

CHAPTER 3: EXISTING LANDSCAPE & CAMPUS STRUCTURE

The process of preparing the Landscape Master Plan (LMP) was initiated with an analysis of the campus landscape from several perspectives. MGB+A and Psomas examined the campus to observe character-defining features and components of the designed landscape, including lighting, furnishings and hardscape elements. This chapter gives an overview of the main characteristics of the University of Utah campus landscape. The scope of this study does not include a thorough analysis of ecological systems and all system functions. It is recommended that such a study be conducted to best understand the means by which recommendations and policies of the LMP may best be achieved.

3:1 EXISTING LANDSCAPE STRUCTURE

The campus is located in the mountain valley east of downtown Salt Lake City and has incredible views of the Wasatch Mountains, including Mount Olympus, to the north, east, and southeast. Pristine views of the full valley, stretching out to downtown Salt Lake City and beyond to the Great Salt Lake, are found looking down the central axis of Presidents Circle, from the north plaza of the Marriott Library, and from various spots along the main campus corridors. The stunning mountain and valley setting for the campus serves to orient individuals on campus as well as within the larger urban fabric and natural setting.

The campus is organized by precincts. These precincts serve to organize areas that have unique character, many with separate functions. Some of these areas and their boundaries are more recognizable than others, such as Research Park. As noted in the Campus Master Plan, these boundaries are not fixed and will change over time with the growth and administrative changes of the university.

The structure of each of these precincts varies and is shaped by land forms and topography, the form and character of the buildings, and by the presence of an established tree canopy and vegetative understory.

WEST CAMPUS

West Campus includes the oldest area of campus, including Presidents Circle. Mature shade trees dominate the landscape and provide an immediate sense of place lacking in other precincts.

NORTH CAMPUS

A large open green is the dominant landscape element of this precinct. It is supported by stands of mature trees.

SOUTH CAMPUS

This precinct is currently experiencing the most dramatic transformation of any area. New buildings are replacing old and the HPER mall is ready for an important upgrade.

EAST CAMPUS

East Campus is organized into three zones or corridors: clinical; research; and academic. The topography and density of buildings lead to challenging connections and smaller, more intimate spaces.

CENTRAL CAMPUS

Central Campus is the social heart of campus. The Union lawn and Marriott Library plaza anchor the outdoor space. The Library Plaza is the largest open plaza on campus. Reorganization and protection of multi-use athletic fields in this precinct is one of the primary goals of the Campus Master Plan.

GUARDSMAN WAY

The Guardsman Way precinct includes the George S. Eccles Tennis Center, Dee Glen Smith Athletic Center, Spence Eccles Field House, and the baseball diamond.

