Missouri Western State University - Master Plan 2015


POST-SEASON APPEARANCES
GRIFFON FOOTBALL
CONFERENCE CHAMPIONSHIPS

Letter From the President

As Missouri Western State University celebrates its centennial anniversary, it seems an appropriate time to assess our institution's physical campus and consider our future capital needs. This campus master plan has evolved from our history, mission, vision and strategic plan, and establishes a framework for the physical growth and evolution anticipated over the next decade.

In addition to a thorough analysis of our campus infrastructure, this plan was developed by talking with students, faculty and staff members, community partners, alumni and friends who helped us understand our strengths, challenges and opportunities, as well as the improvements and assets necessary for moving our university forward. The resulting plan supports Missouri Western's campus environment, which fosters a sense of community, contributes to student learning and development, enhances pride in the university, and serves as an asset for Missouri Western's students and the greater region.

Please realize this document will evolve, for, after all, it is a plan not an edict. Many factors will come to bear, not the least of which is funding. However, we now have the framework in place to discuss priorities and outline possibilities while strategically considering our resources. The plan points out deficiencies and opportunities while offering comprehensive solutions. It will guide our decisions regarding new construction and renovation, vehicular and pedestrian circulation, accessibility, parking, signage, landscaping, safety and security, land development, space utilization, and other factors. An executive summary can be found on page 1.

We are extremely pleased with the professionalism and thoroughness of Clark|Huesemann LC, which led us through this important, thought-provoking, and detailed process. Special thanks go to Steve Clark and Jane Huesemann for their expert leadership and dedication to the initiative. We also greatly appreciate the guidance of the Master Plan Steering Committee members, whose names are listed on the following page. In addition, we recognize the University's Board of Governors and all campus and community members who provided input and encouragement. Thank you for being part of the process – we couldn't have been successful without you.

Robert A. Vartabedian
University President

MASTER PLAN STEERING COMMITTEE

Bob Vartabedian, University President
David Liechti, Board of Governors Member
Jeanne Daffron, Provost & VP for Academic Affairs
Cale Fessler, VP Financial Planning & Administration
Shana Meyer, VP for Student Affairs
Kurt McGuffin, Athletic Director
Jeff Ellison AIA, University Architect, Ellison-Auxier Architects, Inc.
Lonnie Johnson, Director of Facilities (Retired)
Jerry Gentry, Director of Facilities
Brian Harrah, Buildings Supervisor
Bruce Whitsell, Grounds Supervisor
Kevin Anderson, Immediate Past President of the Faculty Senate
Carol Hare, Immediate Past President of the Staff Association
Daniel Hager, Student Government Association President
Ann Pearce, Special Assistant to the President – Chair

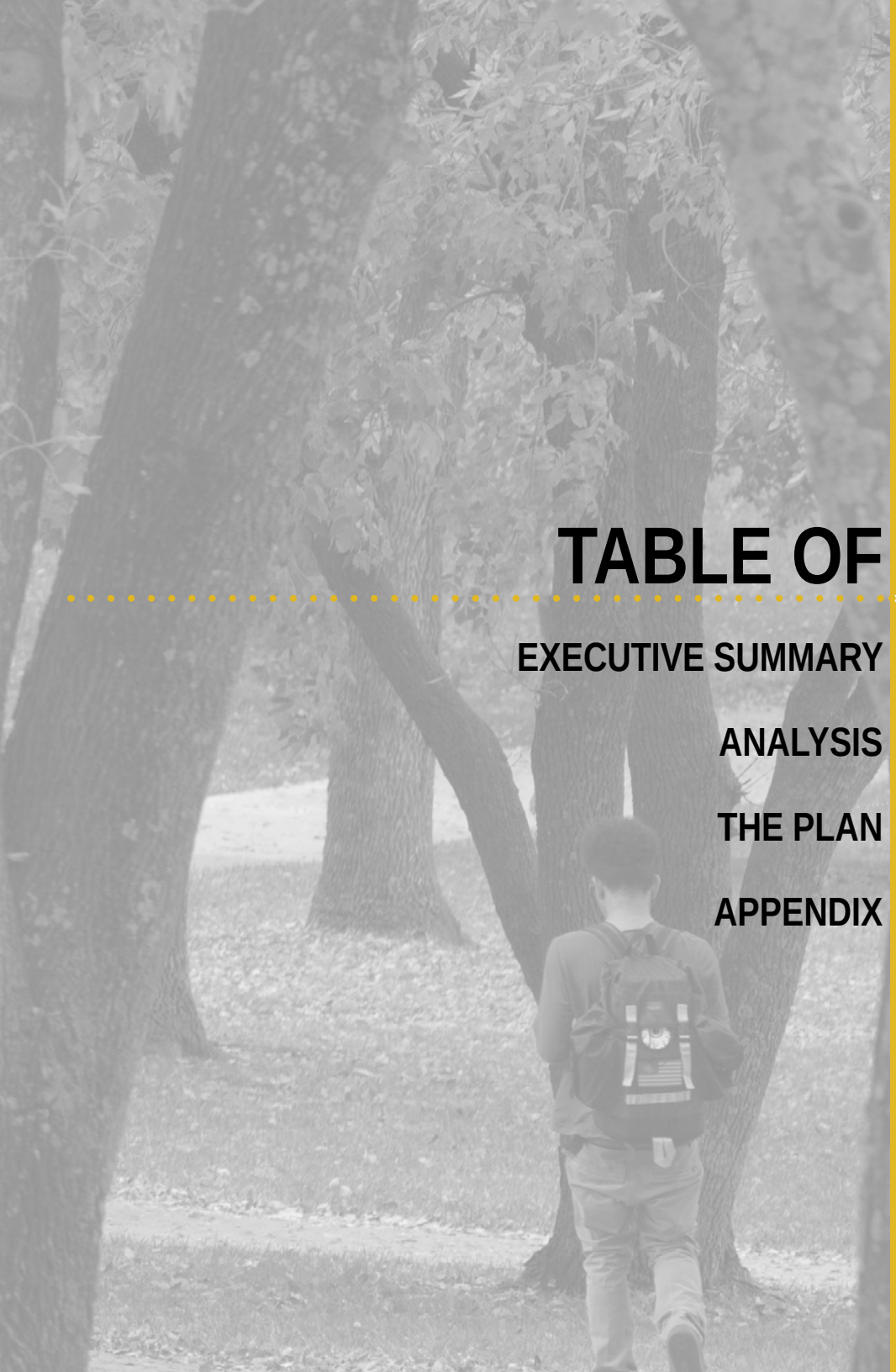


TABLE OF CONTENTS


ΔΩ
MISSOURI WESTERN STATE UNIVERSITY
1915

01 EXECUTIVE SUMMARY

INTRODUCTION

Missouri Western State University is a comprehensive regional university providing a blend of traditional liberal arts and professional degree programs. The university has a statewide mission in applied learning, and offers undergraduate and graduate certificates and degrees. As the state's largest open-enrollment university, Missouri Western serves nearly 6,000 students, more than a quarter of whom are nontraditional. Nearly half of Missouri Western's students are first-generation college attendees.

Missouri's higher education system receives significantly less state fiscal support than any of its eight contiguous states. Missouri Western, more dramatically, has the lowest per-student funding among Missouri public universities. In addition, the discontinuation of annual state capital project funding has a direct and wide-ranging impact on the ability of the university to build, improve and maintain its physical plant. This condition impacts every master planning decision and makes every choice an important one.

The institutional opportunities and challenges at Missouri Western inspired this plan for the future of the campus. The 2015 Campus Master Plan will provide direction for physical growth and development of the institution over the next decade. This plan is designed to enable the university to realize the vision of its strategic plan and to continue to seek ways to best serve the students that will call this place home for these formative years.

PROCESS

Throughout the almost yearlong planning process, campus and community engagement was central to the effort and decision making. The process was guided by a steering committee established at the beginning. These individuals are listed by name in the acknowledgments. Outreach to students, faculty, staff, and the community provided a comprehensive view and understanding of the university and its facilities.

The master plan process included two main phases of work: analysis and design. In the analysis phase, all previous planning work, deferred maintenance lists, and other Missouri Western working data were reviewed and formed a significant portion of the basis of work. A series of meetings was held with multiple stakeholders, gathering departmental information, discussing planning issues, listening to impressions of the campus, and understanding functional limitations of facilities. Community members were interviewed and the steering committee was engaged in identifying the key issues the master plan should address. Open campus forums solicited input on items to address, and goals guiding the design of the master plan were created.

During the analysis phase nearly every room and space on campus was visited by the master planning team, guided by representatives of the users of that space. Ethnography was applied to investigating the specific use of computer labs, the library, and how students make their way through campus throughout a day. Parking, traffic, civil engineering, storm water, landscape and signage experts visited the campus and prepared a specific analysis of each of the issues in those disciplines.

The findings of the analysis phase then shaped the planning principles for the master plan. In the design phase, alternative master plans were created for the purpose of generating discussion and receiving input. Alternatives were presented to the steering committee, at open campus forums, and to other organized committees on campus such as the Deans' Council, student government, and others. Many stakeholders had a hand in shaping the final master plan. Recommendations for implementation and cost information for budgeting supplement the master plan design.

GOALS

Strategic Plan

Achieving Excellence, Transforming Lives, the strategic plan for Missouri Western State University, is the institutional vision that inspired this master plan for the future of the campus. The strategic plan's goals and objectives were foundational in the creation of master plan goals to guide the plan's development and recommendations.

Strategic Plan Goals

Goal 1: Enhancing the Educational Experience
Goal 2: Preparing Graduates for Careers, Graduate Studies, and Life Opportunities
Goal 3: Increasing and Managing Resources

Master Plan Goals

With MWSU's strategic plan in mind, the master plan sought to directly address six goals:

1. **Address Basic and Urgent Needs**
2. **Enhance the Educational Experience**
3. **Strengthen Connections to the Community**
4. **Develop a Cohesive University Community**
5. **Build Financial Sustainability**
6. **Create Pride of Place**

1 ADDRESS BASIC AND URGENT NEEDS

The master plan provides an analysis of the current campus and its facilities identifying basic and urgent maintenance and safety needs. Recommendations addressing fire and storm safety are included.

2 ENHANCE THE EDUCATIONAL EXPERIENCE

Additions to the campus are suggested to provide the appropriate facilities and programs that will bring the university into par with benchmark universities across the region and provide fully supported and well-rounded academic and student life experiences. The unique needs of the Missouri Western student population are also addressed.

3 STRENGTHEN CONNECTIONS TO THE COMMUNITY

Through the implementation of the master plan recommendations, the future Missouri Western State University campus will provide enhanced campus portals, additional and improved access for the community through athletics, arts, and recreation. Additions to these facilities will provide more and expanded opportunities for community engagement at Missouri Western.

4 DEVELOP A COHESIVE UNIVERSITY COMMUNITY

The creation of an academic home for all students and particularly for those not living on campus is included. Master plan ideas move the campus design and layout toward enhancing the experience of life on campus for students, faculty and staff as they travel easily from one building to the next and find many diverse places for gathering together, studying, eating, working together, or simply enjoying a program or presentation.

5 BUILD FINANCIAL SUSTAINABILITY

Guidelines for evolving to resource-efficient buildings and grounds created the foundation of the recommendations. Operational efficiency is seen as a high priority. Many land opportunities are identified for future development, enabling the university to leverage landholdings for revenue.

6 CREATE PRIDE OF PLACE

The master plan locates the placement of new facilities, and identifies landscape and signage changes to enhance the visitor experience and to create a great first impression. A focus on increased design quality builds pride, encourages upkeep, and is a successful path to sustainability and fiscal responsibility. Natural areas are preserved and enhanced. Campus places, interior and exterior, are included in the design for sense of community and gathering.

OBSERVATIONS AND NEEDS

BUILDING OBSERVATIONS

The campus facilities are aging, and the current funding and approach to maintenance is not keeping up. Overall, the buildings are showing wear, are falling behind in code compliance, lack serious energy efficiency, and aesthetically suffer from a system of "patching."

The existing building conditions chart on page 46 is a good summary of the relative physical condition of the structures on campus. The specific building component analysis sheets can be found in the appendix starting on page 142, and a comprehensive description of each facility and its needs can be found in the Needs and Observations section of the full report.

In abbreviated form, 17 overall building observations will follow - in no particular order:

1. Agenstein/Remington Hall:
Corrections to the make up air systems to address code and energy efficiency issues.

2. Eder Hall:
Urgent deferred maintenance items: exterior envelope, mechanical, electrical, and plumbing systems.

3. Looney Complex:
Urgent deferred maintenance items include: code and ADA compliance, acoustics, exterior envelope, roof, fire protection, mechanical, electrical and plumbing systems, addition of air conditioning, major renovations to the pool. Expansion of gymnasium space is needed. Lack of student (non-varsity athlete) recreation space is highly problematic compared to peer institutions (see page 66).

4. Murphy Hall:
Replacement of deteriorated materials and systems with higher quality, durable finishes.

5. Popplewell Hall:
Urgent deferred maintenance items: exterior envelope, fire protection, mechanical, electrical and plumbing systems, and interior finishes and furnishings. A number of noncompliant code items exist, and the entry and way finding systems need to be improved.

6. Potter Hall:
A complete renovation is needed including additional space to support Art, Music, and Theatre/Dance. Urgent deferred maintenance items: exterior envelope, roof, fire protection, mechanical, electrical and plumbing systems,

and acoustics. A number of noncompliant code items exist including indoor air quality and safety systems. Lack of performance space is significant compared to peer institutions (see page 67).

7. Spratt Hall:
Typical maintenance needs. Some HVAC, fire protection, electrical and roof issues exist.

8. Griffon Indoor Sports Complex:
Typical maintenance required.

9. Wilson Hall:
A complete renovation is needed to bring the building systems up to the quality of a campus building. Urgent deferred maintenance items: exterior envelope, roof, fire protection, mechanical, electrical and plumbing systems. Differential settlement and ground water issues should be addressed.

10. Hearnes Center:
Seek ways to improve the Hearnes Center as a cultural facility and center of student activity on campus. Urgent deferred maintenance items: exterior envelope, roof, fire protection, mechanical, electrical and plumbing systems. A number of noncompliant code and ADA items exist.

11. Fulkerson Center:
Typical maintenance required. There are some roof leaks and some differential settlement.

12. Blum Union:
Seek to improve the Union and its ability to serve current student-life needs as well as create a great first impression for visitors and connection to campus. Additional space for dining is needed. Urgent deferred maintenance items: exterior envelope, roof, fire protection, mechanical, electrical and plumbing systems.

13. Baker Fitness Center:
The building is heavily used and needs expansion. Deferred maintenance items include plumbing systems.

14. Spratt Stadium:
This building should be replaced. A number of noncompliant code and ADA conditions exist in addition to significant water damage and deterioration throughout.

15. Kit Bond Science & Technology Incubator:
Typical maintenance required. Exterior envelope needs attention for energy efficiency.

16. Facility Services Area - West Campus:
Low quality metal buildings that will require siding and roofing repairs/replacement soon. Functionality improvements for shop activities and secure/climate controlled storage is needed.

17. Residence Hall System overall:
Fire protection systems are needed as a high priority. Deferred maintenance items: exterior envelope conditions, mechanical, electrical, and plumbing systems. A housing department office suite is lacking, and the system needs to offer more variety and amenities including program-specific space for freshmen, non-traditional students, and the possibility of an expanded greek community.

Logan, Beshears, Juda, Residence Halls
Need to be replaced or extensively renovated.

Leaverton and Vaselakos Residence Halls:
Typical maintenance. Finishes need to be upgraded.

Griffon and Scanlon Residence Halls, and Commons Building:
Typical maintenance required.

PROGRAM NEEDS

1. The campus is currently serving students with classrooms that are adequately outfitted with technology and furnishings and there is capacity for growth.

2. Space for students to gather before and after class, work on projects, and create an academic "home" is lacking.

3. Science labs and computer labs are fairly new and have capacity for growth.

4. The library should be transformed to serve as an anchor for student academic functions.

5. Office space varies in size but many are undersized, and there is no capacity for growth. Some departments lack a centralized office suite, and most lack shared space for collaboration.

6. Some programs such as Nursing and the School of Business are operating in space that lacks adequate support for the quantity of students graduating from these programs.

7. A performance venue with at least 1,000 seats is needed, and there is a lack of adequate rehearsal and support space to accommodate the number of students in this program.

8. A campus visitor's center is needed to provide support for recruiting and for universitywide functions.

9. The stadium does not offer amenities or space for donors and reserved seating that is consistent with its peer institutions.

10. The space available at Baker Fitness Center is undersized and currently reaches an occupancy level that is over capacity.

11. Dedicated gymnasium space and outdoor fields for recreation should be provided.

12. A below average number of seats for dining is currently available, and would need to increase by 100.

13. To continue housing the same percentage of students on campus, an additional 120-240 beds should be added, with amenities and types to serve freshmen and nontraditional students.

14. Many campuses provide a president's home used for entertaining guests and hosting events. Missouri Western previously had such a facility but it is no longer standing.

MASTER PLAN DESCRIPTION

The vision for the future Missouri Western University campus honors the foundational layout created in 1967. The 2015 Master Plan capitalizes on the current layout and resources in planning for the next decade of growth of the campus to 7,500 students. The campus design is one of a landscaped park inside a ring road. The academic core sits in a park-like setting on the main ridge of campus and embraces the campus iconic clock tower. A new east-west pedestrian spine connects the campus from the revitalized Potter and Looney halls to the west and the expanded student union and housing district to the east. Quadrangles on rolling hills frame the path of the landscaped spine, improving wayfinding, creating sense of community, and providing a great accessible route for all visitors.

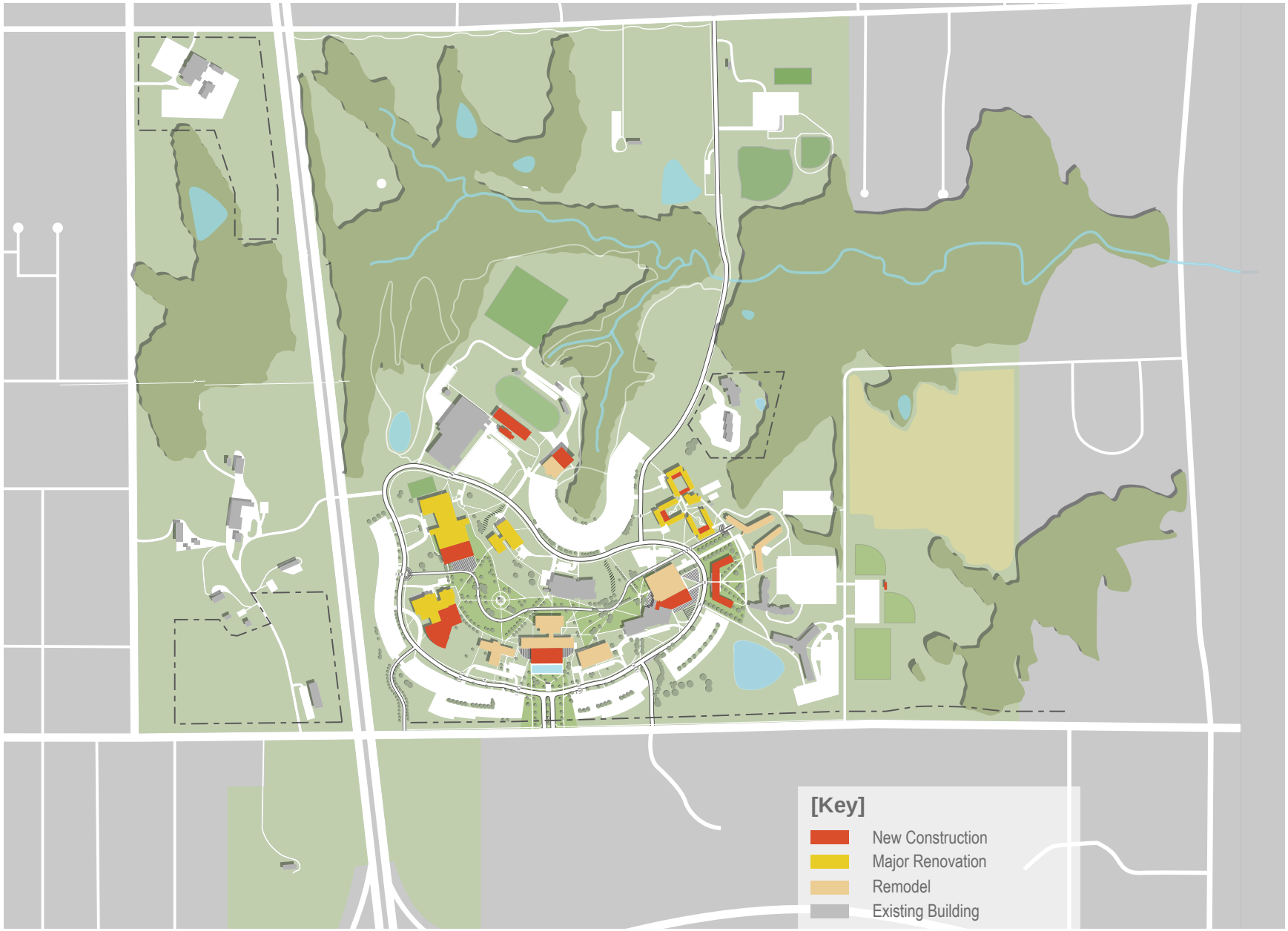
A new business school building greets the visitor with an improved entrance experience, complete with landscaping and outdoor space development. A visitor's center at the entrance level of the business school establishes a great first and lasting impression. Improved and expanded parking enable the day-to-day activities of students, faculty, staff, and visitors on the campus. Pedestrians are provided safer access utilizing crosswalks with increased signage, lighting, markings, and visibility.

New landscape plans build on both the highly appreciated and admired park-like landscape that exists at Missouri Western today incorporating outdoor gathering spaces like the recent Kelley Commons along the pedestrian spine. Outdoor learning opportunities are identified throughout the campus while preserving and enhancing the natural setting used for research and learning.

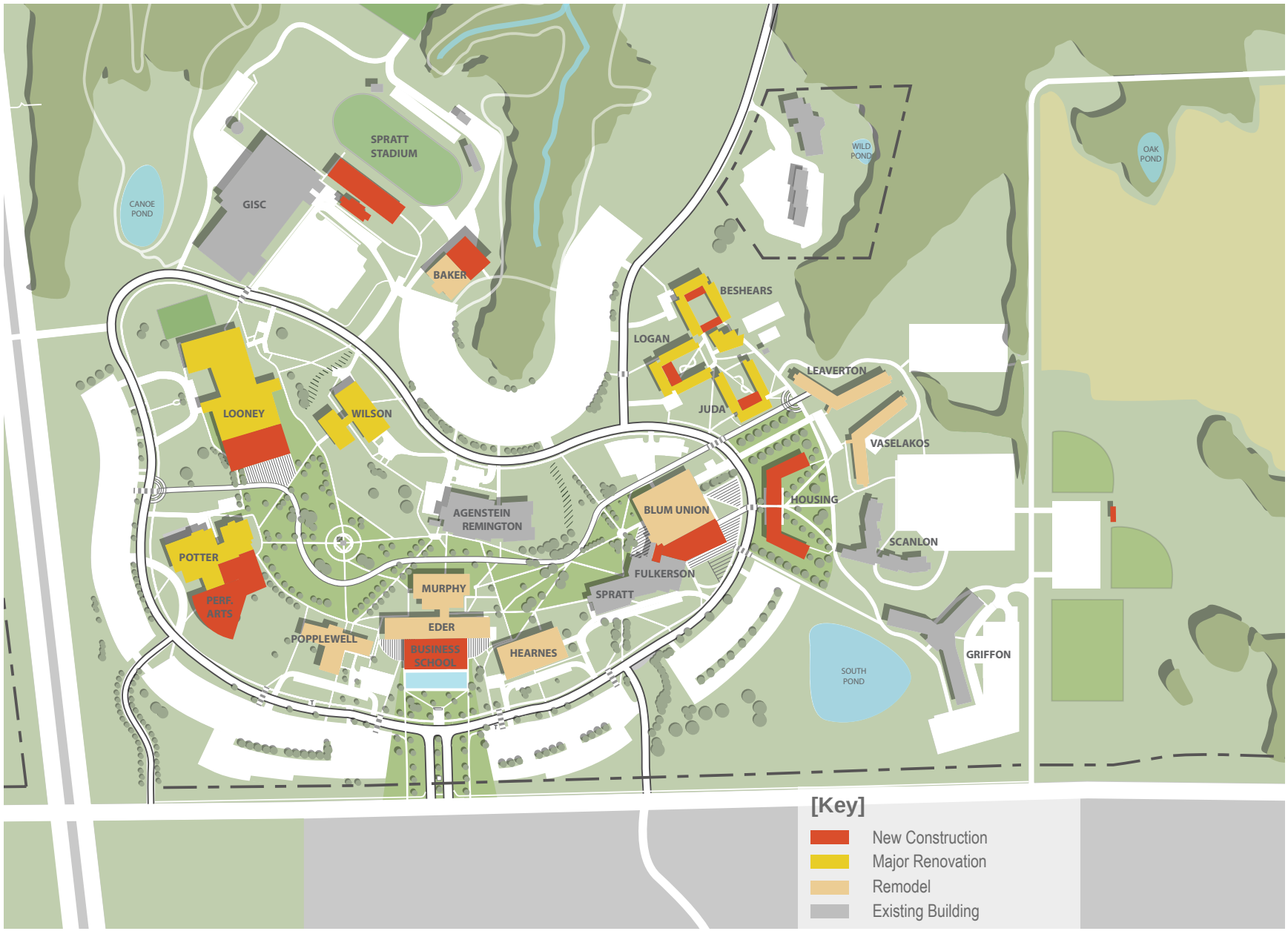
FEATURES OF THE MASTER PLAN:

- Capitalizes on the current layout and resources
- East-west pedestrian spine
- Quadrangles on rolling hills
- Outdoor gathering spaces
- Outdoor learning opportunities
- Improved and expanded parking
- Safer access for pedestrians
- Improved entrance experience
- Expanded student union
- Expanded housing district
- New business school building
- New visitor's center
- New performance hall
- Additional recreation spaces
- Revitalized Potter and Looney halls

View from the Southwest



Campus Master Plan



Central Campus Master Plan

02 ANALYSIS

CAMPUS CONTEXT

Campus Description

Missouri Western State University is a four-year institution located on over 700 acres in St. Joseph, Missouri. MWSU serves an enrollment of approximately 6,000 students, 91% of whom are Missouri residents. The student population is almost 50% first-generation college attendees, and more than 25% of the total students are nontraditional. Another 25% of the students are living in on-campus housing. MWSU is an open-enrollment university, and has a statewide mission of applied learning.

