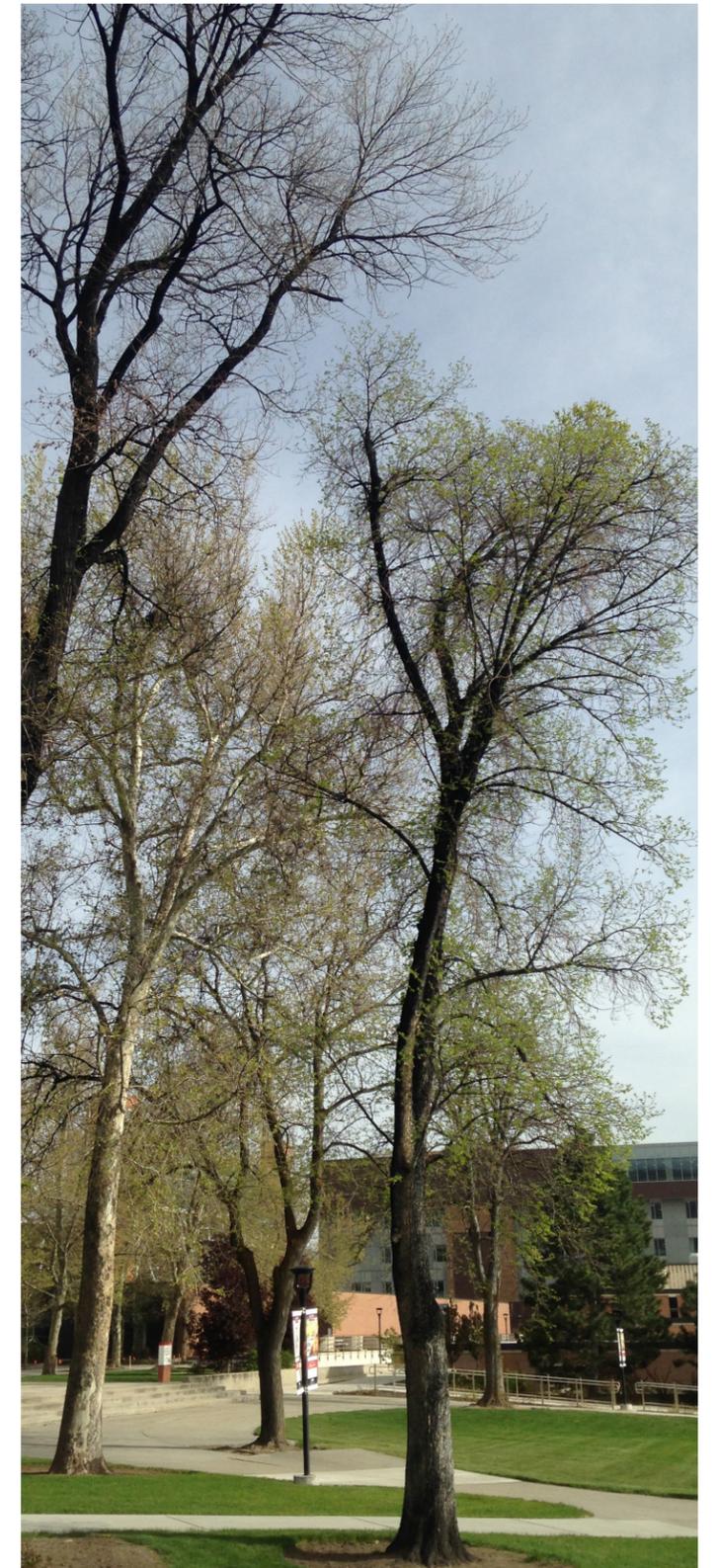
GOAL 3: Conserve, sustain and develop (through experimentation) the landscape and living tree collections over the long term.

Strategy 3.1: Adopt a 'best practice' approach to tree care and protection.

- Identify future arboricultural management structures and needs.
- Develop a site-based tree canopy management program applying current arboricultural principles and practices.



Historic Cottam's Grove.