FORT DOUGLAS US ARMY RESERVE

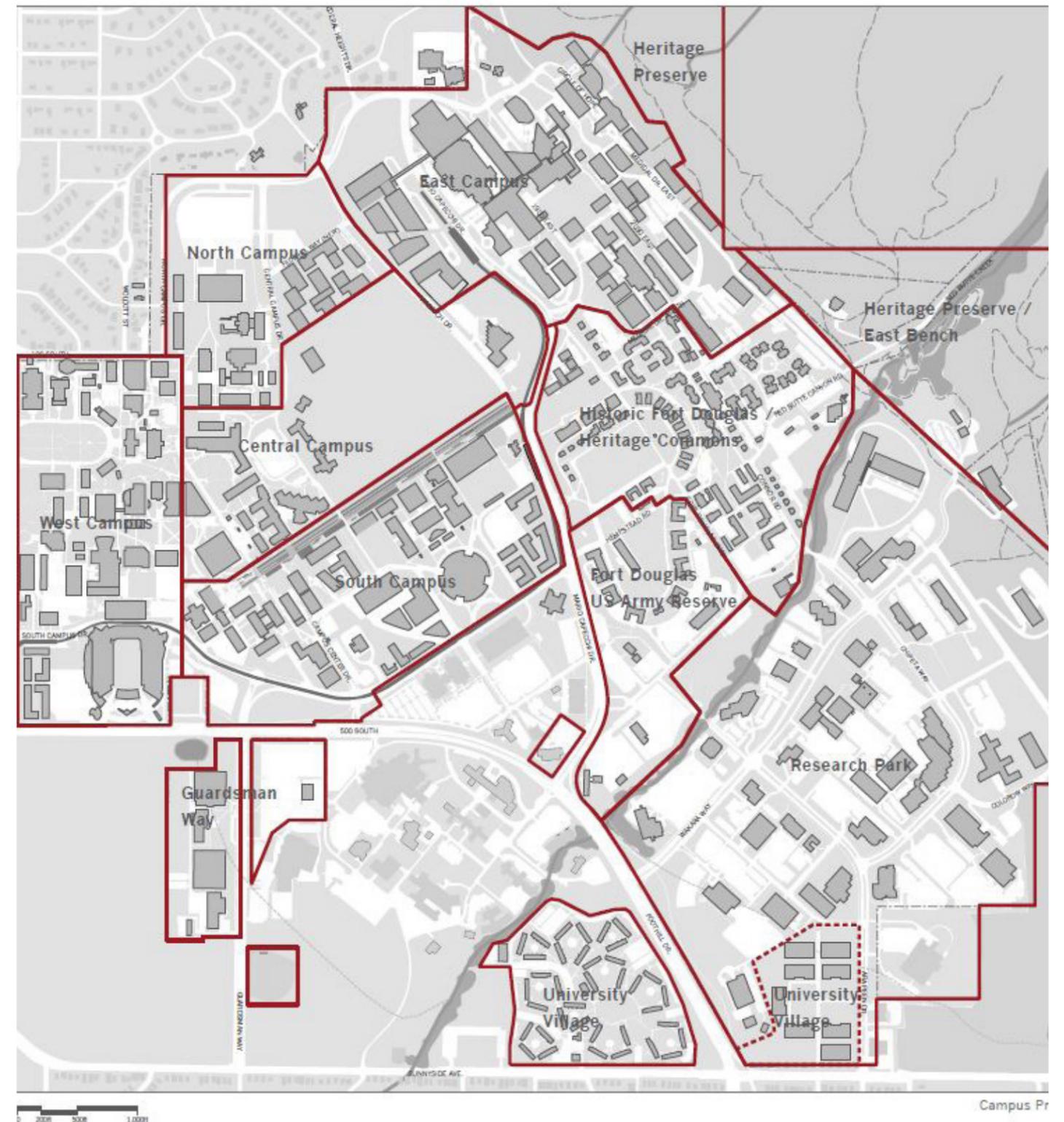
The precinct is bounded by Wasatch Drive to the west, Heritage Commons to the north and east, and Research Park to the south. Fort Douglass is one of four active historic forts in the United States, and is listed as a historic district on the National Register of Historic Places.

HISTORIC FORT DOUGLAS / HERITAGE COMMONS

This precinct incorporates University Guest House, the University Conference Center, Fort Douglas museum, residence halls and student apartments. Other important features include Stilwell Field surrounded by historic structures and Cottam's Grove, which contains a collection of historically significant hybridized Oak trees that were planted during the 1930s.

UNIVERSITY VILLAGES

The University Villages are located on at the intersection of Foothill Drive and Sunnyside Avenue.



3:2 EXISTING LANDSCAPE ECOLOGY

The natural character of the University is defined by its location in the foothills of the Wasatch Range. However, there are few areas of campus where effort has been made to increase the ecological function of the landscape to reflect that character.

Most of the developed and maintained campus is characterized by a low diversity of plant species and a dominance of lawn. Recent preferences for trees and understory planting has continued to further promote that direction.

We recommend an analysis of ecological systems on campus, including hydrology, soil types, erosion and compaction, to best inform the approach to future landscape ecology enhancement projects on campus, such as the creation of bioswales and habitat. The HPER Mall Bioswale project is an example of one such project that will greatly impact the way people view campus and how water is treated.

ECOLOGICAL FUNCTION

The ecology of the existing campus can be understood by how well it performs, over time, functions that are typically performed by healthy ecosystems of similar composition and scale. The functions examined here include: mitigating hot microclimatic conditions; protecting soil resources by limiting erosion and compaction; cleansing and regulating water resources; and providing cultural benefits for human health and well-being.

In general, the ecological functions performed by the existing campus landscape have been compromised over time by development which placed higher priority on other factors besides best practices for stormwater management and large tree preservation. There is an opportunity to improve the ecological functioning of the campus and obtain a high level of benefit through designs that recognize the importance of a healthy ecology, and the importance of bringing urban environments closer in line with the natural systems on which human life depends.