Unique assets of the campus include its extensive natural environment for outdoor recreation and academic study, the hosting of the Kansas City Chiefs training camp, and the Walter Cronkite Memorial. In combination with the campus athletic events and performing arts programs, these assets are portals for community interaction.

The campus has seen moderate growth in enrollment over the last decade, but many of the facilities are in original condition with only minor repairs and renovations since they were built in the late 1960s and early 1970s. There are several new facilities including the indoor sports facility, the science and math building, and the apartment residences. The facility needs on campus include accommodating future growth in enrollment, space needs for some areas currently beyond capacity, and a significant amount of deferred maintenance.

The campus development to date has provided a strong diagram for the creation of a core campus set in the natural landscape, with fairly clear zoning of uses and providing simple vehicular access. The elements of the forest edge, quiet iconic tower, and lower scaled buildings in the main academic area are effective in forming an internalized campus sense of place through pedestrian circulation patterns and character of landscape. It is, simply, a campus ringed by a road, edged by parking, and hugged by the adjacent landscape.

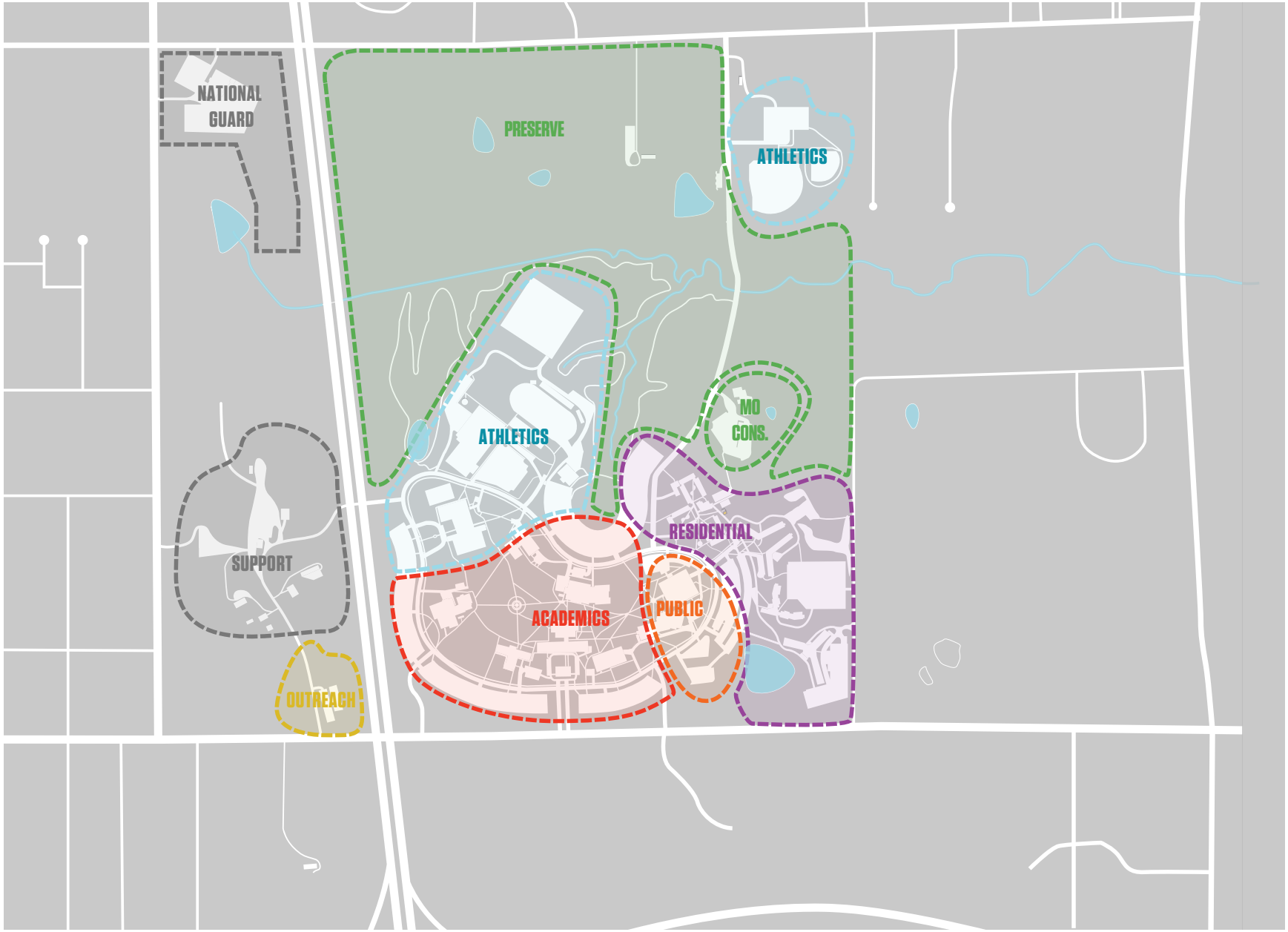
Landholdings

The areas indicated comprise the main campus of Missouri Western. Bounded by Woodbine Road on the west, Faraon Street on the north, and Mitchell Avenue on the south, the main body of campus sits to the east of Interstate 29. A portion of campus is south of Mitchell on each side of I-29. The amount of university land is significantly higher than most campuses serving a similar number of students. This is one of Missouri Western's most unique assets *(diagram on page 21).*

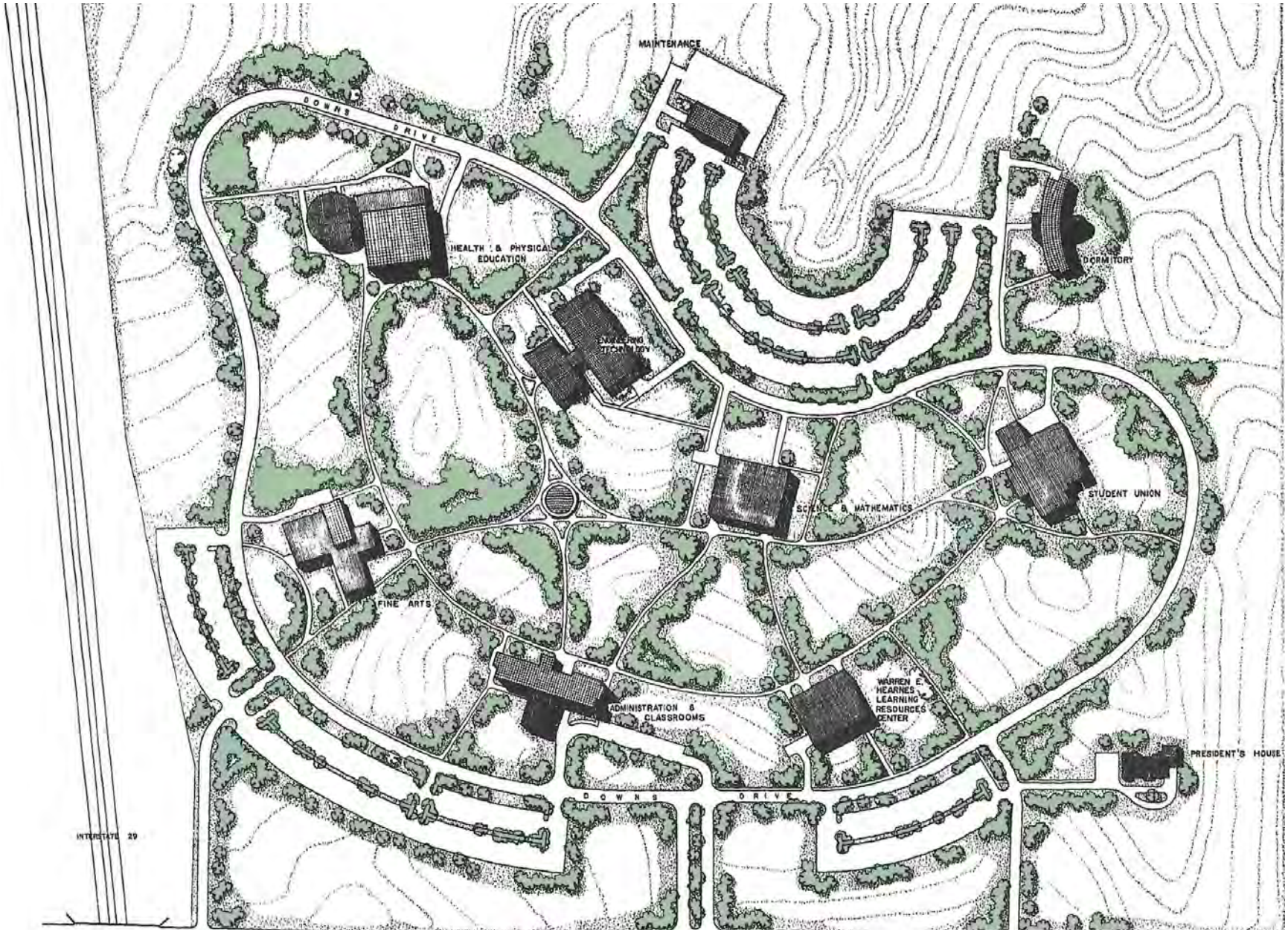
Usage Zone

The campus currently has clearly developed usage zones defined by simple functional adjacencies. As growth is projected over time, these zones have the capacity to be expanded and accommodate modest changes while preserving the functional adjacencies that are currently in place *(diagram on page 22).*

Campus Landholdings


NATIONAL GUARD
PRESERVE
ATHLETICS
ATHLETICS
MO CONS.
RESIDENTIAL
SUPPORT
ACADEMICS
PUBLIC
OUTREACH

Usage Zones



Original Master Plan

HISTORY

1967 was the year that planners and architects created the foundational layout and design for the Missouri Western State University campus of today. Three hundered ninety acres of rolling farm and timberland were planned for the relocation of 1,000 students attending Missouri Western Junior College in downtown St. Joseph. This new campus would allow the college to evolve into a full four-year institution offering baccalaureate degrees, and the initial construction would provide for growth to 3,000 students. The design specifically anticipated an eventual and orderly expansion to 15,000 full-time students.

The original academic core was developed to fit on the main ridge of the western portion of campus with the eventual student housing district planned for the eastern ridge. Large parking lots provided convenient vehicular access for this largely commuter student body. Uniformity of buildings was encouraged through the use of exposed concrete and masonry. The developed ridges were landscaped as open lawns. Creeks and ponds were left undeveloped as wooded areas.

Notably, the initial space between buildings was designed for the maximum distance still allowing for reasonable class change times. This was a purposeful design feature made to provide for periodic expansions of each building without altering the basic overall plan.

Groundbreaking

Surveying the campus

Examining campus plans

Original monument sign

EXISTING CAMPUS

Geographic Features

Geographic-feature mapping not only helps identify the most important cultural landscape features to preserve and extend, but also begins to determine the most "buildable sites" for new construction. Areas indicated in green illustrate the wooded portion of campus surrounding Otoe Creek and the former railroad bed, while the red areas indicate steeply sloping topography *(diagram on page 27).*

Floor Area Ratio

Floor area ratio is a measure of the density of the campus. Missouri Western is an open, park-like campus with a low density. Even the central area of campus is below the density of many regional campuses. The low density creates a particular character to the campus that is appreciated by most people, and seen as an amenity. It brings with it challenges in efficient infrastructure systems and manageable travel distances *(diagram on page 28).*

Daily Classroom and Class Lab Occupancy

Upon review of 2014 enrollment numbers, a significant amount of traffic is being driven to Popplewell and Murphy halls. These two buildings house the vast majority of general education classes, which creates a busy, active zone in this part of campus. As growth and change occur, this area will become more challenged for parking unless other adjustments are made in the parking or classroom distribution *(diagram on page 29).*

Walking Radius

The current walking times are very good by campus standards and allow for development to focus on making stronger connections between districts, particularly the housing, public and academic paths to and through campus *(diagram on page 30).*

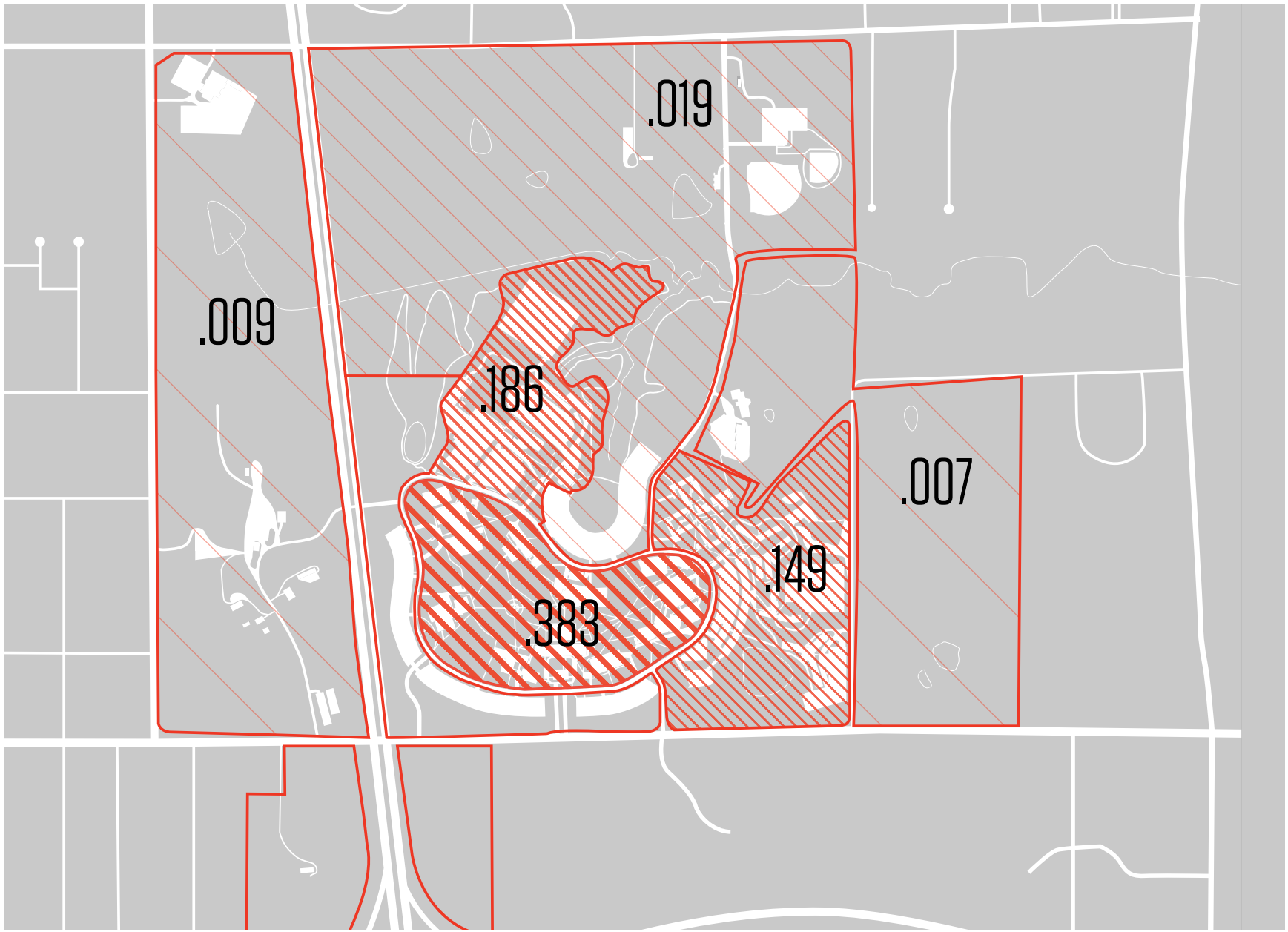
Paths By Use

Paths attempt to moderate the rolling topography while providing ease of access, sense of distance, quality of the walk, etc. Enhanced universal accessibility through path and landscape improvements should be addressed with every landscape project opportunity *(diagram on page 31).*

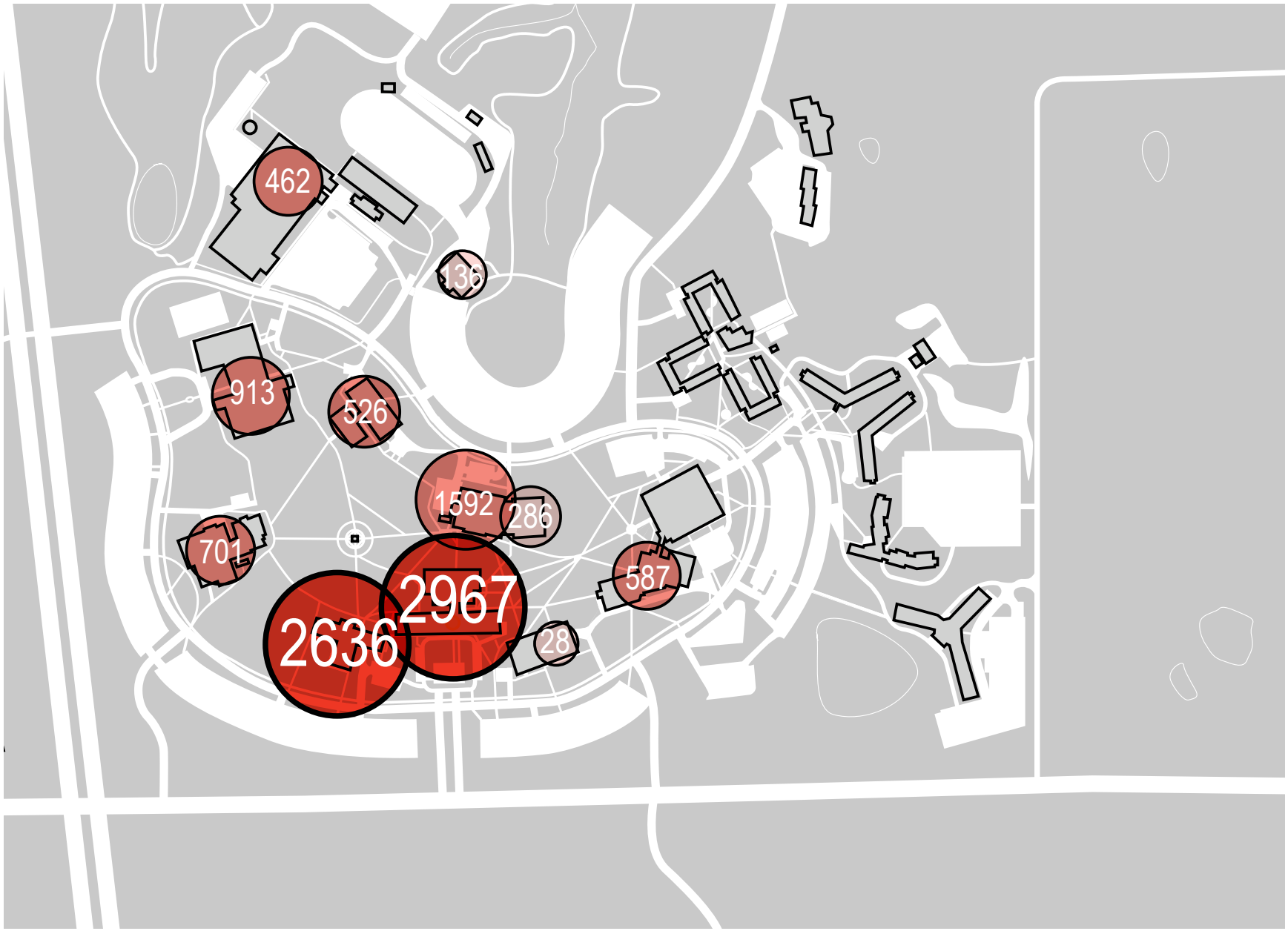
Path Gaps

Analysis of pedestrian paths and walkways resulted in several areas identified with gaps. These gaps are sometimes creating conflicts with vehicles, or limiting direct access to facilities. Other paths are indicated as possibly confusing or simply unnecessary, and could be eliminated to reduce overall amount of maintenance *(diagram on page 32).*

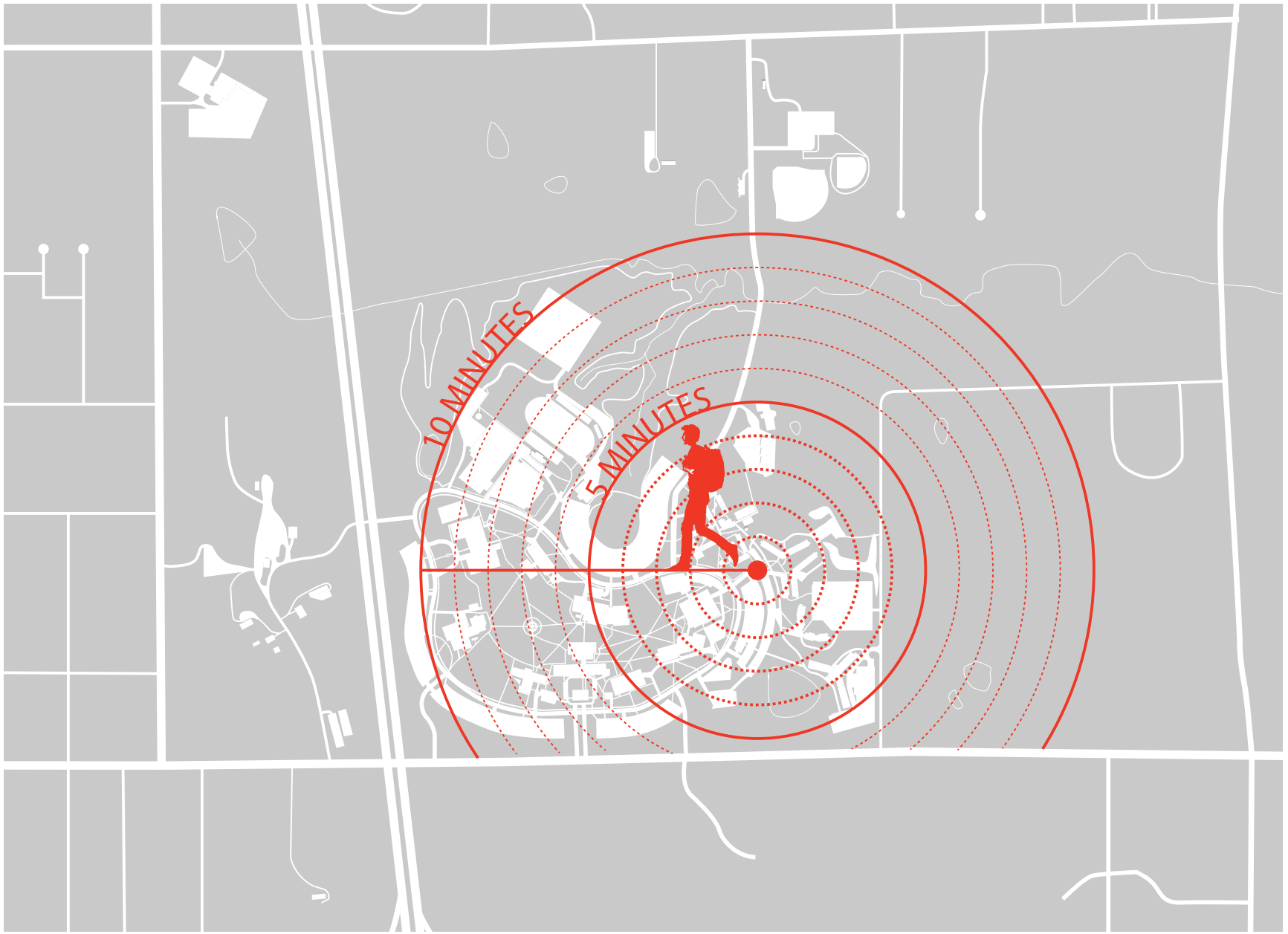
Geographic Features



Floor Area Ratio

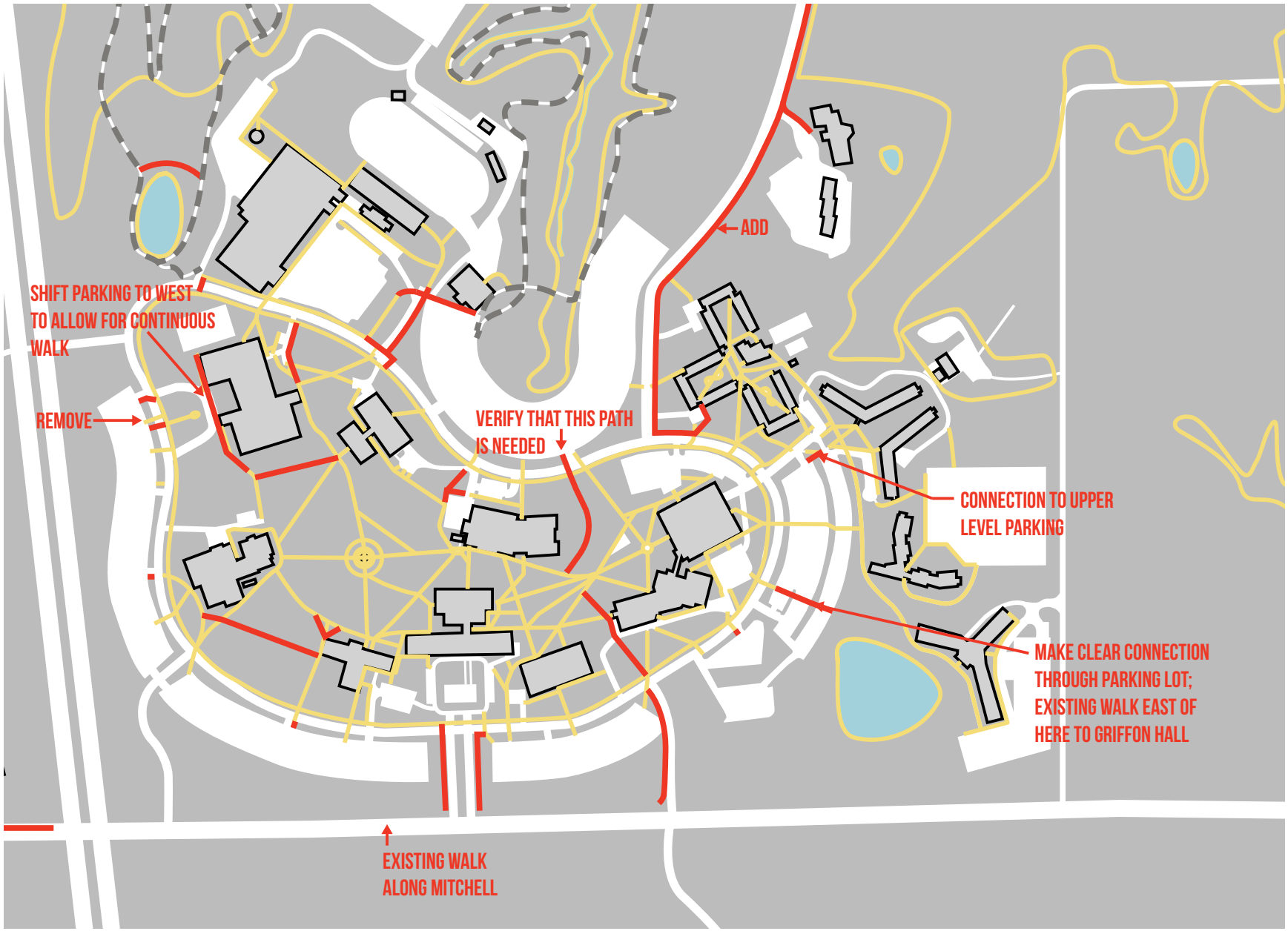


Daily Classroom and Class Lab Occupancy



Walking Radius

Paths By Use


ADD
SHIFT PARKING TO WEST
TO ALLOW FOR CONTINUOUS
WALK
REMOVE
VERIFY THAT THIS PATH
IS NEEDED
CONNECTION TO UPPER
LEVEL PARKING
MAKE CLEAR CONNECTION
THROUGH PARKING LOT;
EXISTING WALK EAST OF
HERE TO GRIFFON HALL
EXISTING WALK
ALONG MITCHELL