The Tree Succession Plan will guide the replacement of declining historic trees.

5:4 LEARNING LABS

DEFINING CHARACTERISTICS

Studies show that the way in which campus spaces are designed can go beyond aesthetic satisfaction to actually support the academic mission of the University (Source: Assessing the Learning Value of Campus Open Spaces Through Post-Occupancy Evaluations, David Spooner). Both the composition and configuration of landscape elements affect behavior. Specific landscape elements can allow for certain types of both group and individual study behaviors, and the overall arrangement of these elements can either support or limit these activities.

Outdoor learning labs offer multidisciplinary education and enjoyment of the outdoors. Learning lab opportunities can vary in scope and intensity, from interpretive signage to large-scale demonstration experiments. This range in scope and presentation can add a network of interest and variety to the campus landscape and provide new and innovative ways of interacting with the natural world. This network of learning stations can be incorporated into the U of U Tree Tour or become a tour of its own. Below is an excerpt from the vision behind the Landscape Lab proposal for Red Butte Creek (see Red Butte Creek at the Williams Building: Landscape Lab).

RED BUTTE CREEK

Flowing through the heart of campus, Red Butte Creek is a small but important natural water resource. This complex, interconnected system is the only waterway in the western U.S. that abruptly transitions from a protected, montane watershed to a major metropolitan system.

The Red Butte Creek corridor has been greatly affected by urban development. Roads, parking lots, and buildings have covered much of the watershed, resulting in highly altered hydrology, poor water quality, pronounced degradation of streambanks, loss of habitat quality, and diminished plant and wildlife diversity. Additionally, in 2010, a Chevron pipeline leaked tens of thousands of gallons of crude oil directly into the creek. Red Butte Creek is currently in a great state of neglect and is inaccessible and hazardous for safe recreational or educational purposes.

As the most upstream entity, the University of Utah must set a new standard for Red Butte Creek and watershed stewardship. Since 2012, students, faculty and staff have been researching and galvanizing support for the revitalization and

transformation of Red Butte Creek into an active asset for our campus and community. The Red Butte Creek Strategic Vision formalizes a proposal for reimagining and reintegrating campus and community life around the corridor.

Unique Asset for the University of Utah - Embodiment of Mission and Core Values

By transforming this underutilized corridor into a distinctive campus center, the University will 1) serve as a model for watershed stewardship both regionally and nationally, 2) utilize our campus as a living educational lab, and 3) create an inspiring campus destination for the public.

In addition, this project will become a unique asset for the following reasons:

- Defines a signature student experience with unique outdoor classroom and on-campus "field station" opportunities.
- Creates a distinctive "Environmental District," linking with Red Butte Garden, the Natural History Museum of Utah, the Bonneville Shoreline Trail, Heritage Preserve, and Red Butte Canyon Natural Research Area;
- Supports long-term academic research elements for ecological and environmental research in the Red Butte Canyon Research Natural Area;
- Provides a test-bed opportunity to advance water management practices in urban systems across the western United States;
- Furthers the University's academic mission for engaged learning experiences, innovative research opportunities, and contributions toward a sustainable world.

VISION

Red Butte Creek will become an educational resource across campus for natural sciences, social sciences, engineering, humanities, and the arts. It will involve students in research, analysis, planning, design, adaptation, and program monitoring activities. Over twenty-five departments and 100 projects have been identified as potential stakeholders.

The revitalization will include a new recreation area and trails for public use. It will provide opportunities for the community to experience and appreciate Red Butte Creek without compromising stream health and functioning.

WILLIAMS BUILDING/RED BUTTE CREEK

While the upper portion of the Red Butte Creek watershed is a protected natural area, the creek's lower portion runs

through the University campus and has encountered over a century of degradation, diversion, and neglect. Graduate students in the University's 2012 and 2013 Global Changes and Society course recognized this issues and brought it to the attention of the University's administration. In 2014-15, the Office of Sustainability, the GCSC, and the Ecological Planning Center carried out a planning process to develop a Strategic Vision for Red Butte Creek as previously discussed.