CAMPUS CLIMATE

The Salt Lake Valley is uniquely positioned along the Wasatch Front. As mentioned, it often receives significant precipitation in winter as snow and some years during summer monsoons. Consequentially, unlike the surrounding semi-arid region, it sustains a large variety of plant species from a range of climatic zones. The University has developed a recommended plant list that reflects this climatic flexibility.



Examples of plant communities in the foothills and Wasatch Mountains to the east of campus.

3:3 TOPOGRAPHY & HYDROLOGY

TOPOGRAPHY

The University campus is positioned on the benches of the Wasatch Mountains. A significant change in topographical grade from the west end of campus to the east limits some of the landscape treatment and siting of buildings. A major challenge, for example, has been the development of the HPER Mall. In order to incorporate ramps and provide ADA accessibility, the idea of a typical straight, main path needed to change to one broken up into various meandering paths to keep the overall slope of ramps below 5%. This has changed the character of HPER Mall, and continues to challenge its visual unity.

DRAINAGE & HYDROLOGY

The University's Climate Action Plan calls for more sustainable water conservation measures. By 2020, the University seeks to achieve water neutrality, meaning the campus would consume, on an annual basis, the equivalent of the average rainfall volume estimated to fall on campus. By 2050, the University plans to become carbon neutral and establish itself as a leader in technology, policy and human solutions.

A major goal is to not let more water off of campus than what falls due to precipitation (around 500 million gallons). A review

of goals to utilize bioswales, detention basins, rain gardens to convey roof water and other storm runoff is recommended.

Red Butte Creek is an incredible asset that backs the south end of campus. It has largely been ignored as a community amenity with ecological services. Buildings sited along the Creek have literally turned their backs on the system, wasting opportunities to create natural spaces, trails, and connections along the creek bed. This location is also prime for learning lab studies (see: Chapter 5: System Guidelines).

THE DESIGNED DRAINAGE SYSTEM

The system of streets, curbs, drain inlets, pipes, and culverts that make up the campus drainage system has been designed primarily to protect buildings and roads by removing rainwater as quickly as possible during storm events. Because of this, the benefits of rainwater infiltration, to restore ground supplies and the ability of the landscape to slow, cleanse, and use runoff, are often lost. Drainage basins need to be incorporated into the overall surrounding landscape design and seen as an aesthetic asset.



Campus topography.



The HPER Mall Master Plan, showcasing bioswales, is currently being updated.

3:4 EXISTING TREE CANOPY

The presence of trees on campus has grown steadily since the creation of the arboretum in 1961. In 1967 the tree population was recorded at over 3,000 with approximately 300 species and varieties. Presently the tree population is nearly 12,000 with approximately 325 species and varieties. For 156 of the tree varieties, there are fewer than 5 examples found on campus. Expand the criteria to 10 examples and the list grows to 195 varieties. Heavy use of the 20 most common campus trees make up 61% of the total population.

An important element of the LMP is the identification of the challenges the campus currently faces regarding tree selection and placement, and establish guidelines that ensure the diversity and presence of large character-defining shade trees maintain a strong influence on the campus in the future.

SHADE TREES

The campus tree canopy is dominated by deciduous shade trees. A total 44% of all campus trees is classified as such. While Honeylocust (9%) is categorized as a shade tree, it provides only dappled shade, not the solid shade needed in a tree canopy to provide adequate mitigation from heat island effect.

Shade trees are paramount in creating a habitable space in the heat of summer. Shade trees not only provide protection from the sun, but they also help frame spaces, provide cooling to buildings and hardscape, act as vertical elements that aid in wayfinding, create a sense of enclosure along wide paths and create visual interest with their variety of colors, textures, and shapes.