Path Gaps

Highways and Streets

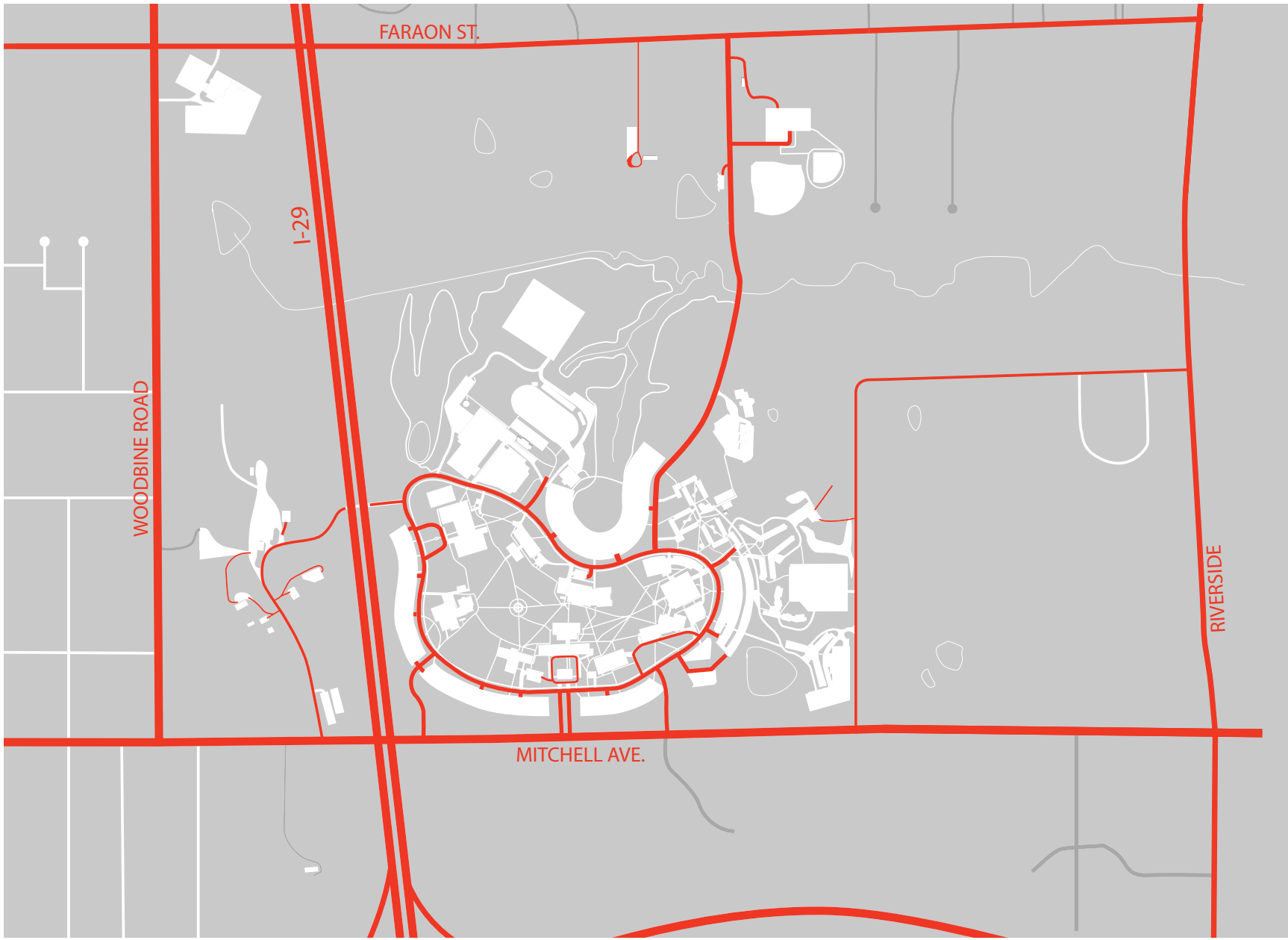
The campus is bisected by the interstate highway creating a clear and dramatic separation. Currently this west campus land is non-contiguous with the main campus, and requires vehicular transportation between the two. Access from I-29 is not provided at either Faraon or Mitchell, which creates challenges for visibility and way finding *(diagram on page 34).*

Service Access

The current campus layout is not conducive to concealing the service points at each building, nor for providing centralized services that would allow for increased efficiency. Future design considerations for each building should include keeping the building support and service access infrastructure concealed and away from view and access *(diagram on page 35).*

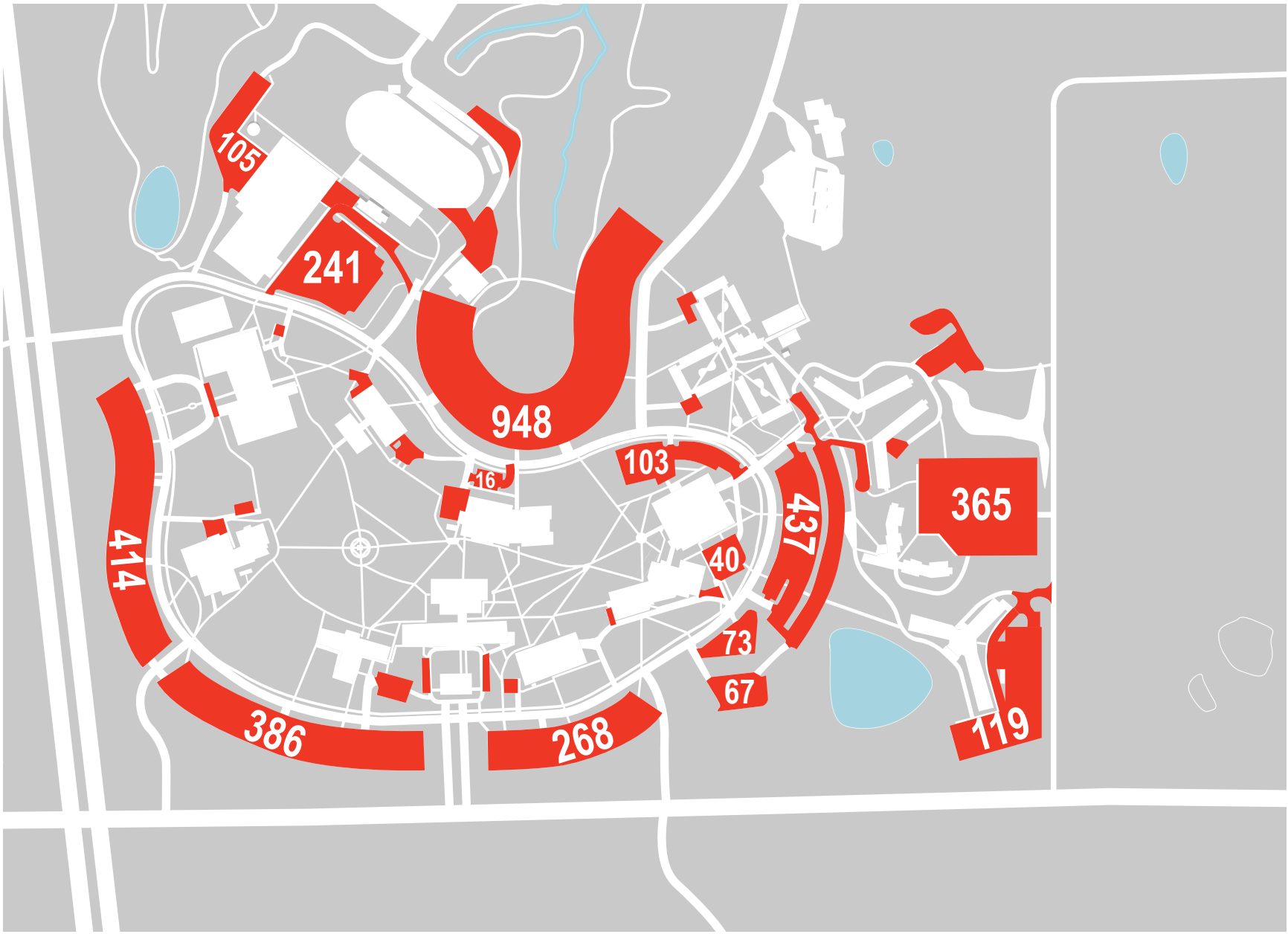
Parking Capacity

Total campus parking capacity exceeds most peer institutions, both in quantity and in spaces per enrolled student. Analysis and observations reveal that some lots are full to capacity, while the overall usage campuswide is only 68% full at the peak. Distribution of parking spaces does not currently align with the demand in the vicinity of Eder and Popplewell halls *(diagram on page 36).*



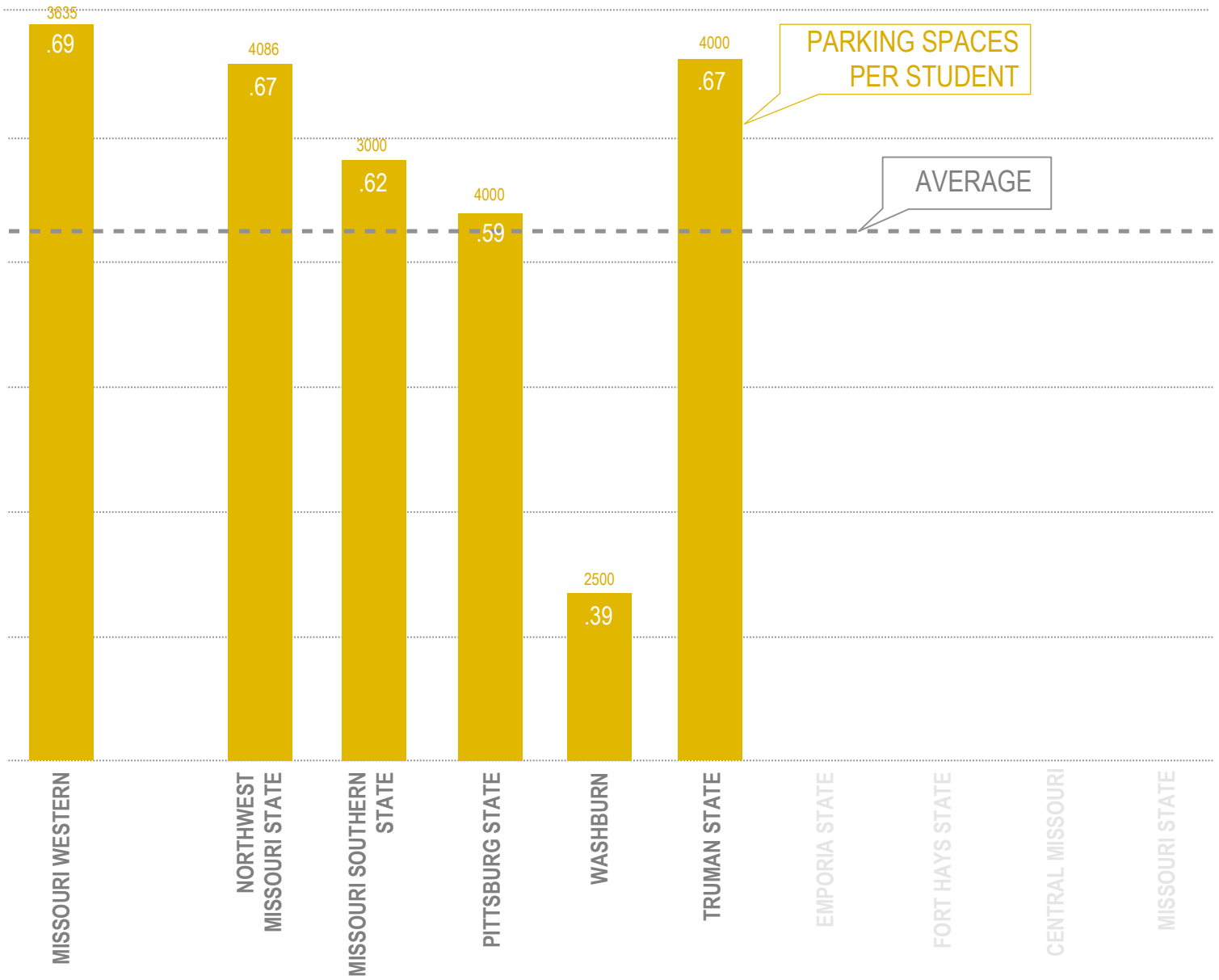
Highways and Streets

Service Access

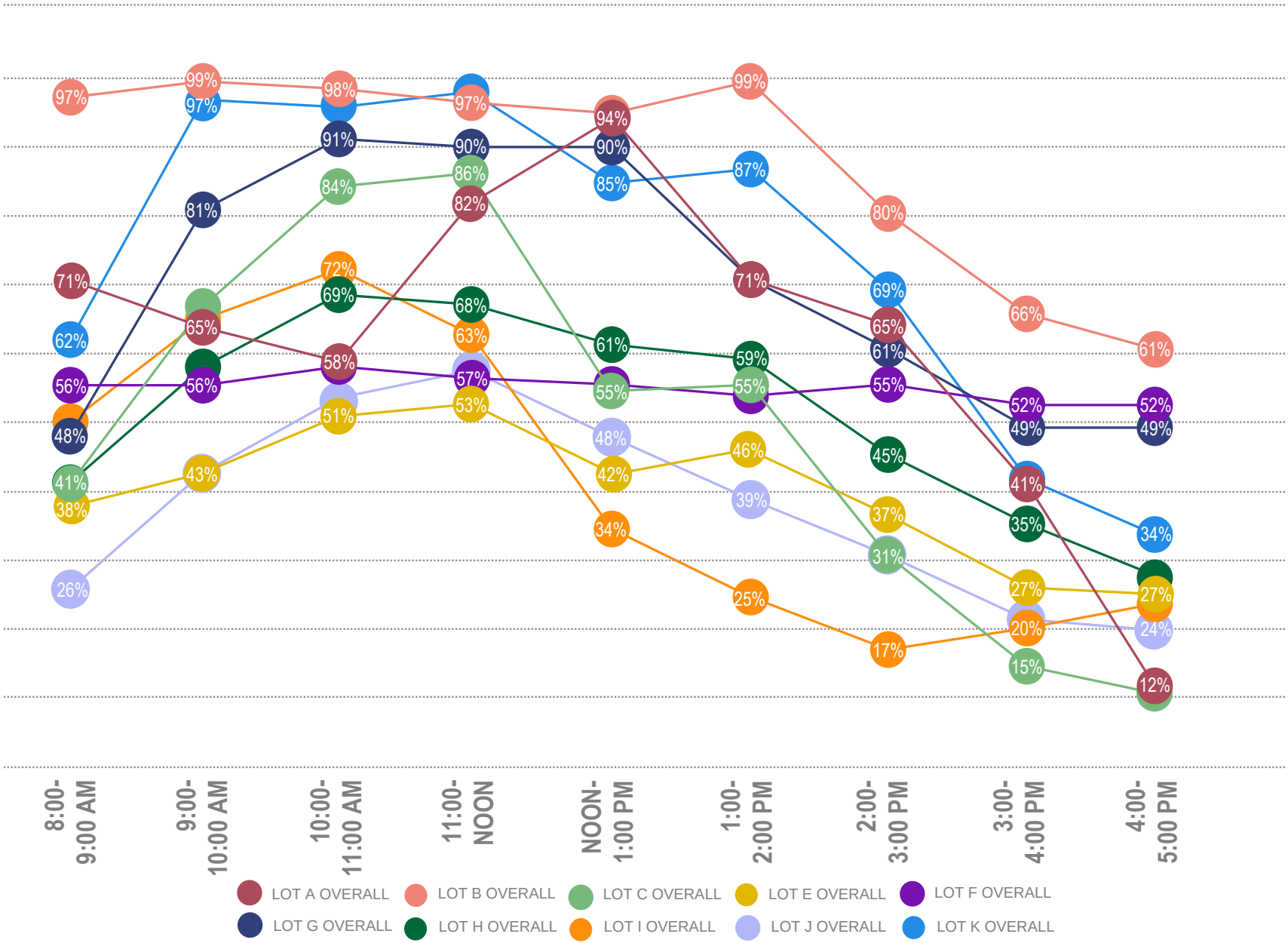


Parking Capacity

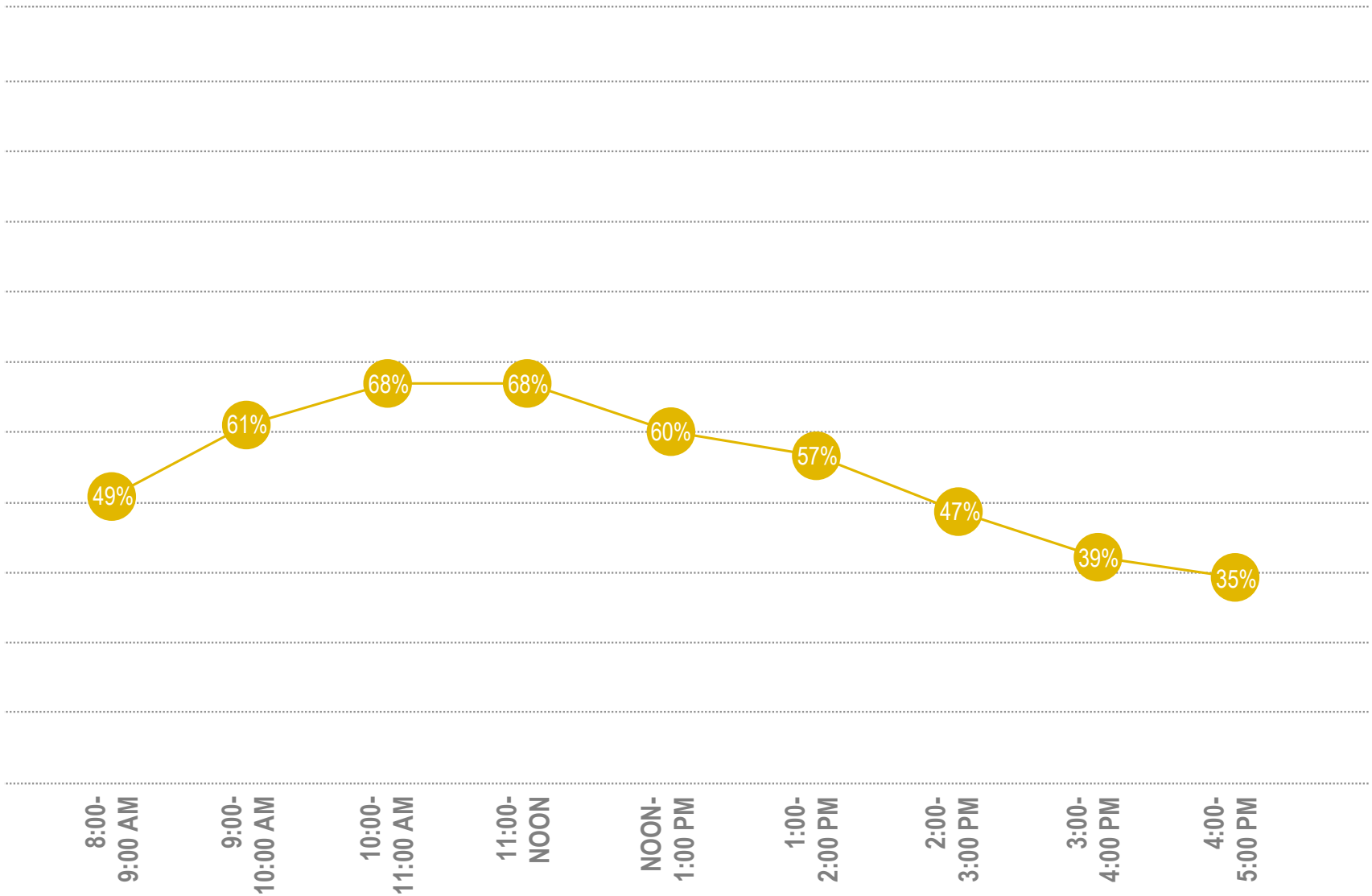

GRIFFONS
GRIFFONS
GRIFFONS
GRIFFONS
GRIFFONS



Parking Spaces Per Student



Parking Occupancy By Lot



Overall Parking Lot Occupancy - Monday

PEDESTRIAN AND VEHICULAR CIRCULATION

In general, overall traffic operations within the existing campus roadway network are functioning well based on site observations.

Field reviews of the campus were completed during typical peak class schedule and attendance days of the fall 2014 semester. The first observation took place on a Monday, while the second observation took place on a Tuesday. During the field reviews, on-site traffic operations were monitored to determine parking and pedestrian usage. Class schedules for both days observed began at 8:00 AM, and student activities were noted to increase steadily beginning at 7:30 AM.