The Williams Building property in the University of Utah's Research Park offers a unique opportunity to host a demonstration project for the Red Butte Creek Strategic Vision. In partnership with campus facilities and planning and the Real Estate Administration, the Office of Sustainability, the GCSC, and the Ecological Planning Center convened a collaborative design process—the "Landscape Lab"—to re-design the landscape of the Williams Building. Facilitated by a landscape

architecture consultant, the research design team has worked to integrate ecological and social-impact research questions into the design of the new landscape, thereby encouraging a new process model that merges social science and ecological research with planning and design.

The project will restore native ecological diversity and function to this portion of the watershed; increase access to recreational space for occupants of the building, the campus community, and the public; as well as test research questions about urban stream restoration, stormwater management, water quality, use of public space, and more. By working across disciplines, this investigative process aims to shorten the feedback loop between implementation and research, ultimately helping to shape more effective designs for healthy and resilient ecosystems and communities.



Conceptual drawing of the design vision for the Williams Building Entry (VODA).

5.5 CREATE A LANDSCAPE MANAGEMENT PLAN

A campus-wide Landscape Management Plan is critical for the long-term success of the campus landscape. It will provide direction for staff, consultants, and service contractors in standards of landscape performance, appearance and care. While the development of such a plan is outside of the scope of the LMP, this section will outline some of the critical elements that should be contained in the future management plan.

CLEANLINESS AND MAINTENANCE STANDARD

The University should develop a rating system to measure how well campus landscapes are cleaned and maintained based on an established Quality Standards Guideline.

MANAGEMENT REVIEW

Formal review and cost updates of the management plan should be conducted at least once annually.

MAINTENANCE AND REPLACEMENT STANDARDS

A tree preservation plan/key with elements for maintenance and new construction near historic trees/buildings needs to be developed and consulted before every construction project.

These guidelines would assist the Facilities Manager and other staff in determining when and how to maintain campus site elements until they reach the end of their useful life. Efforts should be made to coordinate these guidelines during each annual needs identification inspection.

A list of governing principles for the major components of the campus landscape should be developed, including:

- Softscapes
- Hardscapes
- Site Utility Systems, Equipment and Water Features
- Site Furniture

TRACKING AND SCHEDULING

For each maintenance activity, data should be collected and documented to quantify each activity within each established work zone. A method for tracking the hours and dollars ex-

pected for scheduled and unscheduled maintenance activities should be developed and implemented. The quantification of maintenance activities over time will allow for the correlation of effort and results and facilitate annual planning for scheduled landscape maintenance as periodic changes are made to the landscape and to the maintenance zones.

The University should develop a monthly landscape maintenance schedule and work plan for each of the maintenance zones, consistent with expectations for the appearance of the grounds and the resources available for grounds care.

Major groupings would include but aren't limited to:

- Seasonal Flowers;
- Trees;
- Shrubs and Ground Covers;
- Lawn;
- Irrigation System;
- Hard Surfaces (Walkways, Curbs, Gutters, and Parking Areas, Plazas, etc.);
- Exterior Lighting;
- Water Features/Fountains;
- Site Drainage;
- Site Furniture.

Each section should include a brief discussion of the purpose and standard, as well as the established maintenance and replacement standards. Care instructions and maintenance histories should also be documented for each established section.

An Arborist Management Plan should be developed to work jointly with the Landscape Management Plan, and contain measures for tree health and improvement and more specific strategies for maintenance when needed.



Shaded pathways with full understory beds.

GENERAL LANDSCAPE MANAGEMENT PLAN DEVELOPMENT RECOMMENDATIONS

- Establish specifications and work quality standards for each of the grounds maintenance activities in the work plan.
- Establish standards for grounds maintenance employee qualifications at all levels.
- Properly plan, fund, and execute regular repairs to all damage to the grounds.
- Develop a Master Irrigation Plan that standardizes the University system and is coordinated with the maintenance zones, water management strategies, and individual landscape project plans.
- Develop a process that guarantees that grounds maintenance requirements will be properly identified and weighted in the design process for all new and renovation projects.