EVERGREEN TREES

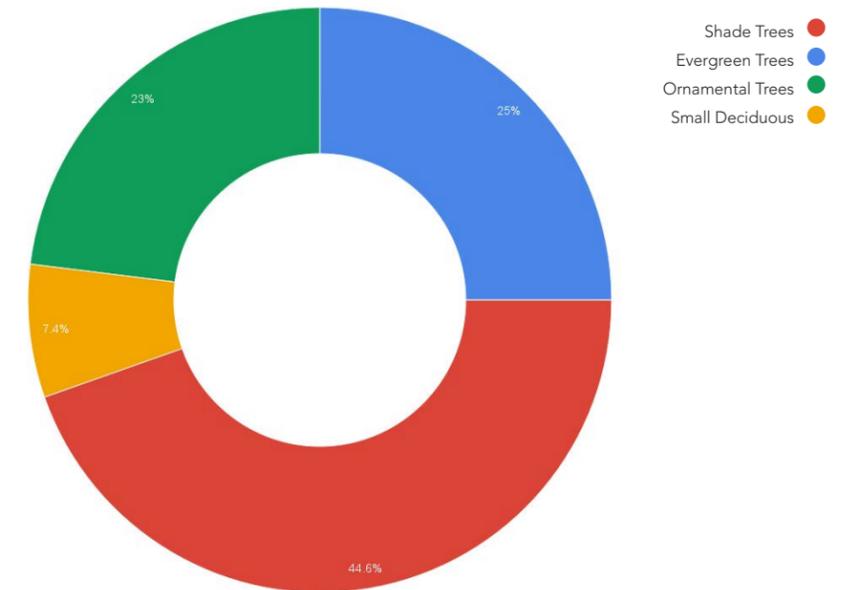
Evergreen trees make up 23% of the total campus tree canopy. Their distribution on campus is somewhat inconsistent. It is important that the usage of evergreens be considered in all new campus projects as they provide a critical role in the campus landscape throughout all four seasons.

SMALL DECIDUOUS TREES

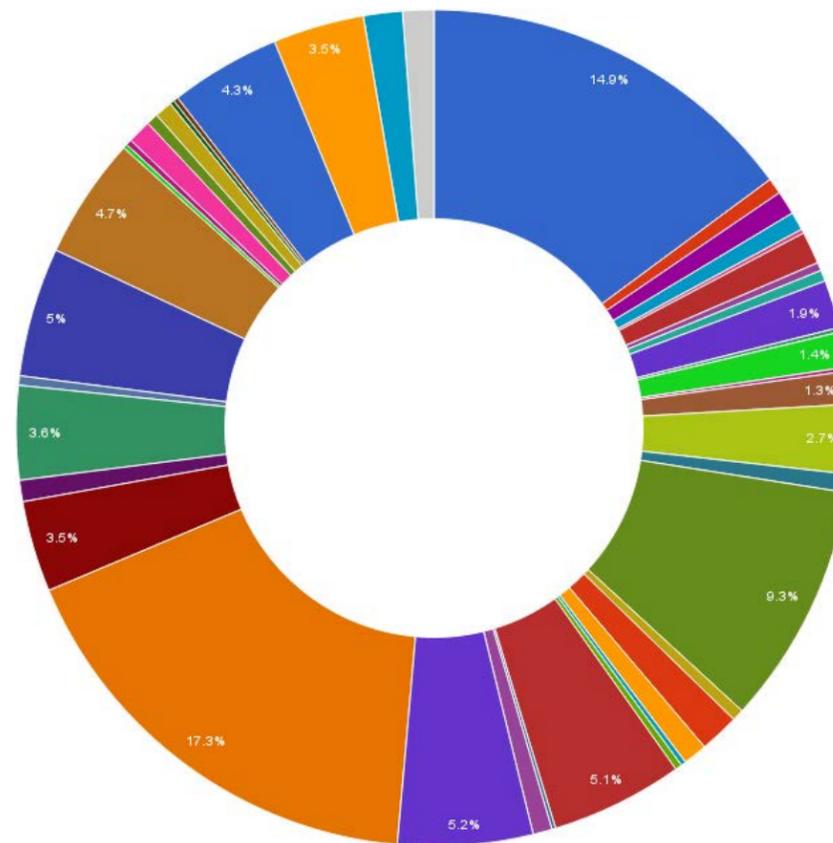
Small deciduous trees make up 7.4% of the trees on campus. They are defined as trees reaching less than 15' in height and width. Similar to the use of ornamental trees, the emphasis of these trees in larger spaces has led to a lack of usable shade and heat mitigation in many of the new plazas on campus.

ORNAMENTAL TREES

Ornamental trees make up 23% of the campus canopy and are found near building entrances, along malls and other corridors, and in plazas and courtyards. Mapping the existing campus trees also reveals a trend of planting smaller ornamental trees around primary corridors (malls) and plaza spaces (for example along the path just behind the Sorenson Molecular Biotechnology Building (SMBB) that connects Wasatch Drive to Central Campus Drive). The overuse of these trees along pathways and in open space has led to a degradation of the overall campus tree canopy.