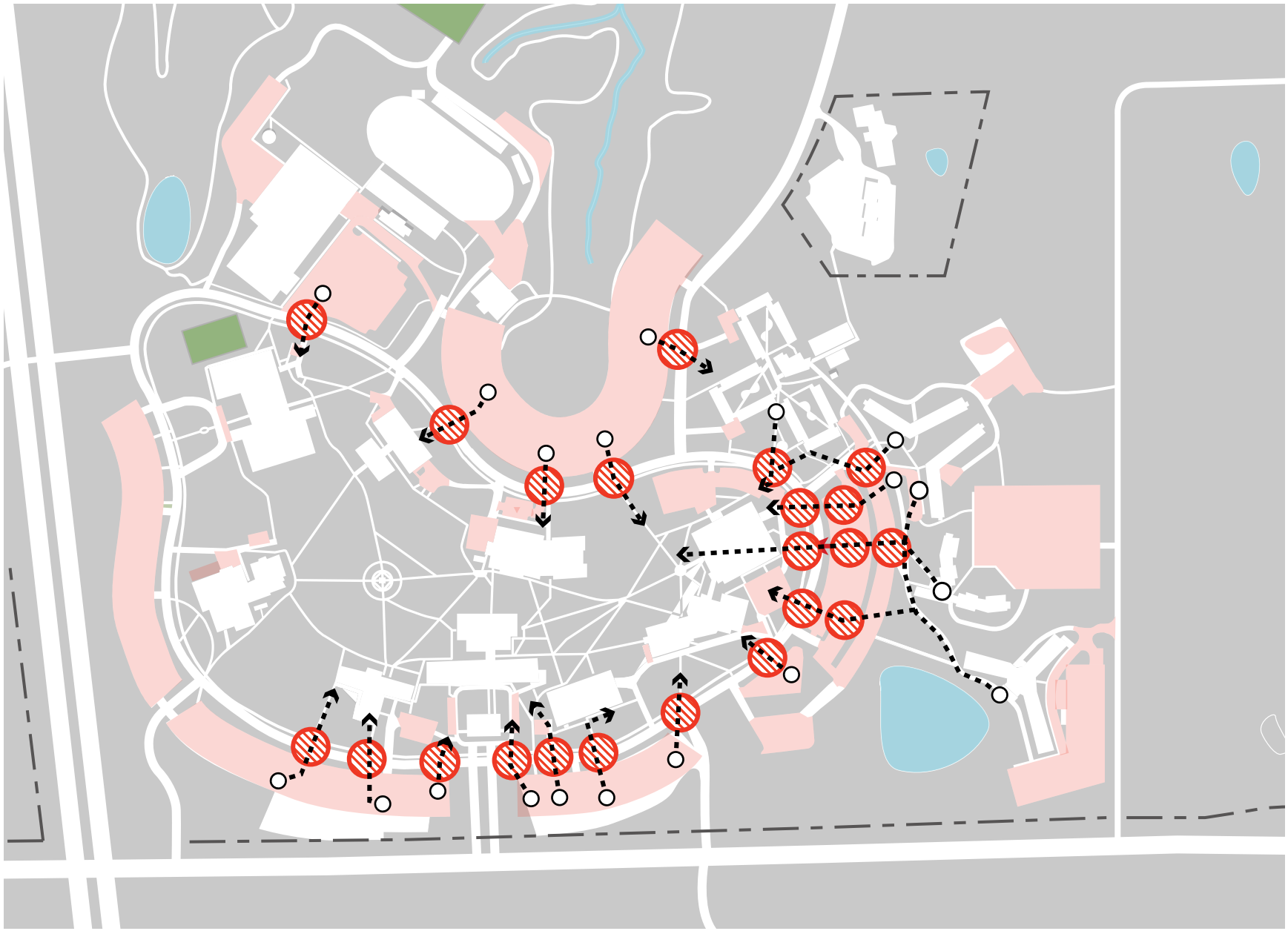
Peak traffic and pedestrian activity was noted during the final 15 minutes before class from 7:45 AM until 8:00 AM. Vehicular traffic was noted to be spread nearly equally between the two full-access drives along Mitchell Avenue while heavy traffic was noted along James McCarthy Drive in the southbound direction. Southbound traffic on James McCarthy Drive must stop at the intersection with Downs Drive and yield to vehicles traveling along Downs Drive. Vehicles along Downs Drive were noted to be slowed by heavy pedestrian activity between Lots C and H as pedestrians crossed from the campus residence halls and parking lots outside of the ring road to campus class buildings located inside of Downs Drive. As a result, the queued vehicles along James McCarthy Drive were noted to exceed 16 vehicles for a short period during the AM peak-hour period.

Parking lots continue to fill in order of lots closest to main campus buildings. Lots B, K, and H were noted to be the most heavily utilized lots for commuter traffic. Student housing lots such as Lots O, Q, P, and portions of E, F, and H are consistently occupied throughout most of the morning with little traffic arriving and departing throughout school time periods. Peak lot occupancy occurs between 9:00 AM and Noon. Campus activities begin to slow down after 1:00 PM.

Pedestrian Conflicts

Due to increased parking density in lots B and K, several areas of the ring road are experiencing higher than expected pedestrian/vehicle conflicts. A significant area of conflict also exists where residence hall pedestrian traffic flow is routed through parking lot E. These areas of increased conflict are identified in the graphic on page 42. In addition to conflicts due to parking lot density, there are two main areas where visibility for vehicular traffic is limited by road topography. The northeast and northwest corners of the ring road both exhibit limited visibility for crossing pedestrians due to tightly curving and sloping road placement.

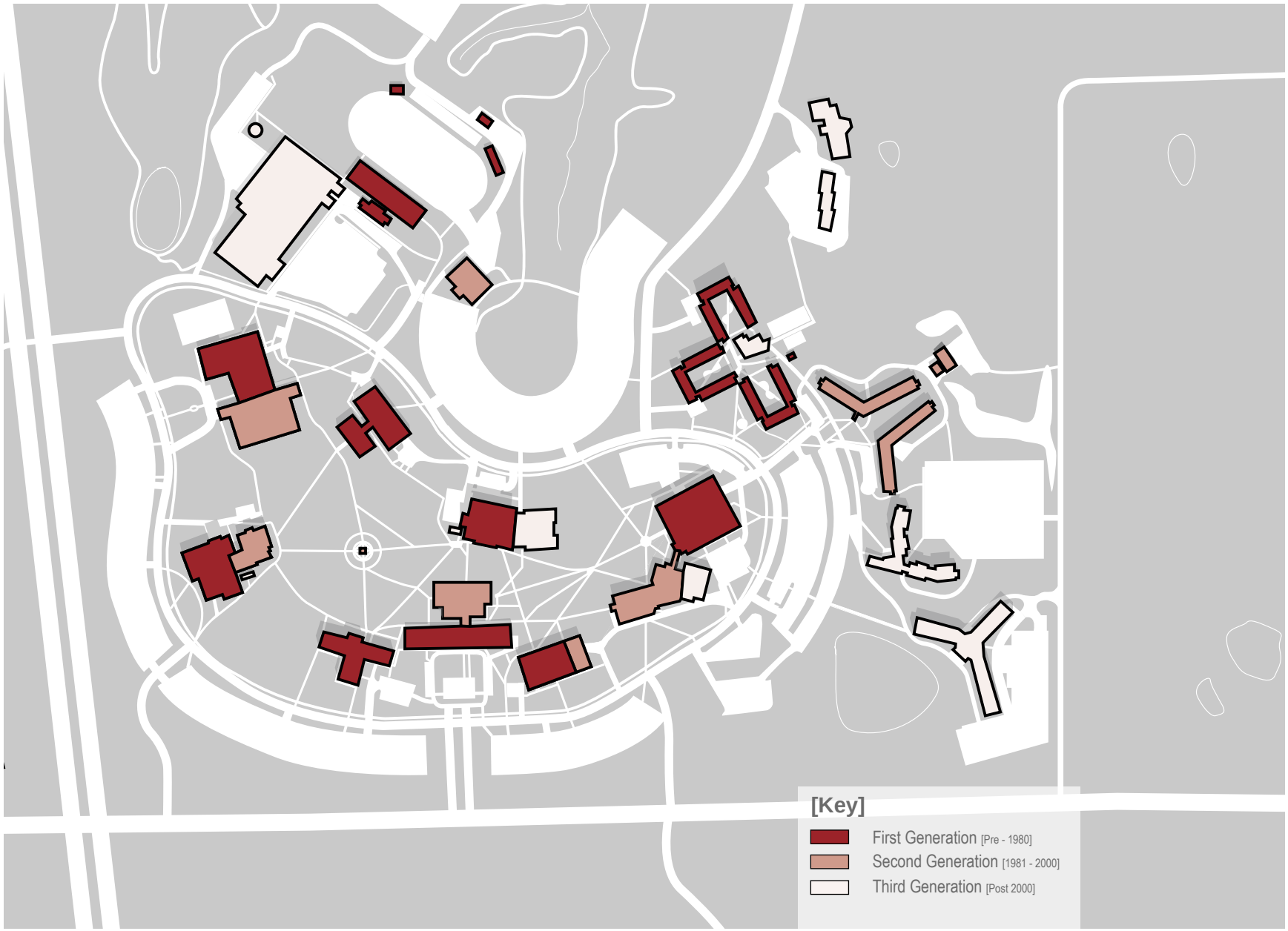
Photo Documentation On-site



Pedestrian Conflicts

EXISTING BUILDING CONDITIONS

Three generations of buildings currently exist on campus. The original campus facilities were constructed in the years from 1968 to 1972. A handful of buildings were added in the 1990s representing the second generation of buildings, with the final grouping coming online post 2000. Each generation represents an approach to building that was prevalent in its time. This means each group shares a similar set of construction types, building code requirements, and HVAC approaches, including energy efficiency that naturally differs from the buildings in the other generations.



Age of Facilities

BUILDING COMPONENT ANALYSIS

A comprehensive building condition review of each primary building on campus was conducted. This section includes a summary table showing all buildings. The Appendix of this document contains a component analysis for each building. A building component analysis describes each building's condition in representative numeric values.

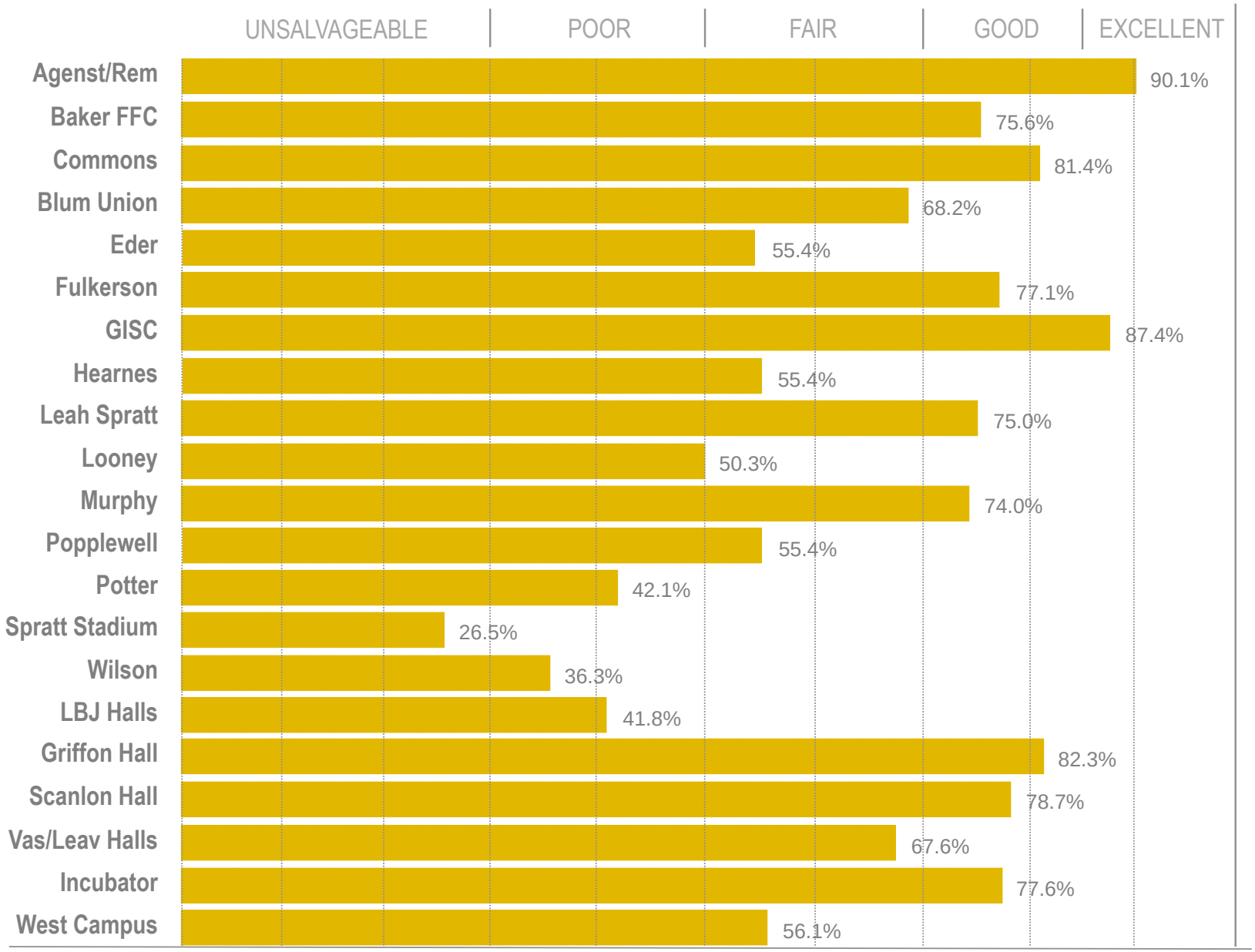
The cost of each primary system (as a percentage of the total cost) is shown. These percentages vary based on the function, size, and configuration of the facility. For example, classroom buildings will require different types of construction systems than gymnasiums; and multistory buildings must allocate cost to stairs and elevators that single story buildings do not.

Each item's condition is evaluated and given a ranking from excellent to unsalvageable. Excellent systems are new or near new as a result of recent installation, repair and/or replacement. Good means no obvious deficiencies in condition or performance, and serviceable with basic maintenance. Fair indicates a need for minor repair and limited replacement of components based on age and/or performance. Poor means failure of primary components and multiple systems is evident, and major repair or replacement is required. Unsalvageable means the components or systems are unusable, code deficient and/or not suited for current use and complete replacement is necessary.

The total resultant value shown at the bottom of the form illustrates the inherent value of the existing building as compared to the cost of a new facility of the same size and type. The evaluation of a building's useful life can be accomplished by comparing this resultant total percentage to the original rankings of excellent to unsalvageable. The component analysis itemizes primary systems in the building as follows:

COMPONENT ANALYSIS PRIMARY SYSTEMS:

1. **Exterior Building Components**
    - **a.** Substructure
        - **i.** Standard Foundations
        - **ii.** Special Foundations
        - **iii.** Slab on Grade
        - **iv.** Basement Excavation
        - **v.** Basement Walls
    - **b.** Superstructure
        - **i.** Floor Construction
        - **ii.** Roof Construction
    - **c.** Exterior Enclosure – Walls
    - **d.** Exterior Enclosure – Doors and Windows
    - **e.** Roofing
        - **i.** Roof Coverings
        - **ii.** Roof Openings
2. **Interior Building**
    - **a.** Walls, Partitions and Doors
    - **b.** Floors
    - **c.** Ceilings
    - **d.** Finishes, Fittings and Trim
    - **e.** Stairs
3. **Engineered Systems**
    - **a.** Vertical Conveyance
    - **b.** Plumbing
    - **c.** Heating/Ventilation/AC
    - **d.** Fire Protection and Life Safety
    - **e.** Electrical and Lighting



Campus: Building Component Analysis

SPACE UTILIZATION

Introduction

The purpose of this section is to provide an analysis of space use across the campus within the academic and academic-administrative areas, and through that analysis prepare recommendations that could guide space use, strategy and policy on campus for the next 10 years. This study is necessary to help align the facilities with the academic mission and to reflect shifting trends in enrollment and pedagogy. The base data utilized in our analysis is from the 2013 fall semester. As such, this report represents a point in time and utilizes data that can change from year to year.

Facilities data, course offerings, enrollment numbers, and room capacity data were collected. For additional information, meetings were held with scheduling staff, deans, department heads, faculty, and staff of the schools and colleges. Almost every space within each academic unit on the campus was visited, photographed, and evaluated.

Utilization for classrooms, science labs, and faculty/staff and departmental offices was assessed independently for each building on campus, as well as for the campus as a whole. Targets have been established as a metric by which to measure the needs of each system. Targets established in working with the university representatives as well as typical public university targets are referenced.

Utilization

Campuswide, for academic classroom space, Missouri Western State University's average space utilization falls below targets commonly set for public universities. Classroom utilization is very consistent from building to building and current centralized scheduling policies and processes are very effective in maximizing classroom usage.

Comparison to Standards

Department, Classroom, Building, Campus: There is no set national standard for classroom utilization. Many states have minimum thresholds for utilization, and measure performance by two criteria. The first criterion is number of hours per week that a classroom is in use for course instruction. The second criterion measures the percent of seats filled in scheduled courses. For universities not subject to state standards, these reference statistics can be useful in determining individual goals for utilization. As the state standards are continually being updated and/or changed it is helpful to note that the trend is toward increasing the minimum thresholds to encourage higher utilization. For comparison purposes, we have included a brief summary of these two measures nationwide.

Classroom Utilization - Hours Per Week

Utilization of General Purpose Academic Classroom Comparisons to Typical Public University Practice: Campuswide, the classrooms at Missouri Western State University were scheduled an average of 22.8 hours per week. This compares to the national targets for public universities that range from 30-35 hours per week. All buildings have availability in hours to increase utilization.

Classroom Utilization - Seats Filled per Class

This analysis looks at department, building and campuswide utilization for classrooms. Utilization is assessed for both seats filled as a fraction of the course capacity, as well as seats filled as a fraction of the total seats available. All buildings when averaged together are slightly underutilized relative to current capacities.

The average student station occupancy or percentage of seats filled when classrooms were in use averaged 54.3%. This compares to national guidelines for public universities of 60-70%.

CLASSROOM HOURS PER WEEK
BY CLASSROOM

AGENSTEIN

119	18
123	45
124	20
126	29
127	15
224	25
323	6
324	23
325	6
326	19
328	26
330	27

EDER

208	6
209	26
216	16
222U	28
222V	28
223	30

GISC

113	11
134	9

HEARNES

102	12
103	4

LOONEY

114	21
212	29.5
215	17
216	17
226	18.5
227	11

MURPHY

103	42
104	43
105	32
108	34
109	29
110	28
112	29
113	26
120	23.5
201	24
205	33
206	25
218	10.5
219	21
220	21
224	24
302	22
306	10
310	12
311	20

POPPLEWELL

101	21
102	33.5
104	36
105	18
108	7.5
109	45
111	30
201	33
202	15
204	33
205	21
206	27
301	33
302	28.5
304	19
308	27

POTTER

107	19

REMINGTON

117	22

SPRATT

109	15
110	6
201	1
203	23.5
205	21
208	38
211	56

WILSON

105	25
123	9.5
130	30
155	22
170	20.5
188	11
200A	5
205	21

AVERAGE CLASSROOM HOURS PER WEEK
BY BUILDING

Agenstein	19.9
Eder	22.3
GISC	10
Hearnes	8
Looney	19
Murphy	25.5
Popplewell	26.4
Potter	19
Remington	22
Spratt	26.6
Wilson	18

TOTAL CLASSROOM HOURS PER WEEK
BY DEPARTMENT

Art	30
Biology	76
Chemistry	42
Communication & Journalism	75
Computer Science, Math & Physics	155
Business	144.5
Legal Studies	89
Economics, Political Science & Sociology	99
Education	59
English & Modern Languages	475
Health, Physical Ed & Recreation	309.5
History & Geography	73
Music	24.5
Nursing	75.5
Philosophy & Religion	45
Psychology	51
Theatre, Cinema & Dance	9
Honors	14
University 101	81

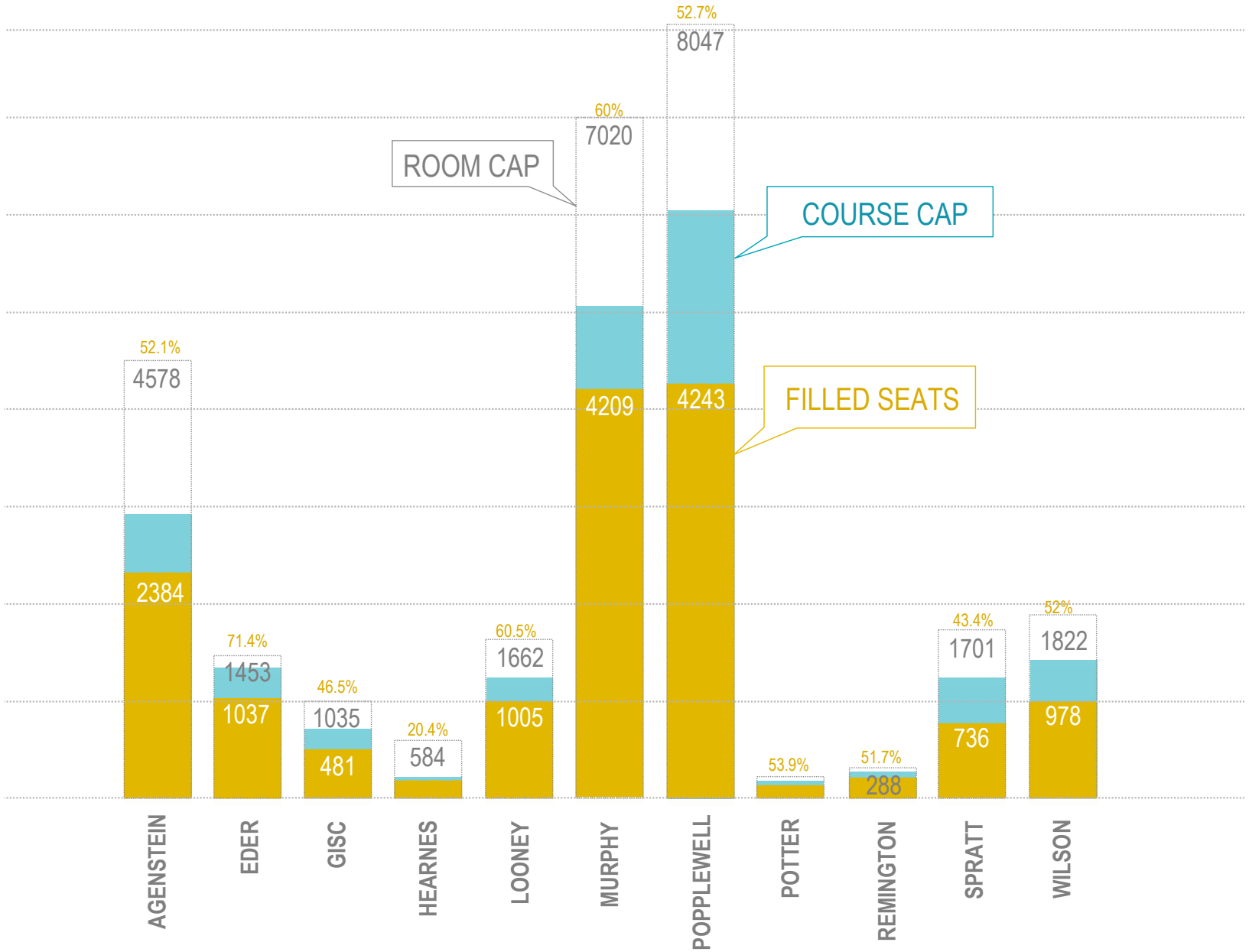
30-35 HRS/WK

NATIONAL GUIDELINE FOR HRS/WEEK CLASSROOMS

22.8 HRS/WK

EXISTING AVERAGE HR/WEEK CLASSROOMS

CLASSROOM UTILIZATION BY WEEK WHEN SCHEDULED
BY BUILDING



AVERAGE SEATS FILLED PER CLASS IN CLASSROOMS BY BUILDING

Agenstein	52.1%
Eder	71.4%
GISC	46.5%
Hearnes	20.4%
Looney	60.5%
Murphy	60%
Popplewell	52.7%
Potter	53.9%
Remington	51.7%
Spratt	43.4%
Wilson	52%

AVERAGE SEATS FILLED PER CLASS IN CLASSROOMS BY DEPARTMENT

Art	41.7%
Biology	66.6%
Chemistry	49.7%
Communication & Journalism	56.5%
Computer Science, Math & Physics	36.8%
Business	46.1%
Legal Studies	59.1%
Economics, Political Science & Sociology	49%
Education	56.3%
English & Modern Languages	45.4%
Health, Physical Ed & Recreation	55.5%
History & Geography	55.4%
Music	47.1%
Nursing	59.6%
Philosophy & Religion	54.9%
Psychology	81.5%
Theatre, Cinema & Dance	59.9%
Honors	55.4%
University 101	47.4%

60-70%

NATIONAL GUIDELINE FOR SEATS FILLED CLASSROOMS

54.3%

EXISTING SEATS FILLED CLASSROOMS

CLASS LAB HOURS PER WEEK
BY CLASS LAB

AGENSTEIN

222	8
227	14
339	9

BAKER

102A	26

EDER

220	7
221	4

GISC

122	3
FLD	43

LOONEY

129	8
ARENA	23
E. BAL.	8
GYM	14
HBC	12
POOL	9.5
WB	11.5

MURPHY

106	30
107	17
119	24
208	6
209	6
211	7.5
216	15
217	1

POTTER

101	18
104	30
106	8
108	22.5
108A	3
112	27
200	52
202	14
204	25
205	6
207	24
208	12
209	24
210	42
PERC.	2
THR.	3

POPPLEWELL

307	15
308A	12

REMINGTON

105	12
108	3
109	18
111	10
201	18
205	18
208	9
209	36
211	12
217	9
301	12
305	18
308	24
311	18
317	18

SPRATT

101	8
103	30
212	18

WILSON

110	20
140	5
150	21
160	27
184	63
186	6
206	12

AVERAGE CLASS LAB HOURS PER WEEK
BY BUILDING

Agenstein	10.3
Eder	6.6
GISC	23
Looney	12.3
Murphy	15.5
Popplewell	13.5
Potter	19.8
Remington	15.7
Spratt	18.7
Wilson	22

AVERAGE CLASS LAB HOURS PER WEEK
BY DEPARTMENT

Art	197
Biology	124
Chemistry	99
Communication & Journalism	46
Computer Science, Math & Physics	80
Business	36
Legal Studies	87
Economics, Political Science & Sociology	48
Education	9
English & Modern Language	73
Health, Physical Ed & Recreation	158
Music	88.5
Nursing	30
Psychology	22.9
Theatre, Cinema & Dance	29

18-20 HRS/WK

NATIONAL GUIDELINE FOR HRS/WEEK CLASS LABS

17.1 HRS/WK

EXISTING AVERAGE FOR HRS/WEEK CLASS LABS


GOGRIFFS

AVERAGE SEATS FILLED PER CLASS IN CLASS LABS
BY BUILDING

AGENSTEIN	72.3%
EDER	24.2%
GISC	67.9%
LOONEY	70.9%
MURPHY	67.2%
POPPLEWELL	72.2%
POTTER	33%
REMINGTON	84.7%
SPRATT	48.8%
WILSON	60.9%

AVERAGE SEATS FILLED PER CLASS IN CLASS LABS
BY DEPARTMENT

Art	56.8%
Biology	89.2%
Chemistry	89.2%
Communication & Journalism	49.8%
Computer Science, Math & Physics	61.1%
Business	72.3%
Legal Studies	47.6%
Economics, Political Science & Sociology	70%
Education	62.5%
English & Modern Language	66.6%
Health, Physical Ed & Recreation	67.1%
Music	26.3%
Nursing	93.4%
Psychology	47.1%
Theatre, Cinema & Dance	22%

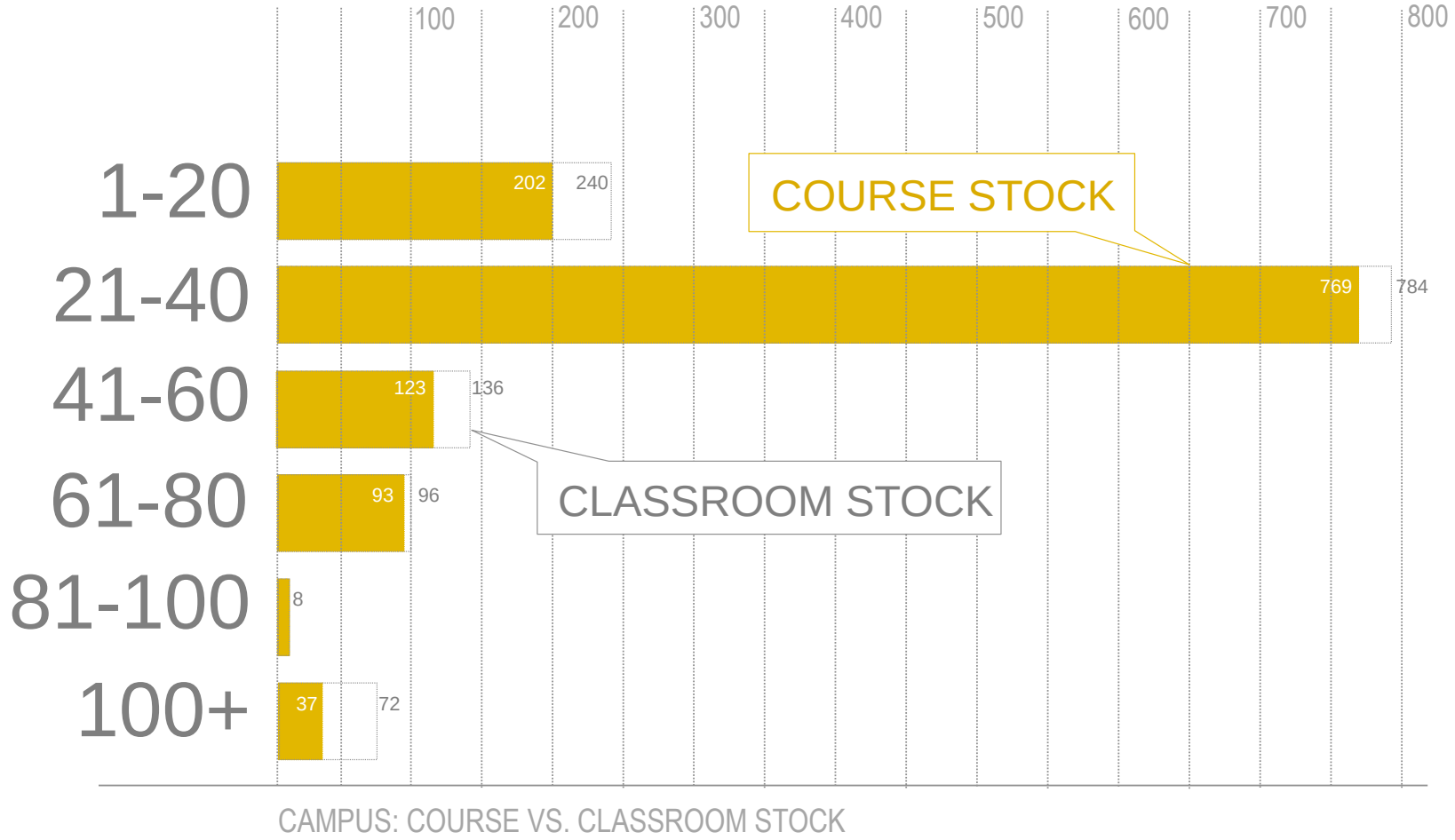
75-80%

NATIONAL GUIDELINE FOR SEATS FILLED CLASS LABS

58.5%

EXISTING SEATS FILLED CLASS LABS

CLASSROOM AVAILABILITY CAMPUSWIDE
BY BUILDING



CAMPUS: COURSE VS. CLASSROOM STOCK

Classroom Availability

The analysis above looks at course demand vs. classroom supply. For simplicity, classroom supply has been reduced to (6) groups, classrooms having 1-20, 21-40, 41-60, 61-80, 81-100 and 100+ available seats. The results of this exercise indicate that for all classroom sizes supply is slightly greater than demand. The key finding is that university classroom stock is well matched to serve the current sizes of classes offered.

AVERAGE AREA SQUARE FOOT PER STUDENT STATION IN GENERAL PURPOSE CLASSROOMS

BY BUILDING

Agenstein	25.5
Eder	20
Looney	24.4
Murphy	22.2
Popplewell	18.2
Potter	37.2
Remington	30.1
Spratt	27.3
Wilson	22

18-23

NATIONAL GUIDELINE FOR SQUARE FOOT/STUDENT CLASSROOMS

25.2

EXISTING SQUARE FOOT/STUDENT CLASSROOMS

OBSERVATIONS AND NEEDS

BUILDING OBSERVATIONS

The campus facilities are aging, and the current funding and approach to maintenance is not keeping up. Overall, the buildings are showing wear, are falling behind in code compliance, lack serious energy efficiency, and aesthetically suffer from a system of "patching."

The existing building conditions chart on page 46 is a good summary of the relative physical condition of the structures on campus. The specific building condition analysis sheets can be found in the appendix starting on page 142. The following building-by-building list annotates both the building conditions along with the programmatic needs of that facility thereby providing a more comprehensive description of potential projects that would address both sets of needs.

It should be noted that the master plan identifies major capital projects, additions and renovations as well as significant deferred maintenance projects by building. There will be other projects that represent an ongoing series of deferred maintenance and other improvements that will be managed by the university beyond the ones listed here. These will likely be generated out of available funds and/or responses to changes in staff, degree programs, enrollment, etc. In other words, the master plan identifies major priorities and expects day-to-day operations and other timely projects to continue within the master plan context. Examples of these types of projects are included below. Others might include the addition of a residence for future presidents, further development of the natural areas on campus and possible additions of athletic facilities.

Following then, is a building-by-building set of observations, needs and recommended solutions:

Academic

Agenstein/Remington Hall:
Construction Date: 1968/2009
Houses: Biology Dept.; Chemistry Dept.; Computer Science, Mathematics & Physics Dept.; Labs; Classrooms.
GSF: 66,561

This science facility is a top-of-class building compared to the other benchmark universities. The new addition and renovation matches the departmental and academic needs well. The biology office suite, for example, is very open to students and is a good model for this kind of departmental layout for future remodels and additions on campus. The building provides a good academic home with the comfortable lobby and accessibility to food service. There are few facility issues, but the fresh air makeup design needs to be addressed from a code and energy efficiency standpoint.

Eder Hall:

Construction Date: 1975
Houses: Business Office; Financial Aid; Registrar: Admissions; Career Development; Nontraditional Student Center; English & Modern Languages Dept.; Student Success: Counseling & Testing Dept.
GSF: 54,288

Isolated renovations throughout the building create an uneven interior environment. Many urgent deferred maintenance items exist with this facility: exterior envelope, mechanical, electrical and plumbing issues are evident.

Looney Complex:

Construction Date: 1969
Houses: Athletics Dept.; Health, Physical Education & Recreation Dept.; Gyms; Recreation Services; Pool; Classrooms
GSF: 108,124

An addition of three gymnasiums is recommended for student recreational use. This will bring the university up to level with benchmark universities, will improve the student experience on campus, and follows the university's goal of improving health and wellness. Adding this space also addresses the needs of the growing programs in health, physical education, recreation, athletics, continuing education programs, and increased community involvement.

Many urgent deferred maintenance items exist with this facility: code issues, exterior envelope, roof, fire protection, mechanical, electrical and plumbing items are evident. Cooling should be added when upgrades to the HVAC occur. The university pool in particular is very expensive to maintain and is in need of major renovations and upgrades to be economically viable on campus.

A renovation should address the system of entries around the building to make them more accessible and more securable. Existing acoustical issues should and can be addressed through renovation to allow for more efficient and successful use of classrooms. Storage, particularly for supporting equipment, should be evaluated, organized and provided for in any work to the building.

Murphy Hall:

Construction Date: 2000
Houses: Psychology Dept.: Education Dept.; Communication & Journalism; Nursing and Allied Health Dept.; Classrooms.
GSF: 69,648

Initial inexpensive construction lends a worn out and uncared-for feel to a relatively new building. Some examples include rusty fan coil units, paint torn off walls, carpet "bubbling" up and furniture scattered in hallways and exit paths. Renovation work and deferred maintenance efforts here should focus on replacement of old, inexpensive systems with higher quality materials and solutions.

Popplewell Hall:

Construction Date: 1968
Houses: Administrative Offices; Craig School of Business; Economics, Political Science & Sociology Dept.; History & Geography Dept.; Philosophy & Religion Dept.; Classrooms.
GSF: 68,561

One of the oldest buildings on campus, this facility needs attention. Entry sequence and way finding should be improved. Interior classrooms, furnishings and office space need to be upgraded. Numerous isolated renovations create an uneven interior environment.

Many urgent deferred maintenance items exist with this facility: exterior envelope, fire protection, mechanical, electrical and plumbing needs are evident. A number of noncompliant code items exist.

Potter Hall:

Construction Date: 1968
Houses: Music Dept.; Art Dept.; Theatre, Cinema & Dance Dept.; School of Fine Arts; Theatre; Classrooms.
GSF: 82,552

Ranked as the fourth worst building on campus in terms of its deferred maintenance needs, this facility deserves a complete renovation. Interior classrooms, labs, equipment, furnishings and office space need to be upgraded. Minor and isolated renovations are good but have left much of the building untouched. Many urgent deferred maintenance items exist: exterior envelope, roof, fire protection, mechanical, electrical and plumbing needs are evident. A number of noncompliant code items exist.

In addition, the materials handling concerns with these kinds of labs combined with the environmental and indoor air quality challenges raise an urgent need for renovation to address the safety of the occupants. Art, music and theatre programs have evolved over the last 47 years to the point that program fit in Potter is challenging to the achievement of academic success. The master plan recommends the renovation of Potter Hall, music and art wings, including: classrooms, stage, fire protection, restrooms, wall coverings, lighting, sound system, elevator, teaching studios, rehearsal and production facilities, acoustical and sound proofing treatments, conversion of technical areas for instructional use, and HVAC systems.

Spratt Hall:

Construction Date: 1997
Houses: Western Institute; Conferences & Special Programs; University Advancement and Foundation Offices; Walter Cronkite Memorial; Classrooms
GSF: 65,000

Typical maintenance needs. Some HVAC, fire protection, electrical and roof issues exist.

Wilson Hall:

Construction Date: 1972
Houses: Engineering Technology Dept.; Criminal Justice, Legal Studies & Social Work Dept.; Military Science Dept.; Campus Printing and Design; Law Enforcement Academy; Y's Kids World; Classrooms
GSF: 44,333

Interior construction is not of a high quality and needs to be brought up to institutional facility quality through renovations. Many urgent deferred maintenance items exist with this facility: exterior envelope, roof, fire protection, mechanical, electrical and plumbing needs are evident. Differential settlement is evident at the SE corner where the exterior wall is cracking diagonally. Ground water issues are visible in this area as well.

Hearnes Center:

Construction Date: 1968
Houses: Library; IT Services; Instructional Media Center; Center for Academic Support.
GSF: 80,629

The library should undertake a master plan/branding study to explore how to maximize the space and services made available to the student population. Such a study would explore ways to incorporate more collaboration and student engagement places; to seek ways to improve the Hearnes Center as a cultural facility and center of student activity on campus. The outcome would benefit all students and academic programs campuswide as well as the community and business organizations.

A master plan would: evaluate the advantage and synergy of incorporating the writing center/tutoring center in the building and having it visible and accessed through the library, explore what functions should use the space available as the computer center downsizes equipment, specifically address improvements to access and egress for all users and especially those with disabilities.

Many urgent deferred maintenance items exist with this facility: exterior envelope, roof, fire protection, mechanical, electrical and plumbing needs are evident. A number of noncompliant code items exist.

Fulkerson Center:

Construction Date: 2004
Houses: Training and conference meeting facilities; Ballroom (500 seat capacity); Alumni gathering room.
GSF: 11,860

Typical maintenance required. There are some roof leaks and some differential settlement.

Blum Union:

Construction Date: 1969
Houses: Cafeteria; Bookstore; Food Court; Campus Police; Parking Services; Student Affairs; Health Center; Student Government; Student Services; Meeting Rooms
GSF: 86,672

Dining space will need to expand within the next 10 years. An addition along the south side of the facility achieves this and also creates a connection through the building to the main campus for residential students while improving the "main entry." A main plaza creates a great first impression for visitors and provides a gathering and community space for students, faculty and staff.

A union master plan should be undertaken to determine the long-term services and use of the union. The study would determine if for example:

- Renovation would allow for services inside the union to have increased visibility to the student population
- Consideration should be given to accommodating increased nontraditional student services
- Reevaluating the health center is an opportunity in partnering and/or fulfilling the campus wellness goals
- Renovation to this building should take into consideration the relocation of Police and Parking services to the first level and located together
- The cafeteria entrance should be relocated
- Use of the existing basement would be beneficial in serving expanding needs of the university

Many urgent deferred maintenance items exist with this facility: exterior envelope, roof, fire protection, mechanical, electrical and plumbing.

Residence Halls

The most pressing need here, system-wide, is addressing fire protection. This should be completed as a first priority.

Deferred maintenance items exist with these facilities overall. Exterior envelope conditions should be addressed, especially relative to energy efficiency. Mechanical, electrical and plumbing systems are challenged due to the inexpensive nature of the systems.

Logan, Beshears, and Juda Residence Halls, and Leaverton and Vaselakos Residence Halls:

Logan, Beshears, and Juda Residence Halls
Construction Date: 1971
Leaverton and Vaselakos Residence Halls
Construction Date: 1992
Total GSF: 270,385

Logan, Beshears, and Juda Residence Halls are first-generation housing and need to be replaced or renovated. The solid structure and large amount of space available make these halls good candidates for renovation and additions. These halls could make a good location for non-traditional students, international students, graduate students and families. Amenities are lacking.

Leaverton and Vaselakos Residence Halls require typical maintenance. Finishes need to be upgraded.

Griffon Residence Hall:

Construction Date: 2010
GSF: 92,393

Typical maintenance required.

Scanlon Residence Hall:

Construction Date: 2004
GSF: 95,632

Typical maintenance required.

Commons Building:

Construction Date: 2004
Houses: Residential Life Offices; Meeting Rooms; Snack Bar and C-Store
GSF: 7,300

Typical maintenance required. When this building is remodeled the housing department offices should be either accommodated here or moved to the first floor of the new residence halls.

Athletics

Baker Fitness Center:

Construction Date: 1996/2012
Houses: Weight Room; Recreation Services; Locker Rooms
GSF: 17,300

The master plan recommends an addition that would more than double the size of the facility.

There have been recent renovations and improvements. The building is heavily used and the master plan recommends an addition. There exists remaining plumbing deferred maintenance.

Spratt Stadium:

Construction Date: 1978
Houses: Athletic Events
GSF: 17,920 (Spratt Stadium Club)

This building should be replaced. Economically, this makes the most sense and there are no overriding factors, such as historical importance, that would suggest an extraordinary effort to save the structure. A number of noncompliant code conditions exist in combination with the only exit stair being in disrepair. There are many ADA issues. Water damage in the exterior envelope is evident in many locations.

When replaced, one design issue should be the existing site groundwater. Measures should be taken to address this in both the building structure and the associated seating.

Griffon Indoor Sports Complex:

Construction Date: 2004
Houses: Athletics; Indoor Sports Field; Lecture Hall; Offices; Classrooms
GSF: 118,000

Typical maintenance required.

Future President's Home

Many campuses provide a president's home used for entertaining guests and hosting events. Missouri Western previously had such a facility but it is no longer standing. Several locations for a future president's home have been identified, with a location west of South Pond being the preference for easy access to the center of campus, and to visitor events held at the home. This location affords adjacencies to Spratt and Fulkerson halls, where many events are held, and can provide easy access to shared parking. A landscape buffer is recommended along Mitchell, and views to South Pond can be capitalized upon with the design. Other locations considered include West Campus, just north of the incubator site, east campus accessed off South 50th Street, and center campus north of parking lot H.

Support

Kit Bond Science & Technology Incubator:

Construction Date: 2008
Houses: Laboratory; Conference Room; Operation Offices; Tenant Space
GSF: 25,000

Typical maintenance required. There is concern about the level of insulation relative to thermal comfort and energy efficiency.

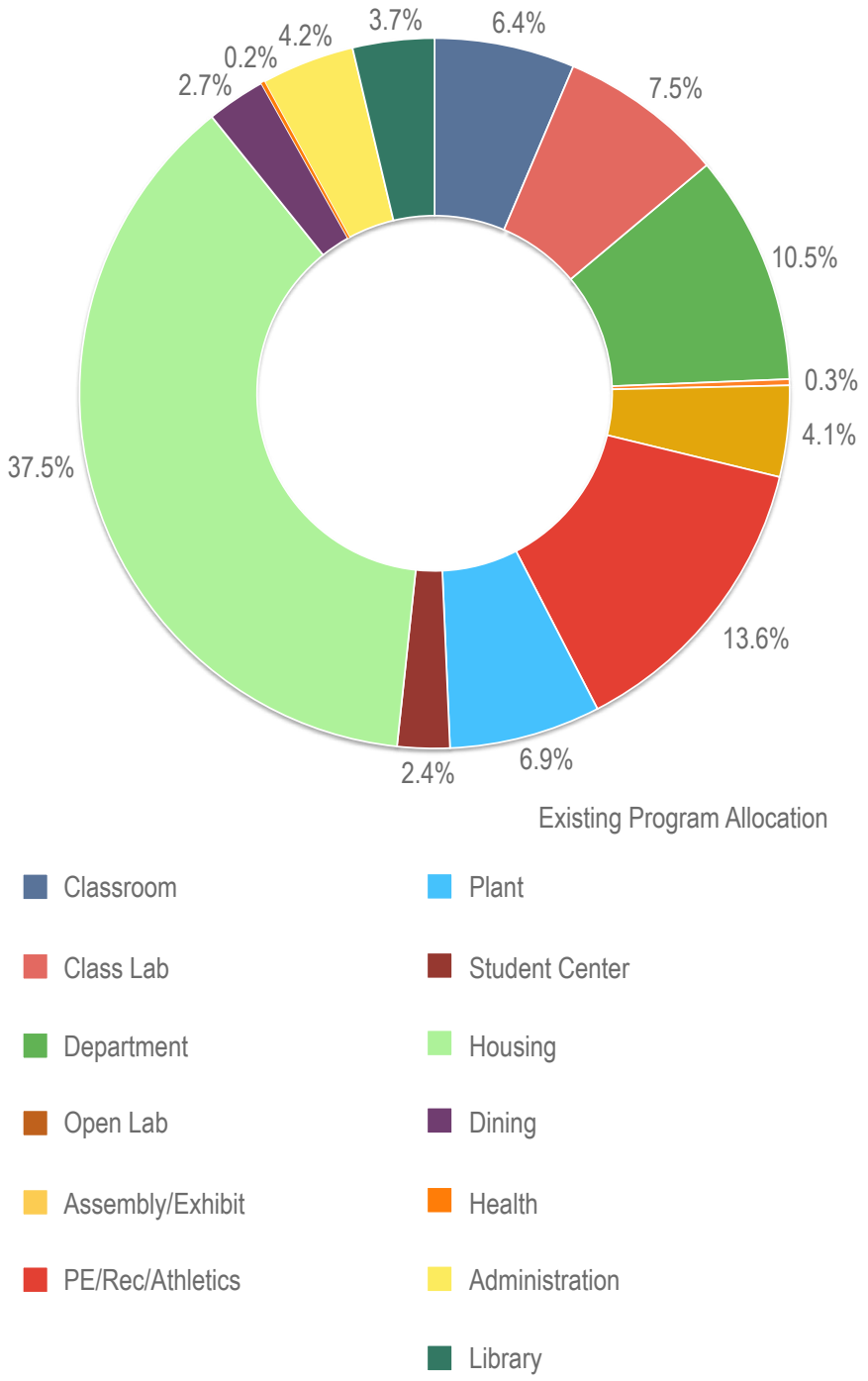
Campus Facility Services

Facility Services Area - West Campus:

Construction Date: multiple facilities, various years
Houses: Grounds shops, maintenance shops, equipment storage, mail room, campuswide storage, facilities offices

These are lower quality often pre-engineered metal buildings but generally in good shape for their purpose. They will require siding and roofing repairs/ replacement soon.

Space is adequate. The facilities could benefit from some upgrades such as the addition of a spray booth for specialized painting. Some areas where storage is located are challenged by current facility condition issues. This could be handled with reorganizing and relocating the storage or by improving the buildings.



PROGRAM NEEDS

Campus Capacity / Space Needs

The campus is currently serving students with classrooms that are adequately outfitted with technology and furnishings – a step above many of the comparison schools. The elimination of tablet-arm chairs and integration of standardized technology for instruction has been accomplished, the space per student station allows for group-based instruction, and the campus can now turn its attention to planning ahead for future changes in technology, and more closely matching space assignments and room configurations to pedagogy.

Space for students to gather before and after class, work on projects, and create an academic "home" within their departments is lacking. Small lounge spaces in some departments serve students, and a few spaces for gathering have been carved out of lobbies, but overall the quantity and quality of these spaces to serve students is poor.

Science labs and computer labs are fairly new and have capacity for growth.

Overall, the university's existing office space for faculty and staff varies widely in the size, configuration, and quality provided. Some office spaces are quite spacious, but many others are around 120 square feet or less. These smaller offices do not meet modern office standards. In a few departments there appear to be spaces that have been subdivided over time to allow for additional faculty or staff. A few departments have one or two unused offices, but the total amount of square footage is still below what would be needed for the department if each individual office was of sufficient size.

Relative to office suites, most departments have suites that are grouped together with a reception and work area, conference space, and a series of offices. Again, there exists a wide variety of suites provided. Adequate office sizes and/or support spaces such as reception, work areas, mailboxes, and conference space are not provided generally in Popplewell, Murphy, Potter, Eder, Wilson, and Looney. In addition, there is no designated area for faculty to gather for collaboration or fellowship either within their departments or campuswide.

Some program areas such as nursing and the School of Business are operating in space that lacks adequate support for the quantity of students graduating each year from these programs. In addition, the stadium does not offer amenities and space for donors and reserved seating that is consistent with its peer institutions.

Campus Comparisons

The Master Plan Steering Committee identified the following campuses as a benchmarking group for the purposes of this master plan: Northwest Missouri State University, Missouri Southern State University, Pittsburg State University, Washburn University, Truman State University, Emporia State University, Fort Hays State University, University of Central Missouri, and Missouri State University. Where available, the consultants have gathered comparison data for use in master planning discussions. As a whole, these campuses represent regional universities that are frequently seen in college choice comparisons and/or competitive athletic events for Missouri Western.

In addition to the items identified in the introduction and in comparison to the benchmark universities, there are a number of major deficiencies in the facilities that MWSU offers its students. These deficiencies are amplified once potential growth is considered. The immediate needs are represented in three areas: student recreation, performance venues, and dining capacity.

Student Recreation

Fitness and wellness for the students and staff are goals clearly expressed in the university's strategic plan. The space available at Baker Fitness Center is undersized and currently reaches an occupancy level that is over capacity. Most of the comparison universities have a recently constructed student recreation center that offers a wider array of amenities, and more

space for them to occur. Of significant note, athletics and student recreation currently share gym space. Students have no access to gymnasium space from 2 PM well into the evening. This is not a situation that exists at any of the benchmark universities.