Percentage of existing University of Utah campus trees by type.



University of Utah tree count by species.

GENUS	QUANTITY	GENUS	QUANTITY
Acer	1926	Malus	664
Aesculus	80	Metasequoia	18
Amelanchier	119	Morus	96
Betula	92	Picea	676
Calocedrus	21	Pinus	2235
Carpinus	162	Platanus	456
Cedrus	41	Populus	107
Celtis	56	Prunus	470
Cercis	240	Pseudotsuga	47
Cladrastis	22	Pyrus	647
Crataegus	177	Quercus	607
Elaeagnus	20	Rhamnus	22
Fagus	164	Rhus	29
Fraxinus	346	Robinia	119
Ginkgo	91	Sophora	59
Gleditsia	1210	Sorbus	88
Gymnocladus	59	Syringa	22
Juniperus	198	Thuja	24
Koelreuteria	120	Tilia	554
Liriodendron	25	Ulmus	457
Magnolia	34	Zelkova	195





Map of existing University of Utah campus trees by type.

3:5 CAMPUS UNDERSTORY ANALYSIS

TURF & ATHLETIC FIELDS

Campus map analysis found that 154 acres (70%) of all vegetated areas on campus are turf areas. This designation does not include athletic fields, which occupy 8.5 acres (3.8%).

As previously discussed, large extents of turf in less usable areas are not regionally appropriate and do not aid the University in its mission to achieve water net neutrality by 2020. Turf also uses fertilizer and equipment that runs on gasoline.

A large percentage of the turf on campus represents a great amount of unusable lawn (meaning that the lawn is either unaccessible, removed from gathering/eating areas, largely unshaded, too small, or too near primary corridors to be used comfortably) that could easily transition into native or adapted planting beds, as well as seating and gathering spaces that are greatly needed throughout campus. The unaccessible open space also includes the 3.8% made up by athletic fields that are not open to the public.

Creating a network of spaces with a balance of usable turf, (located in ideal locations for recreation, study, eating and rest), native and adapted beds, and a clustered and diverse shade canopy, will not only result in vast water and cost savings, but will also unify the campus aesthetic in a way that supports wayfinding, gathering, outdoor educational opportunities, and the greater health and diversity of the campus ecosystem (see Chapter 4: Landscape Typologies & Area Guidelines for all campus turf recommendations).

SKINNED/BARE EARTH BEDS

There are many areas on campus that are bare earth—10.3 acres (5%) of the total understory. They are found largely under tree canopies where grass has died back due to shade. These areas represent a substantial percentage of the understory area on campus and should incorporate a xeriscape treatment to further enhance the campus landscape.

GENERAL PLANTING

Plant beds occupy 33.5 acres (15%) of all vegetated areas and are typically planted with ornamental shrubs and perennials. This number continues to grow each year as turf areas are converted. Design consistency in plant density and size of plant masses is a necessary next step as part of the goal of a consistent landscape image.

XERIC BEDS & MULCH BEDS

Xeric beds fill 10.7 acres (4.8%) on campus and incorporate large amounts of rock gravel, ranging in size from 1/4 inch to up to 1 1/2 inch, and larger. These beds generally contain a handful of plants, planted at large intervals and with no association with one another.

Bark mulch beds are treated in a similar manner, and are just under 1 acre of landscape areas. Large to medium-sized bark mulch lay in visually random swaths around campus, many of which have no planting at all. These areas are unseemly and feel like the back entrance to an untended place. Bark mulch should only be used in conjunction with full planted beds, appropriately sized for a planted bed application.

These areas should be updated to include low water use plantings that reinforce the campus landscape. Xeriscaped beds require composition (a pleasing degree of visual complexity, hierarchy of color, texture and height variation), indicative of the regional character (see Chapter 5: System Guidelines, p.93 for correct xeriscaping techniques).

PARKING ISLANDS

Parking islands generally do not take advantage of the opportunity to incorporate swales or other water retention devices. Parking islands must be programmed to include bioswales where possible, to control and naturally filter parking lot stormwater runoff.