While Missouri Western's students have no access to indoor courts, students at the following Universities have access to:

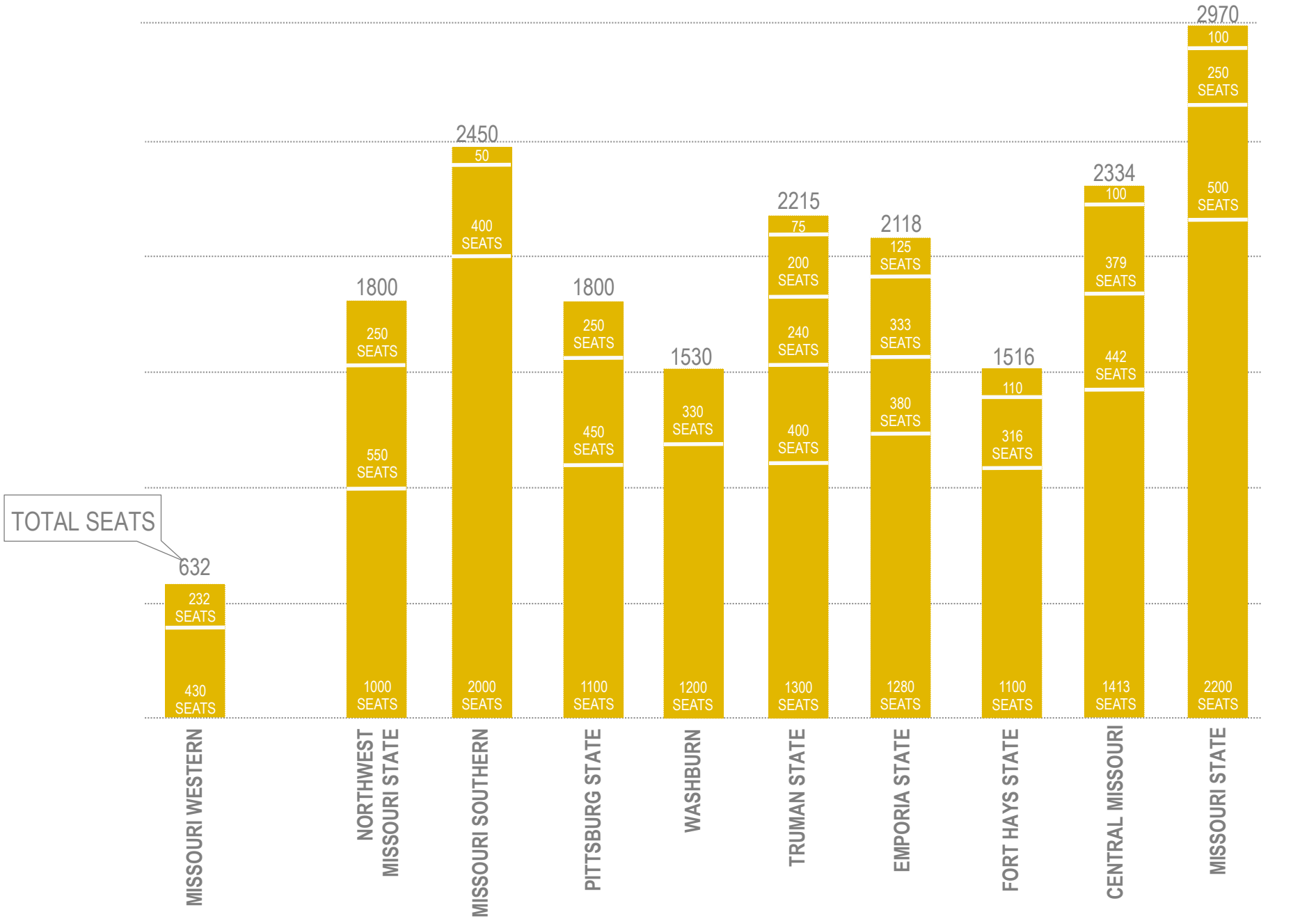
Washburn	3 courts
Pittsburg State	3 courts
Emporia State	3 courts
Fort Hays State	4 courts
Truman State	4 courts
Northwest Missouri	3 courts
Missouri Southern	3 courts
Missouri State	3 courts
Central Missouri	6 courts

Performance Venues

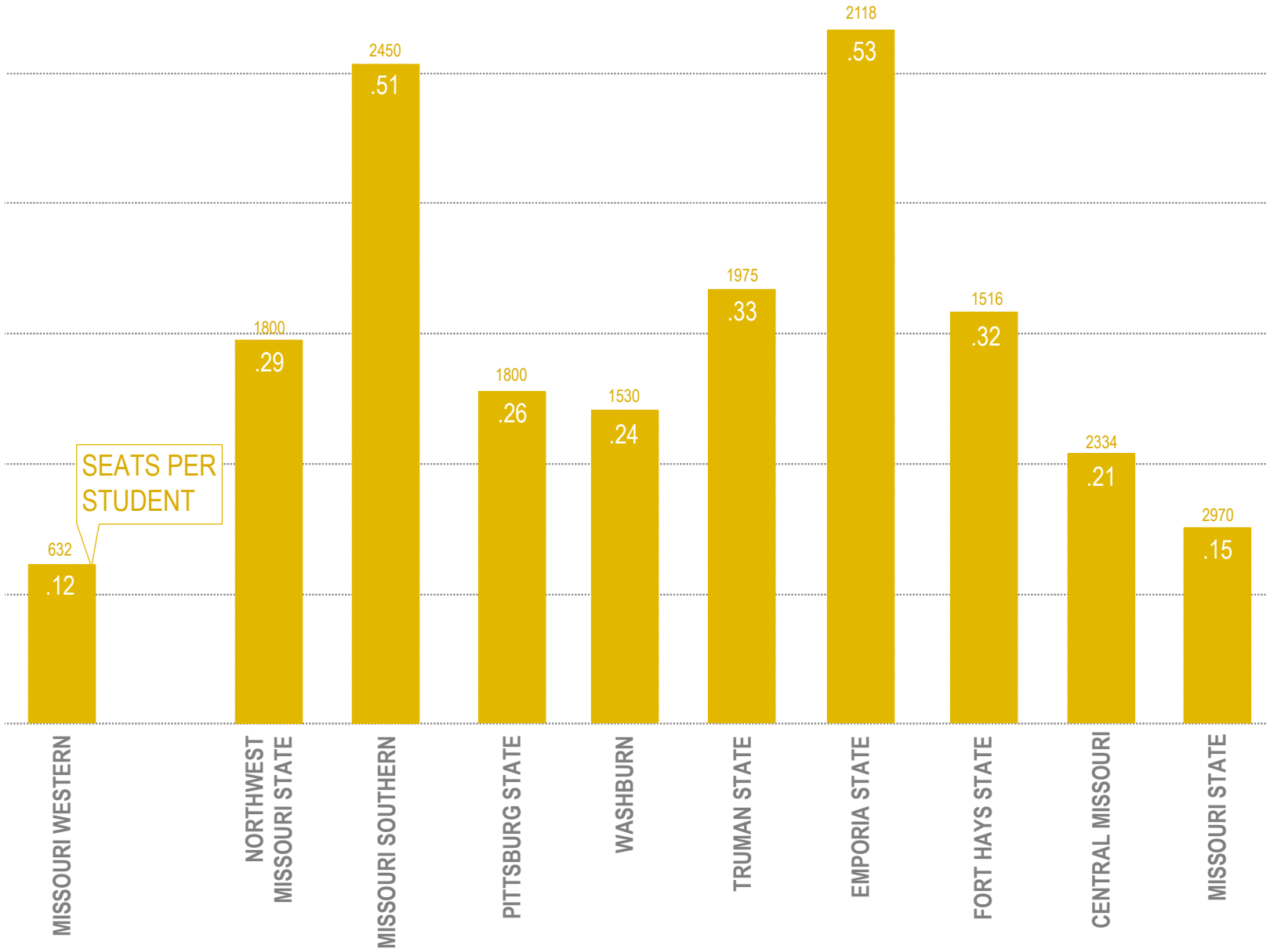
Benchmark universities in the region typically provide three performance venues on campus. They include one large facility seating between 1,000-2,200, one medium venue seating around 400 and at least one small venue between 100-250 seats. Missouri Western is the only university of the 10 compared universities to lack a large performance hall of at least 1,000 seats. Along with this need for performance space, there is a lack of adequate rehearsal and support space to accommodate the number of students in this program. Missouri Western also provides the lowest number of total performance seating per student enrollment than any of the benchmark universities.

Dining Capacity

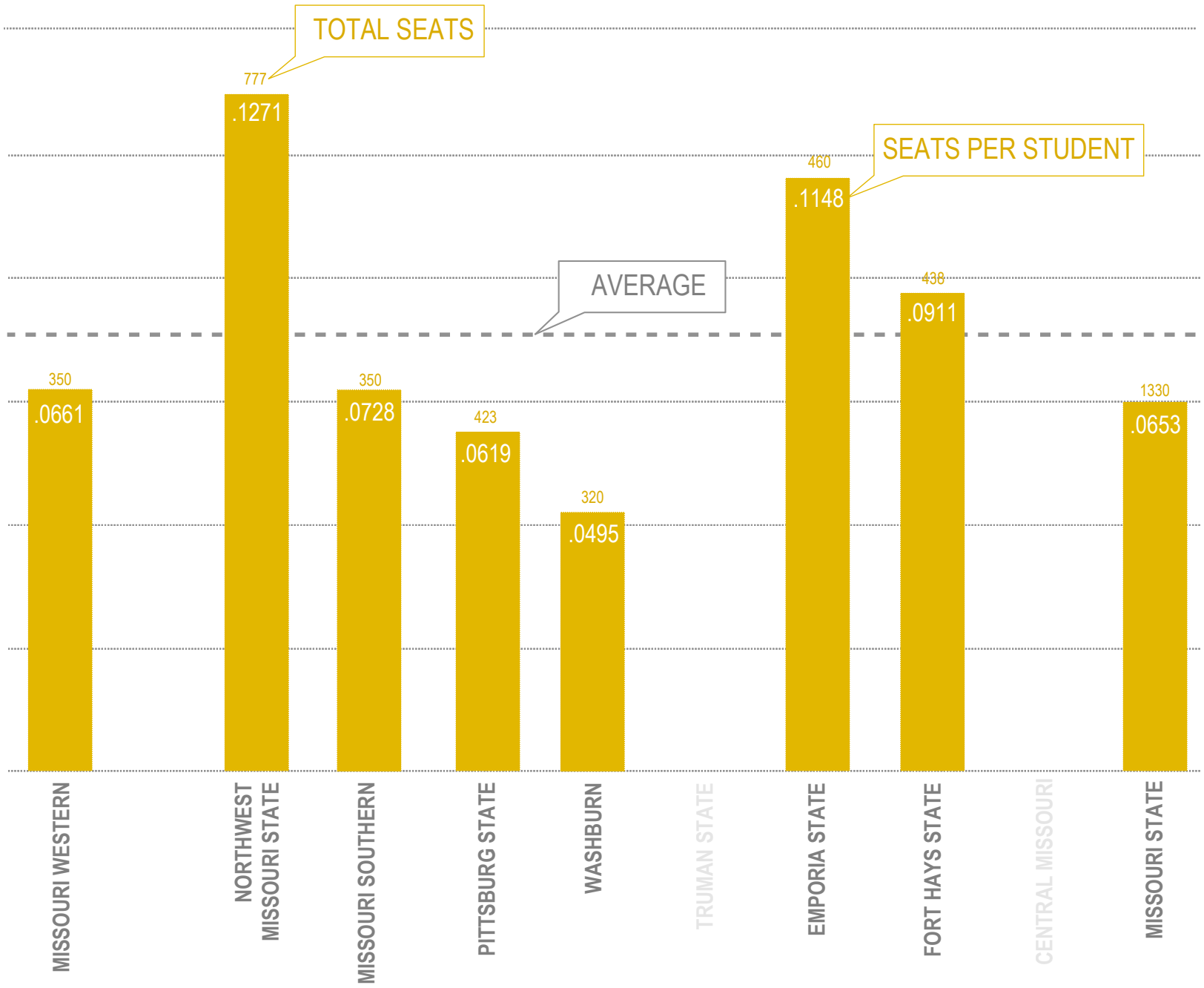
Available seating for dining is one measure of the quality of student life on campus. Reports of crowding in the dining areas of Blum Union are common. Many factors are in play in comparing dining seating among benchmark universities. And the numbers vary greatly from one to the other. Missouri Western provides a below average number of seats and would need to add around 100 seats to the dining capacity to meet the average.



Performance Seats Per Campus Venue



Performance Seats Per Student



Dining Seats Per Student

GROWTH

Accommodating Growth to 2025

The campus currently serves an enrollment of 5,926. The master plan projects the need to serve a total campus enrollment of 7,500 by 2025. In looking at the capacity of the campus to serve this number, and assuming the deficiencies mentioned in recreation space, performance venues and dining seating are corrected, we look next to classrooms, class labs, science laboratories, and offices to gauge capacity.

Classrooms and class labs, based on typical utilization standards, can accommodate a modest growth in students with no additional classroom-specific space added. This can be accomplished through slightly increasing utilization of these spaces, along with the addition of the few institutional spaces that will be associated with the new and renovated facilities identified in the master plan. However, it is acknowledged that additional space in buildings such as Potter and Murphy would improve and enhance the education that can be offered in the related degree programs.

The need for science labs to accommodate growth, given how well the new science facilities in Agenstein/Remington were planned, can be met within the current facility. The current on-campus housing stock is at capacity, and houses approximately 25% of the campus headcount. To continue housing this percentage of students on campus, or to increase the availability of housing, additional capacity of at least 120 beds should be added.

Office space will need to be increased. A careful look at most buildings would indicate that this incremental growth could be accommodated if any number of changes came to fruition: a handful of underutilized drop-in computer labs are converted to offices and/or space becomes available with the construction of a new business school building and/or classrooms are added as part of the addition of student recreation space.

Campus Average Seats Filled for General Purpose Classrooms Per Class - Entire Campus

54.3%

SEATS FILLED IN CLASSROOMS

Serving:
6,877 students

60-70%

NATIONAL GUIDELINE FOR SEATS FILLED IN CLASSROOMS

Capacity of:
7,599 - 8,856 students

Average Classroom Hours per Week - Entire Campus

22.8 HRS/WK

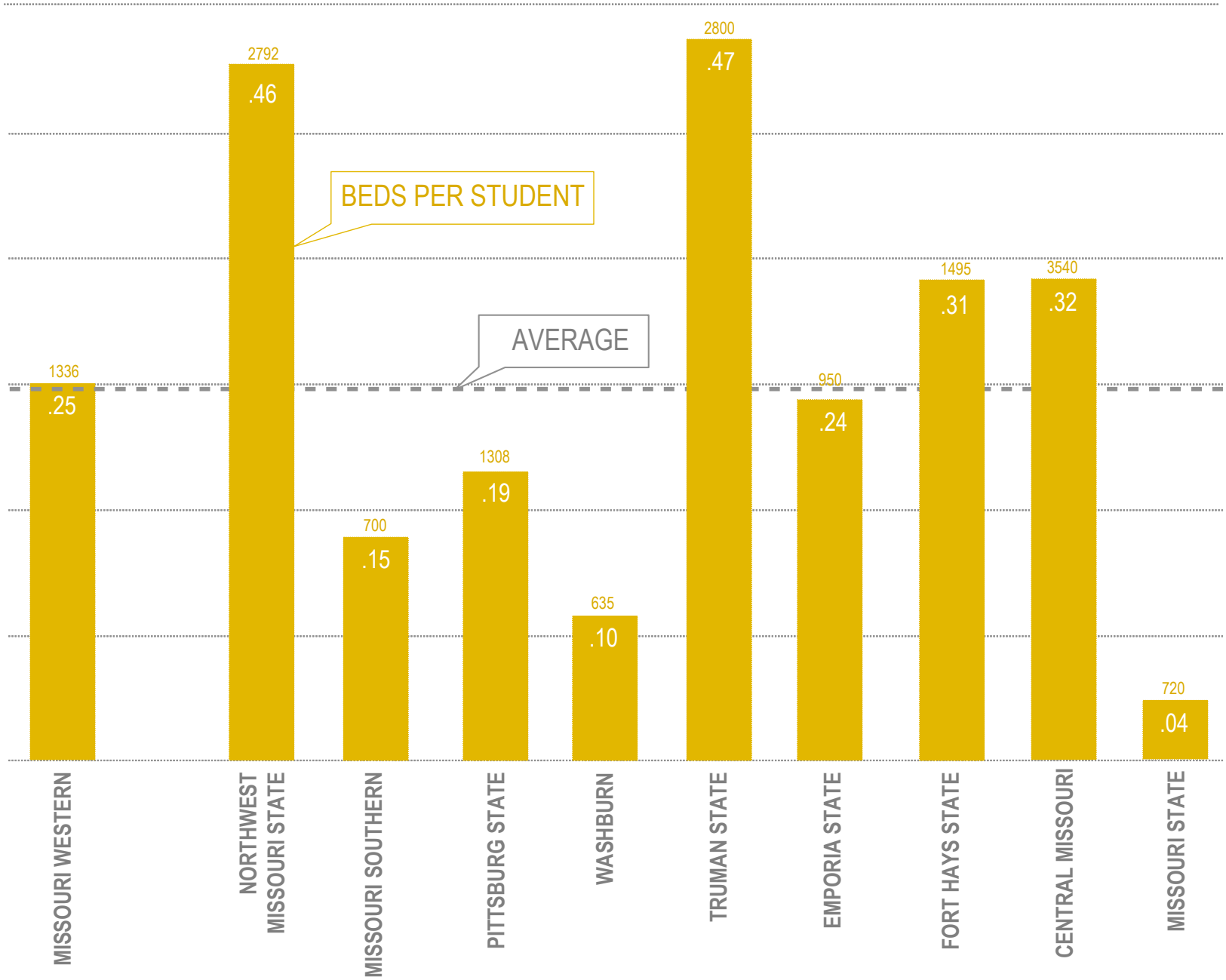
AVERAGE HRS/WEEK IN CLASSROOMS

Serving:
6,877 students

30-35 HRS/WK

NATIONAL GUIDELINE FOR HRS/WEEK IN CLASSROOMS

Capacity of:
9,048 - 10,556 students



Resident Hall Beds Per Student

SIGNIFICANT FACILITY NEEDS

Based on current space deficiencies, existing building conditions, and the need to accommodate future growth, the following facility needs have been identified below. The space opportunities - places where space is available for future growth - is also found below.

FACILITY NEEDS

- Spratt Stadium building replacement
- Student recreation space gyms/ fields/ fitness with additions/renovations to Baker Fitness Center and Looney Complex
- A large performance venue of 1,000-1,400 seats with additions/renovations to Potter Hall
- Additional dining capacity of 120-150 seats with additions/renovations to Blum Union
- Additional 120-240 beds with a new residential hall and quadrangle
- Replacement or renovation of Logan, Beshears, and Juda Halls for non-traditional and/or freshman students
- Renovation of Wilson Hall
- New school of business building
- New campus visitors center
- Enlarged and reorganized office spaces - overall
- Academic home spaces - overall
- Renovated library

SPACE OPPORTUNITIES

- Agenstein/Remington
- Blum Union basement
- School of Business current space in Popplewell (if new facility is built)
- Classroom/Lab efficiencies

03 THE PLAN

MASTER PLAN

The vision for the future Missouri Western State University campus honors the foundational layout created in 1967. The 2015 Master Plan capitalizes on the current layout and resources in planning for the next decade of campus growth to 7,500 students. The campus design is one of a “landscaped green inside a ring road.” The academic core sits in a park-like setting on the main ridge of campus and embraces the campus iconic clock tower.

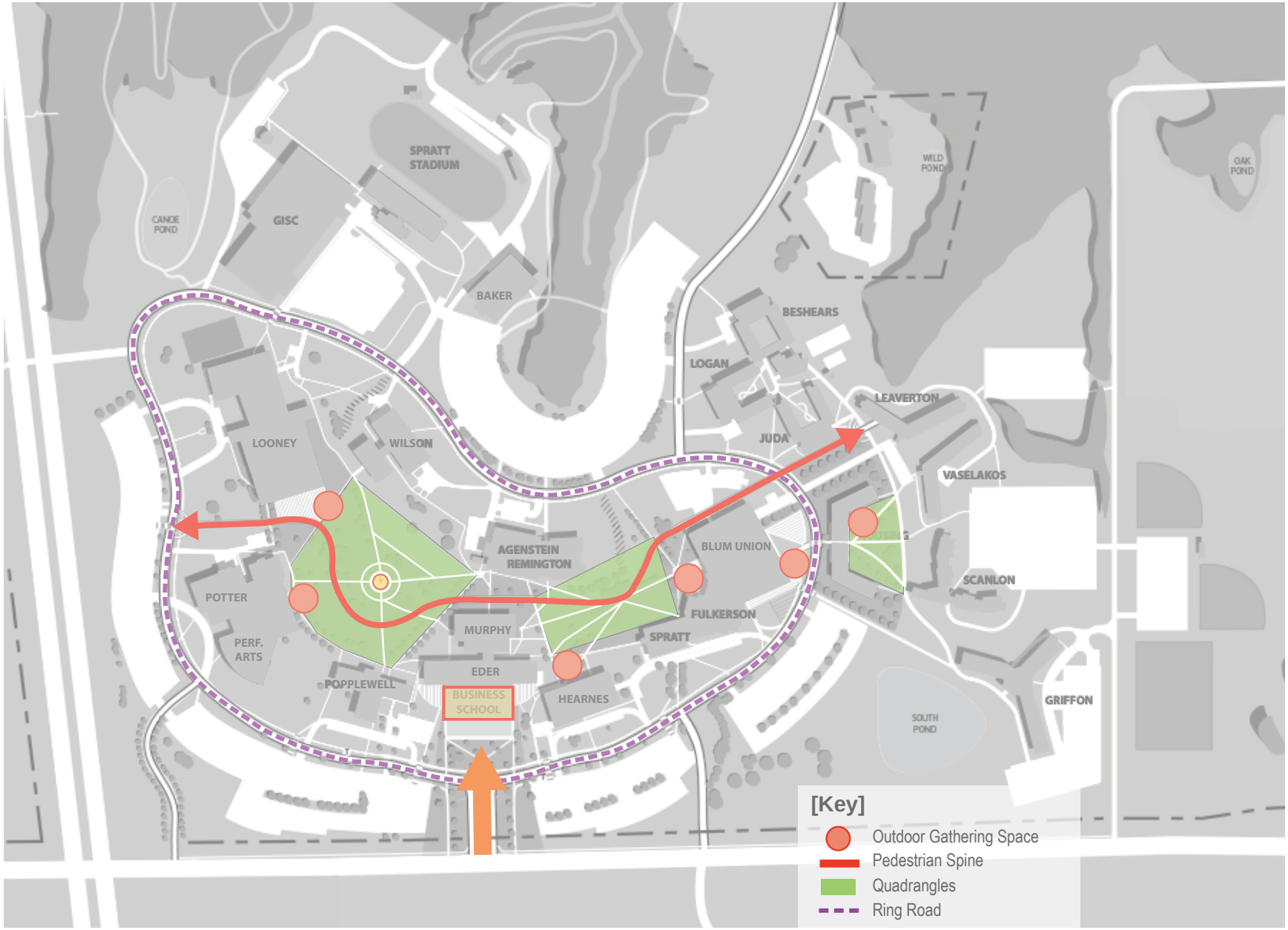
A new east-west pedestrian spine connects the campus from the revitalized Potter and Looney halls to the west and the expanded student union and housing district to the east. This spine provides for a universally accessible route and, through design, conceals the safety feature that the path can be used as emergency vehicle access to parts of the campus previously unserved. Quadrangles on rolling hills frame the path of the landscaped spine improving wayfinding, creating sense of community, and providing a great accessible route for all visitors.

The master plan depicts a campus with strategic and important additions of space. A new business school building greets the visitor with a new entrance experience complete with landscaping and outdoor space development. A new visitor’s center at the entrance level of the business building establishes a great first and lasting impression. The addition of a large performance venue, new gymnasiums to support student, faculty and staff wellness, and additional dining space bring the university up to par with other regional benchmark universities. Additional student housing expands the existing housing district and provides for the growing on-campus population for the next 10 years. Recommended renovations across the campus address serious deferred maintenance needs and bring the facilities up to contemporary standards for institutional buildings. Office suites and their supporting spaces can be improved, and standardized as these renovations occur.

New landscape plans build on both the highly appreciated and admired park-like landscape that exists at Missouri Western today, incorporating outdoor gathering spaces like the recent Kelley Commons along the pedestrian spine. Outdoor learning opportunities are identified throughout the campus while preserving and enhancing the natural setting used for research and learning.

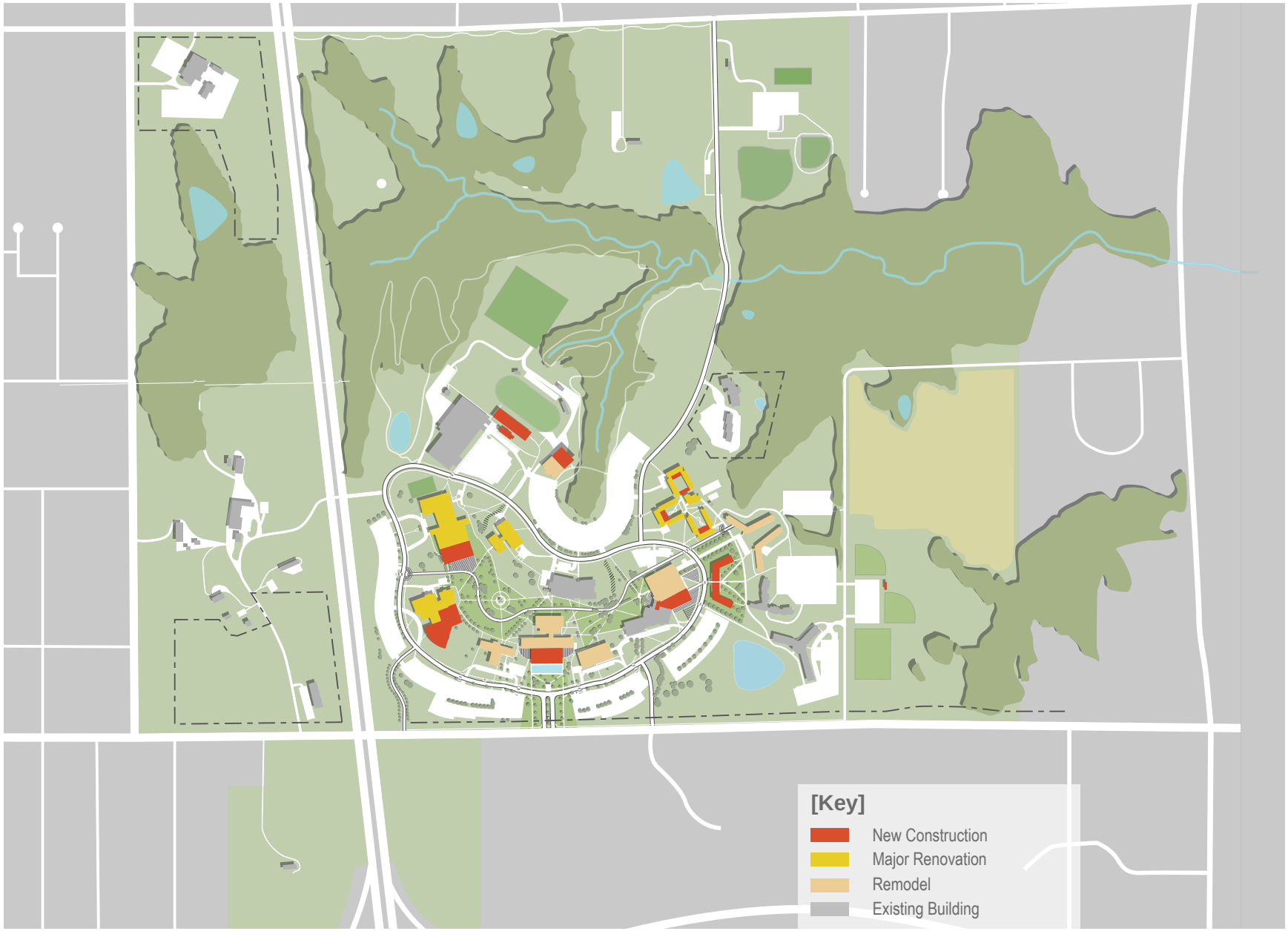
Parking and circulation enable the day-to-day activities of students, faculty, staff and visitors on the campus. Particularly for a campus whose majority of students are “commuters,” providing convenient and safe access to university facilities is paramount. The proposed circulation relies on the existing infrastructure. Existing parking is expanded in areas of the campus where parking is currently constricted. The automobile traffic at the north intersection of James McCarthy Drive and Downs Drive becomes improved with the addition of a new turn lane.

Safety for pedestrians is addressed with the improvements to existing “secondary” crosswalks and the designation of a selected group of existing and new crosswalks to “primary.” These primary crosswalks are designed with increased signage, lighting, markings and visibility.

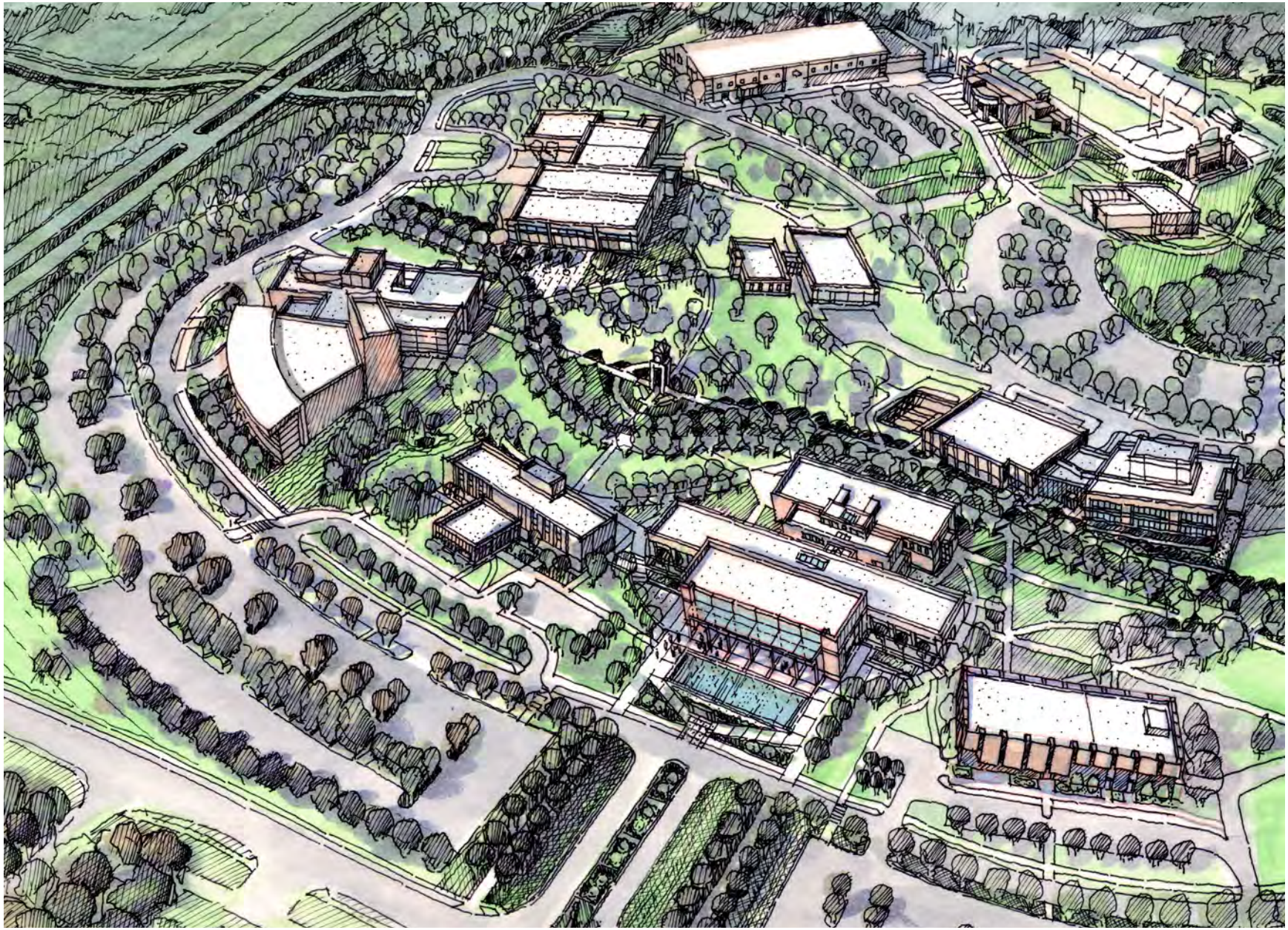


Concept Diagram

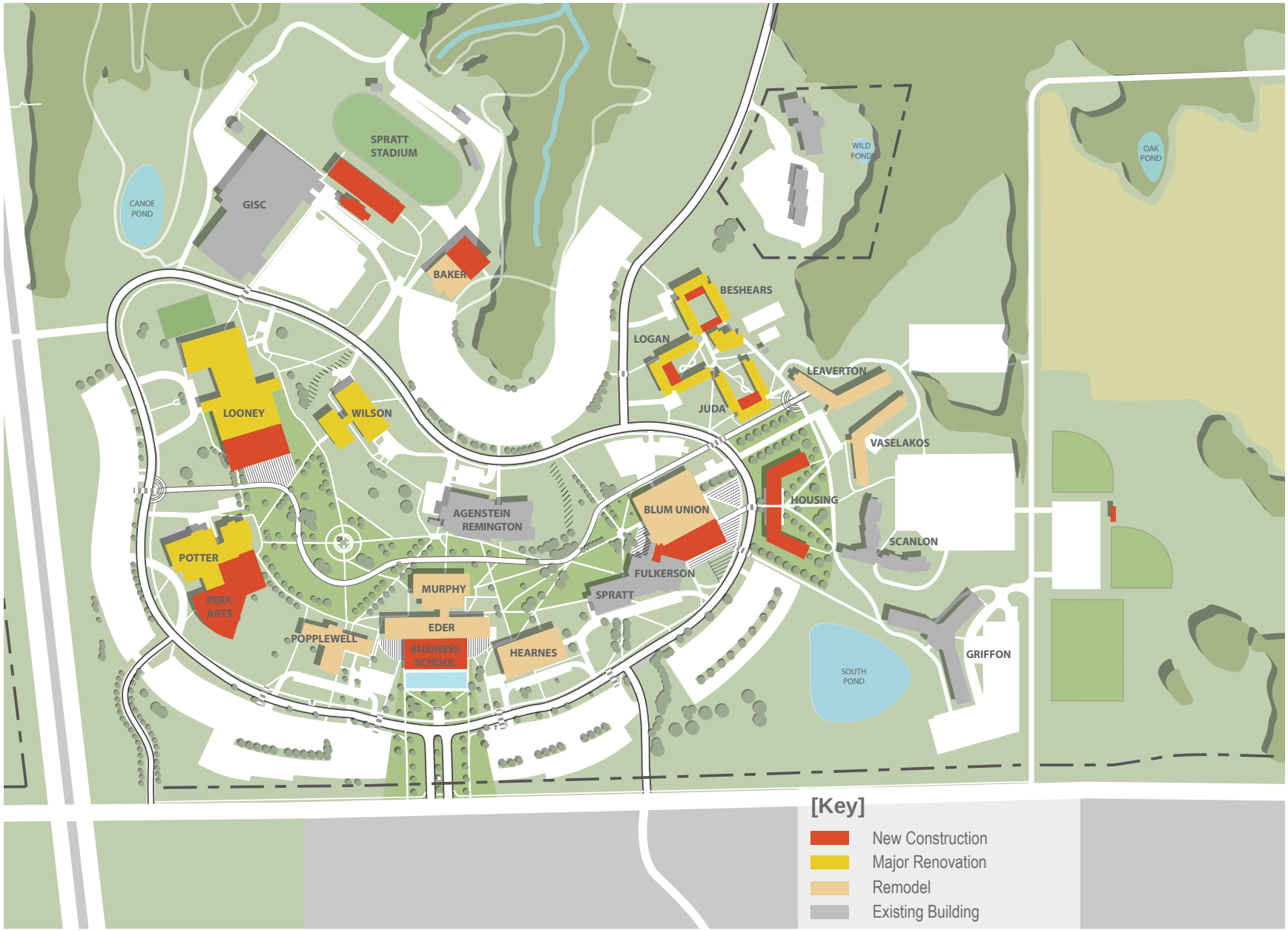
View from the Southwest



Campus Master Plan

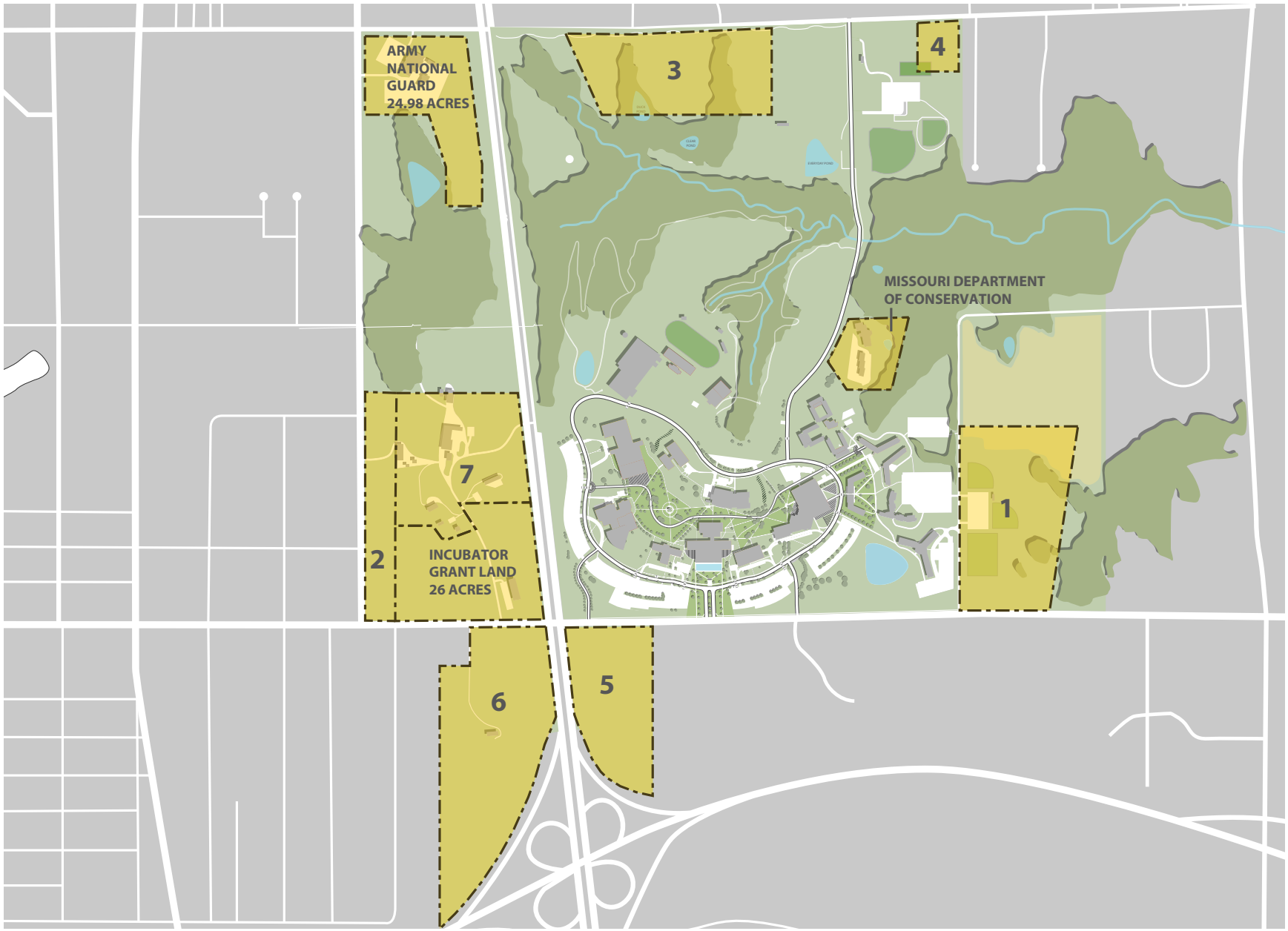


View from the South



Central Campus Master Plan

View from the East



Land Development

SYSTEMS

Traffic Improvements:

Traffic analysis performed as part of the master plan identified one primary and consistent need on campus, at the intersection of James McCarthy Drive and Downs Drive. This need was observed as an almost daily congestion issue experienced by students, faculty and staff. The analysis did not find that special event traffic, which causes periodic congestion on campus, needed to be addressed with major improvements. Dynamic parking devices could be considered if special event issues are seen as paramount.

Capacity analysis was performed on the intersection of James McCarthy Drive and Downs Drive using Synchro, Version 8.0, to evaluate both traffic control and geometric improvements that could be implemented. The intersection was first evaluated to see if it could be treated like many new “shopping centers” where the entering traffic on James McCarthy Drive is free to enter and traffic along the circulatory road (Downs Drive) is required to stop. This resulted in larger delays and queuing due in the westbound direction and is thus not recommended.

Further evaluations of the current traffic control indicated that the addition of a southbound right-turn lane at the intersection could reduce intersection delay and queue lengths for southbound traffic up to 50%. As a result, it is recommended to add a southbound right-turn lane along James McCarthy Drive that could include approximately 100 feet of vehicular storage (excluding taper) at its intersection with Downs Drive.

Queuing and delay is expected to reduce as vehicles that want to make a southbound right turn are not blocked by one or two vehicles that are trying to make a left turn and are waiting for a gap in traffic. Additional forms of traffic control such as a single lane roundabout were evaluated and would be expected to operate adequately, but costs would be considerably more for no significant increase in operations compared to the current traffic control with the addition of a short southbound right turn lane.

Parking Capacity

Parking capacity analysis shows that the campus does not have a parking space quantity shortage but that parking space distribution is not balanced for peak parking demand times. A perception of a lack of parking availability exists primarily in the southern parking lots on either side of the entrance drive. The addition of the new business school building in this area could increase these frustrations.

The master plan recommends an addition of parking in both lots expanding out to the right-of-way on Mitchell Avenue. In addition, revised entry drives in front of Popplewell, Hearnes and Spratt show added parking on one side of the drive for specialized and short-term parking.

Other areas of added parking include a revised and expanded visitor’s parking lot to the south of Blum, Fulkerson and Spratt. Some residence hall spaces

may occupy this lot as well. Parking is also planned for the new recreation fields on the east side of campus. Supplemental parking is suggested for the area behind Leaverton and Vaselakos though the exact configuration will need to address the slopes in this area. Adding this amount of parking would increase the total number of spaces provided on campus by 285-400 spaces.

It should be noted that with the maximum of 68% of spaces utilized on the campus at any one point, the university should be very judicious in the addition of parking spaces. Every space added brings with it associated ongoing cost in maintenance and repair, snow plowing, need for additional signage, storm water management, and staff to monitor parking controls.

Crosswalk Recommendations

To improve safety, visibility, and compliance at pedestrian crosswalks throughout campus, it is recommended to make improvements at several "key" locations across campus. Pedestrian crossing locations are categorized into two areas: primary and secondary crossings. Primary crossings are considered to include areas which experience larger pedestrian traffic such as locations between the internal campus and the sporting complex, residential campus housing, and highly utilized parking areas. The following map depicts locations recommended to be upgraded to "primary" crossing status.

Potential improvements recommended to be completed with primary crossings include:

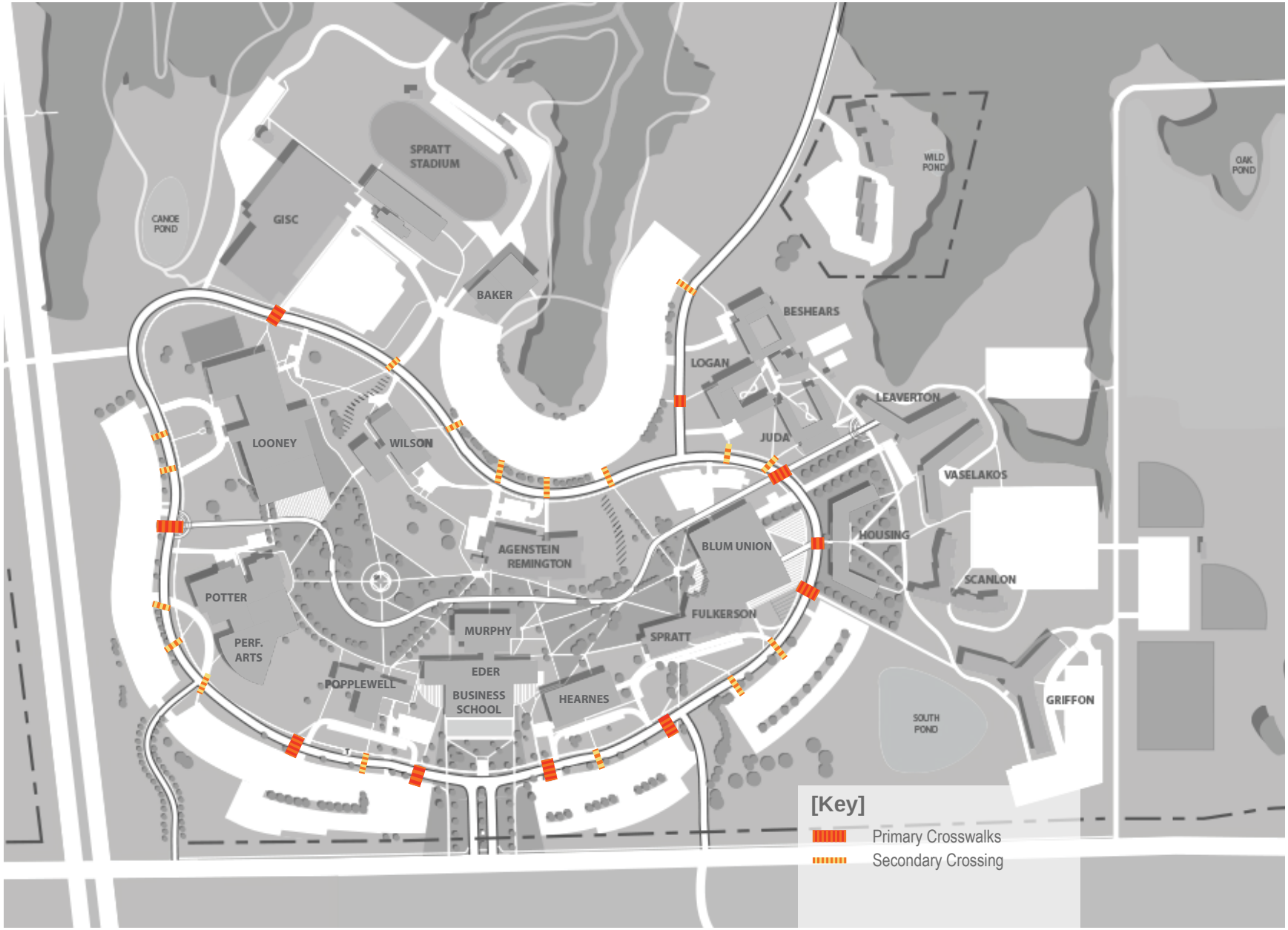
- Provide patterned markings to increase crosswalk visibility and aesthetics. As an alternative: crosswalk markings could be specially designed around the surrounding school buildings (example you could stripe musical notes or keyboard striping at crossings to the music/art building at Potter Hall, or stripe athletic balls such as a football, or soccer ball across from Spratt Stadium
  etc.)

- Pedestrian specific street light poles for improved visibility at night, specifically at locations where existing roadway street lights are located far from marked crossing location.

- Increased signing at primary crosswalk locations to designate right-of-way and encourage motorists to yield to pedestrians

- At secondary crosswalk locations, it is recommended to maintain existing piano-key style markings.

Traffic & Parking Improvements



Primary Crosswalks

Landscape Vision

The vision for the Missouri Western State University landscape is not one vision but several that can enrich the users' experience, enhance the beauty of the campus, and benefit existing natural resources. They may be applied in layers, or piece by piece, each complementing the other to improve campuswide continuity.

Vision 1 - Midwestern Comfort

This vision for the enhancement of the Missouri Western State University landscape is to apply or reinforce a "midwestern" landscape treatment to the entire campus. To many this is a nostalgic landscape defined by mown, well-manicured lawns, shade trees dappled throughout the "yard," and accent plantings at building entries…just like home. Heading off to college can be a stressful and scary time, but this landscape provides warmth and comfort. While a goal of the master plan may be to reduce mowing campuswide, a sufficient amount of mown lawn would remain in highly visible areas to maintain this vernacular.

Area West of Pond at Griffon Hall

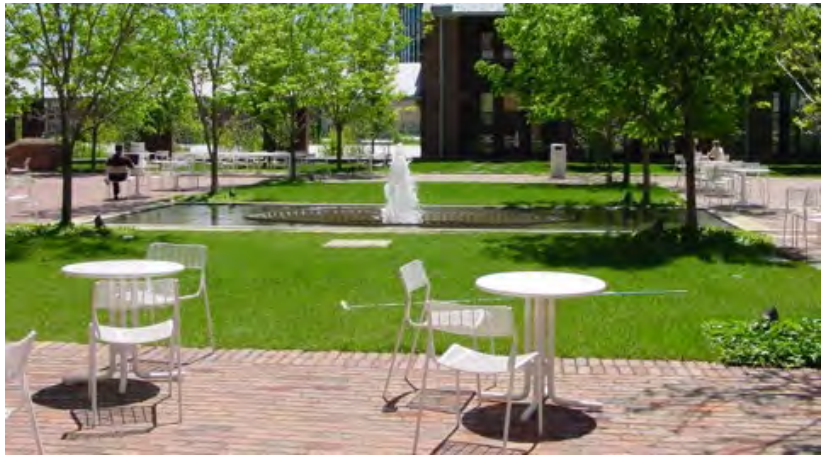
Area West of Kit Bond Incubator

South Entry to Leah Spratt Hall

Vision 2 - Gathering

Places for gathering include adding and extending internal classroom and gathering spaces beyond building walls and existing boundaries, such as Kelley Commons at Blum Union. These spaces can be plazas, squares, and courts which enhance the unity and spirit of the student body and faculty. They can provide sun, shade, landscaping, fountains, a place to sit and the chance to converse, debate and make friends.