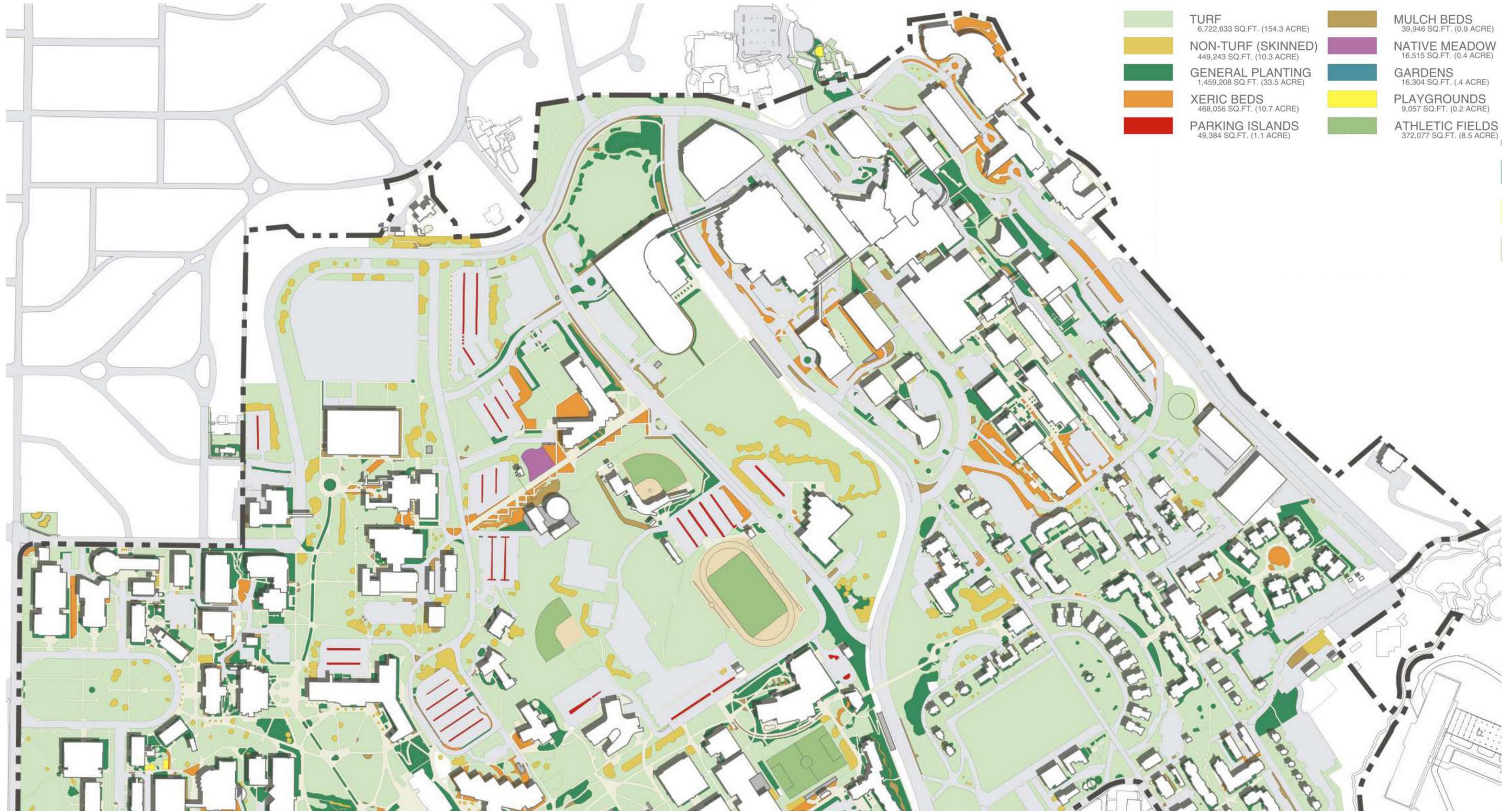
 Example of drainage area covered in turf that could easily be converted into low maintenance meadow grasses.



 Secondary corridor east of the Spencer Fox Eccles School of Business that is not usable, meaning, in this case, that its proximity to a major corridor, its lack of shade and function as a drainage area, make it near impossible to use comfortably.



 Full, adaptive understory of xeriscape plantings with a nice variety of color texture in a simple, clean design.





Map of existing University of Utah campus vegetative cover by type.