Example of Gathering Space or Outdoor Classroom
(Kansas City Art Institute)



Example of Gathering Space or Outdoor Classroom
(Sprint Campus, Kansas City)

Example of Gathering Space or Outdoor Classroom

Example of Gathering Space (Kelley Commons)

Vision 3 - Learning Landscape

The vision of a learning landscape would obviously complement the applied learning mission of a university and can preserve and grow existing environments that offer outdoor laboratories for research and learning. Environments that are currently utilized for these purposes include the high-quality riparian forests associated with Otoe Creek, grasslands and meadows, numerous ponds and the western side of I-29 used for forensic science research.

Learning opportunities, however, exist throughout the 723-acre campus and should only be limited by financial feasibility and maintenance intensity. Before the implementation of any new outdoor laboratory or classroom this must be considered. These opportunities could include a prairie restoration to study conservation practices, turf management, sports turf performance, or an arboretum displaying collections of trees for study and aesthetics.

Refer to ArbNet.org for the ArbNet Arboretum Accreditation Program developed by the Morton Arboretum. This is just one great tool for understanding the industry standards for arboreta. The four levels of accreditation are as follows:

Level I: *minimum of 25 species of woody plants, one or a few employees or volunteers, a governing body, and an arboretum plan.*

Level II: *minimum of 100 species of woody plants, employ paid staff, and have enhanced public education programs and a documented collections policy.*

Level III: *minimum of 500 species of woody plants, employ a collections curator, have substantial educational programming, collaborate with other arboreta, publicize their collections, and actively participate in tree science and conservation.*

Level IV: *employ well-qualified tree scientists engaged in publishing sophisticated research, manage living tree collections for the purpose of conservation, and take an active role in supporting tree conservation through the Global Trees Campaign. Level IV arboreta are world-renowned tree-focused institutions.*

Example of Meadow

Nature Trail at Otoe Creek

Pond West of Griffon Hall

Landscape Typologies

The following define the landscape typologies that are graphically depicted in the master plan:

Learning Landscapes

Missouri Department of Conservation: Land maintained by MDC which cannot be modified.

Treatment: None.

Hay Field: Areas include 12 leased tracts primarily on the north and west sides of campus totaling 220 acres and generating $100/acre/year.

Treatment: Johnson Grass and other noxious weeds should be managed appropriately in these areas and campuswide.

Missouri Department of Conservation

Hay Field West of Kit Bond Incubator

Tallgrass Prairie: An ecosystem consisting primarily of native grasses and forbs as the dominant vegetation types.

With the input of two consultants, the Biology Department at MWSU has identified two potential sites for the future development of a tallgrass prairie. The first site is located in the southeast corner of S 50th Street and Messanie Street. This site was deemed by the consultants to be ideal because of its topography and soil structure and its proximity to the Missouri Department of Conservation Northwest Regional Office. Since fire is an essential component of the management of a tallgrass prairie, this site was preferred over others because the prevailing winds would prevent smoke from traveling over residential areas. A second possible site for development of a tallgrass prairie is located on the north side of campus along Faraon Street, west of James McCarthy Drive. This site does have suitable topography and soil structure characteristics, but the proximity to residential areas may prevent prescribed burning, making management more challenging. Staff members also suggested that native species were preferred over newer varieties of plant species.

The success of a prairie restoration project at either of the two sites depends on careful planning by representatives of the Biology Department in cooperation with MDC, the community, and on the designation of a dedicated tallgrass prairie manager.

Treatment: Plant, establish and maintain native grass and forb species.

Pastoral / Savanna: These areas are primarily near the stadium, north of the Downs Drive loop road, and consist of grasslands with shade trees spotted throughout.

Treatment: With the exception of reduced mowing, the areas should remain mostly unchanged. Additional trees may be planted.

Example of Prairie

Area North of Spratt Staidum

Riparian Forest: These forested areas associated with Otoe Creek cover nearly 1/4 of the campus and provide diverse vegetation and migration corridors for wildlife.

Treatment: A 50-foot buffer should be implemented at the perimeter of each forested area as protection from adjacent impacts. Otherwise they should remain untouched.

Pond: 9 ponds of varying size and quality are located on campus and used for stormwater control, research, lab exercises and aesthetics.

Treatment: A minimum 25-foot grassed buffer (preferably native grasses) should be implemented at the perimeter of each pond to provide protection from adjacent impacts, filter stormwater run-off, and to act as a deterrent for the resident Canada goose population. Long-term management of the ponds should include creation and/or planting of a wetland bench within the inner edge (littoral) of the pond perimeter. The wetland bench should be 5 to 10 feet in width with a variety of wetland plant species. The wetland bench will assist with filtration of sediment and pollutants from stormwater runoff, eliminate bank erosion due to wave action, deter resident geese, and provide habitat for wildlife. Enhancement of the shoreline will also provide an aesthetic amenity for the students and public.

Otoe Creek Forest

Pond West of Spratt Stadium

Learning and Gathering

Academic Landscape: Areas within or near Downs Drive used for educational purposes.

Treatment: These areas should be more refined and structured using plants that provide year-round interest. This may include shade and ornamental trees, shrubs, ornamental plantings, groundcovers, and the strategic use of annuals for visual impact.

Athletic Landscape: Areas within and around athletic areas such as the baseball, softball and football fields and recreation fields.

Treatment: These areas should be simple and low-maintenance utilizing turf, shade trees and screens to block prevailing winds. Screens may consist of fences, walls, evergreen trees, deciduous trees, shrubs and/or a combination of these.

East End of Remington Hall

Griffon Spring Sports Complex

Parking and Support: Areas used for vehicular parking and movement and for campus maintenance areas.

Treatment: Shade trees and green space should be added to large paved areas to reduce urban heat islands and improve aesthetics. Support areas, at a minimum, should include groundcovers to prevent soil loss.

Parking Lot Along Mitchell Avenue

Looking West Toward Maintenance Complex

Housing: Areas around student housing that act as residential "yards" and convey the vision of "Midwestern Comfort."

Treatment: These areas should include manicured lawns, shade trees and accent plantings (shrubs, ornamentals and groundcovers) at building entries.

South Side of Scanlon Hall

East Side of Griffon Hall

Visible Edge: Areas adjacent to I-29 where the campus is visible from people passing by and the Missouri Western brand can begin to be presented.

Treatment: These areas should remain primarily open, allowing views into campus from fast-moving vehicles. Views may be framed by deciduous trees.

Looking Southeast from I-29

Identity Edge: Areas along Mitchell Avenue and Faraon Street that are directly adjacent to campus where campus features can begin to be identified.

Treatment: These edges should consist of well-manicured turf and can be moderately planted with trees allowing filtered views to parking areas and buildings. Accent plantings such as shrubs and ornamentals should be used to highlight entry points and signage.

Looking East Along Mitchell Avenue

Campus Core Edge: Areas within the loop road, Downs Drive, that allow views into the campus core where buildings and other destinations can be clearly identified.

Treatment: Landscaping in these areas should begin to introduce pedestrian scale plant materials such as shrubs and reinforce academic landscapes.

Looking Northwest at Popplewell Hall

Green Spine: Area located within and bound by academic buildings used for the circulation of students to classes. This area also includes the clock tower.

Treatment: This area should consist of shade trees and well-manicured turf. Accent plantings may be used at selective locations such as the clock tower and university plaza.

Within Green Spine

Plaza: Open-air space offering a safe and welcoming place to socialize, study and relax.

Treatment: Plazas should feature sun and shade, walkways, seating, lighting, landscaping and other amenities.

Example of Plaza

Arrival Plaza: Open-air spaces near buildings or other destinations offering a safe and welcoming place for dropping off, picking up and gathering.

Treatment: These spaces should feature sun and shade, walkways, seating, lighting, landscaping, and other amenities.

Example of Arrival Plaza (Creighton University, Omaha, NE)

Residential Court: These open-air spaces are enclosed by buildings and are more private than plaza spaces. They should be safe and welcoming and provide areas to relax.

Treatment: These spaces should offer sun and shade, gathering spaces, seating, landscaping and other amenities.

Example of Courtyard (Posty Cards, Kansas City)

Example of Residential Courtyard

Pedestrian Concourse: The pedestrian concourse is the primary path through campus conveying high volumes of traffic and also acts as a fire lane. Although serving a functional purpose, the concourse should not detract from the aesthetic of the green spine.

Treatment: The pedestrian concourse should feature a clearly defined walkway, shade trees providing a respite from sun or rain, and site furnishing amenities. If feasible, the walkway should be constructed or accented with specialty pavements.

Example of Pedestrian Concourse

Street Trees: Street trees along the south and west portions of Downs Drive. Additional trees, consisting of new plantings and/or replacement plantings, should be planted along Downs Drive and James McCarthy Drive to reduce the heat island effect, calm traffic and enhance motorists experience.

Treatment: Plant street tree species along both sides of Downs Drive on a formal spacing. Species shall be native and/or adapted to the region, low-maintenance, and ascending in habit to avoid damage from large vehicles.

Example of Street Trees

Example of Street Trees

Stormwater Best Management Practices (bmp's): Various bmp's throughout campus that capture stormwater and reduce erosion and soil loss. Rather, this stormwater can be used to water plants, with excess infiltrating on site.

Treatment: Install bmp's such as rain gardens, bioretention basins, detention facilities and pervious pavements whereever stormwater is collecting and erosion taking place.

Example of Vegetated Swale and Ledgerock Weirs
(18th & Broadway, Kansas City)

Example of Rain Garden (Black & Veatch, Kansas City)

Example of Bioswales

Example of Rain Garden (Hallmark, Kansas City)

Example of Pervious Sidewalk (Morton Arboretum)

Landscape Master Plan Recommendations

The recommendations below are intended to improve campus function, safety, and aesthetics and to reduce maintenance.

1. Sense of Arrival: Use signage, plant materials and other site features to develop a clear campus entry hierarchy and enhance the arrival experience.

2. Areas of Emphasis: Develop plazas, arrival plazas, and residential courts that offer safe and welcoming places to socialize, study and relax. Refer to the Landscape Master Plan.

3. Signage and Wayfinding: Develop and implement a unified sign guide to promote the MWSU identity and direct vehicular and pedestrian movement. Enforce from one administration to the next in order to maintain a unified system.

4. Plant Street Trees: Replace dying Ash species and plant new street trees along the entirety of Downs Drive to improve aesthetics, provide shade and reduce heat islands, and calm traffic. Refer to the Landscape Master Plan.

5. Provide Shade along Pedestrian Concourse: Plant shade trees along the pedestrian concourse to improve aesthetics, provide shade and reduce heat islands, and provide shelter. Refer to the Landscape Master Plan.

6. Improve Pedestrian Safety: Better define circulation patterns and crosswalks from parking lots to the campus core. This may be accomplished by directing foot traffic with the use of fencing, walls, plant material or a combination of these materials.

7. Enhance Parking Lots: Analyze parking needs and reduce parking spaces if possible. With gained space add landscape islands, including shade trees, to soften and improve the appearance of existing parking lots. Reducing pavement will also help to reduce the heat island effect of parking lots.

8. Unify Site Furnishings and Materials: Utilize the same manufacturers, styles and colors for furnishings such as planters, benches, and trash receptacles. Also be consistent with the selection of planting bed edging and mulch to improve aesthetics.

9. Update Landscaping: Replace tree, shrub, ornamental, and groundcover plantings that are dated or declining with new native or adapted species that are hardy, drought resistant and not susceptible to disease. Refine and/or reduce planting beds that contain annuals to reduce labor costs. Use fewer species and larger massings for visual impact.

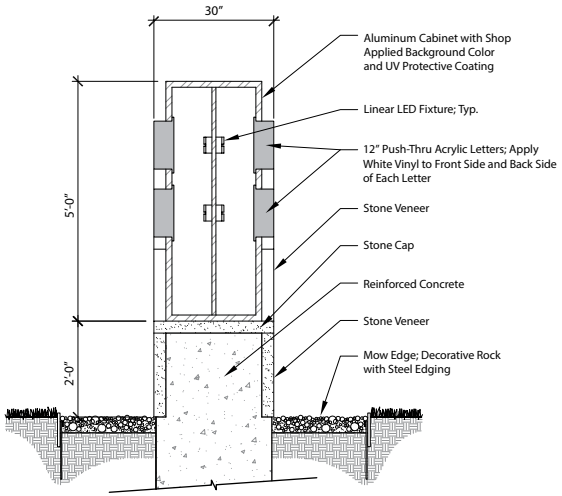
10. Improve Turf Maintenance: Investigate methods of improving turf maintenance campuswide such as reduced mowing, yearly aeration, using organic fertilizers, and developing healthy soil. The cost and time savings of reduced mowing, for example, may be directed to enhance landscaping campuswide. Refer to “Analysis of Turf Maintenance Practices.”

11. Control Stormwater: Implement erosion and sediment control techniques and devices and stormwater best management practices to capture stormwater, reduce erosion and limit soil loss.

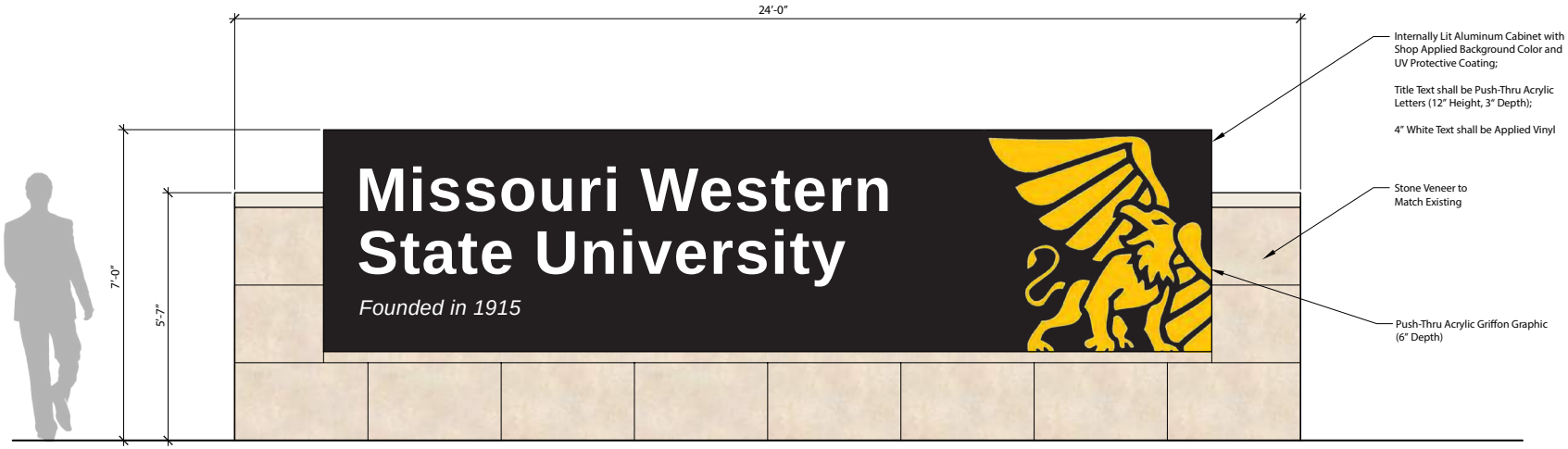
Signage and Wayfinding

A complete analysis of signage and wayfinding can be found in the appendix of the master plan. An additional signage package was also prepared as part of the master plan and is included as a separate large format document.

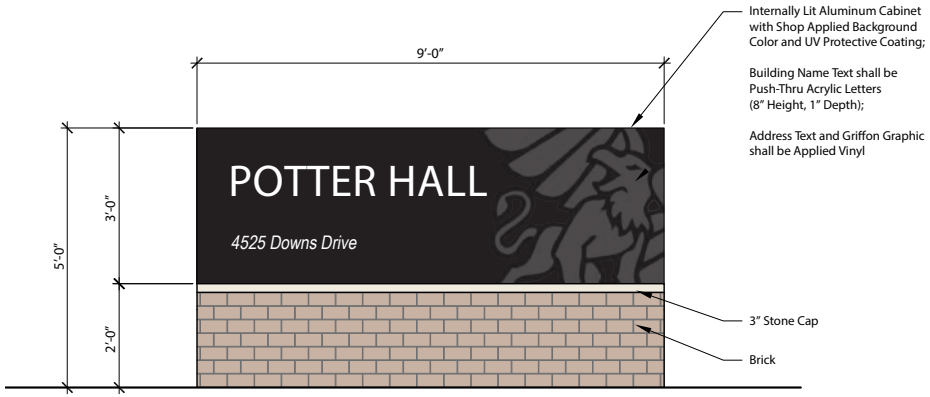
The team studied the vehicular arrival sequence, pedestrian flow, and the location and condition of existing signage, and proposed a comprehensive signage system including campus identity signs, vehicular wayfinding signs and facility identity signs. The result of this system is improved unity, regulation, simplified wayfinding in the form of a clear progression of signage. While no overhaul of the current signage system is possible at this time, unity of design and more permanence in sign selection moving forward will deliver more cohesive wayfinding over time. This will be most successful if the university takes on an active “weeding” program initially to eliminate the visual clutter and wayfinding confusion that exists today.



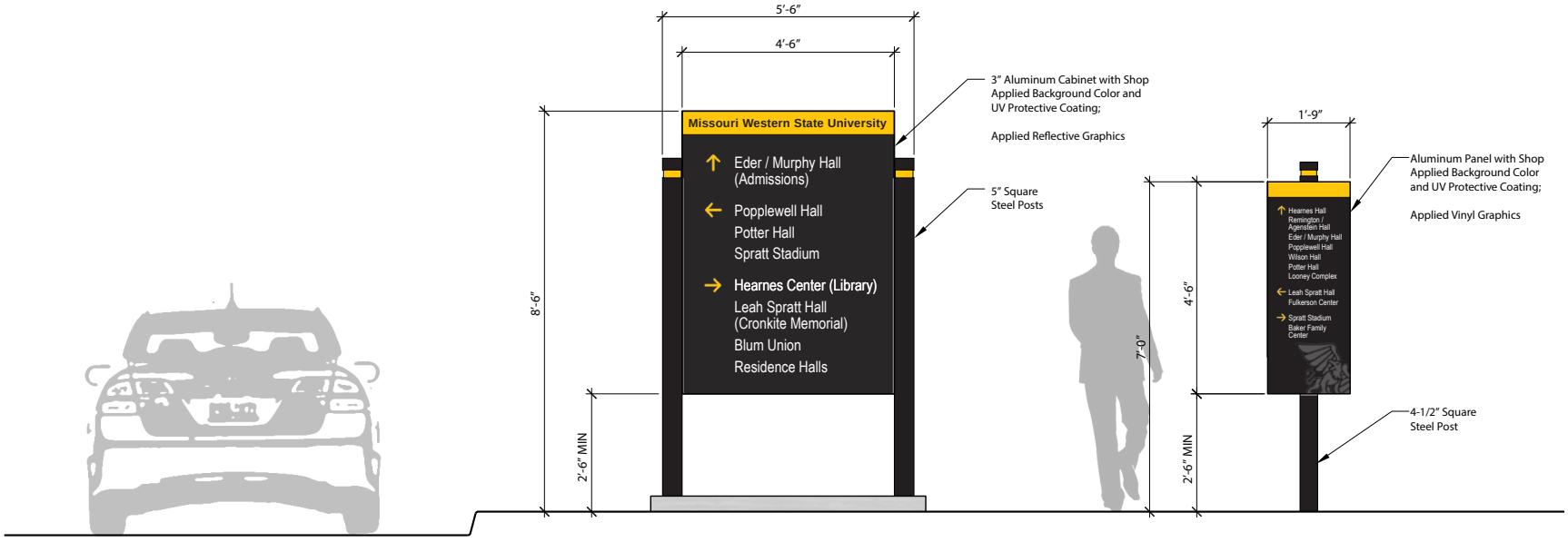
Main Entry
Section



Main Entry
(2-Sided)
Elevation

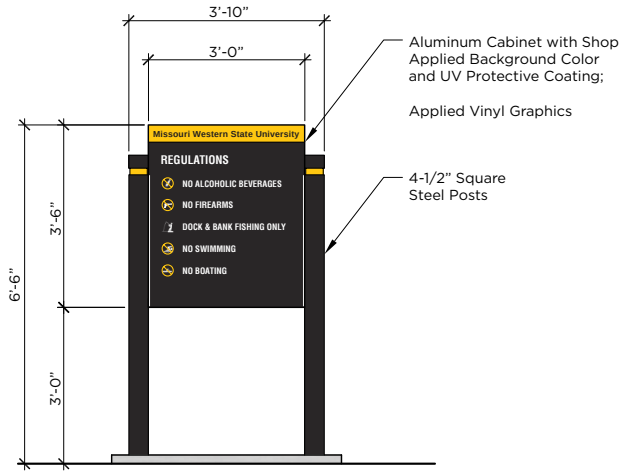


Facility Identification
(2-Sided)

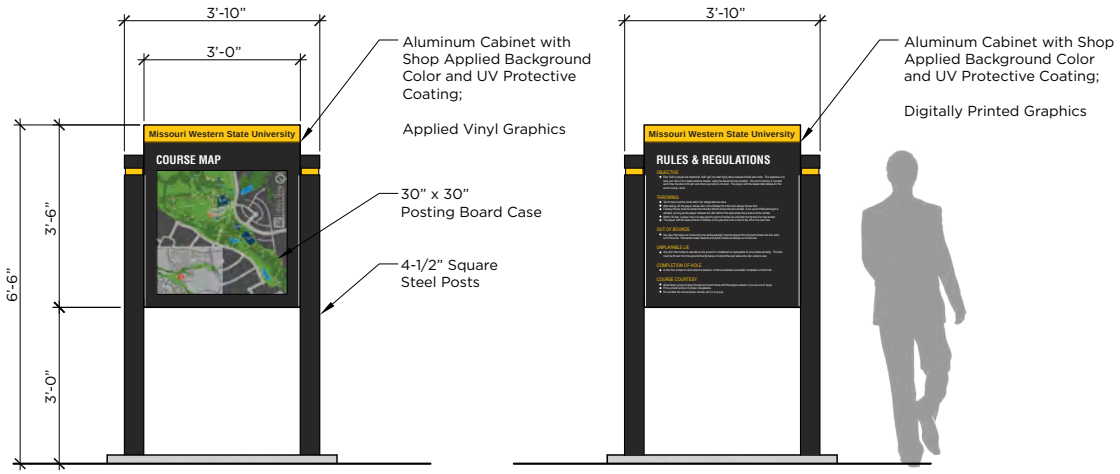


Vehicular Directional
Front Elevation

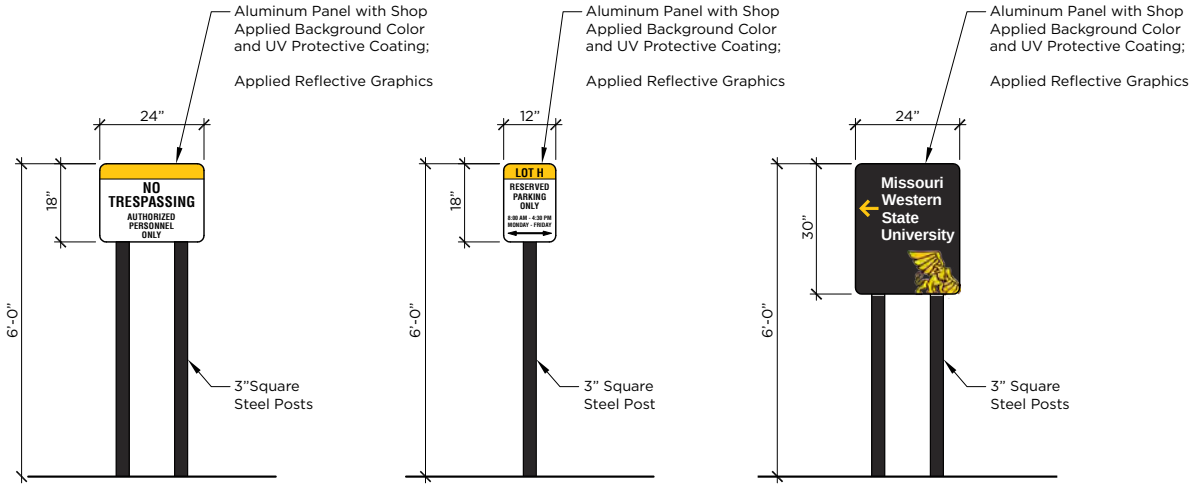
Pedestrian Directional
Front Elevation



Regulatory / Informational Kiosk
(1-Sided or 2-Sided with Posting Board Case)
Elevation



Regulatory / Informational Kiosk (Disc Golf)
(2-Sided with Posting Board Case)
Front Elevation *Back Elevation*



Regulatory / Informational
Elevation

Regulatory (Parking)
Elevation

Feeder Sign
Elevation

SAFETY, SECURITY AND ACCESSIBILITY

Safety and Security Introduction

Campus safety and security are represented by several areas of interest. Personal security, storm safety, and facility life-safety measures all contribute to the overall safety and security of the campus.

Personal Security: Through the recent energy study and recommendations Missouri Western is currently proceeding with changes to exterior lighting to improve brightness and safety in selected areas of campus. Once these changes are complete, experience will identify any remaining areas that might be deficient. Emergency telephones are located throughout the main areas of campus. The Cleary reports show an average to low amount of campus crime events.

Storm Safety: There currently are limited options for emergency or backup power on the campus. A location in each building has been identified for storm retreat. These locations are currently the best secure location during a storm but do not represent storm safe rooms or storm shelters.

Protection from violent storms is important to the campus. Currently there are designated areas within each facility for the building occupants to take shelter if needed. These designated areas are rarely protected to the degree that FEMA would require. In some cases a 500-foot radius is used as a planning tool for the location of future shelters.

As depicted on the storm shelter map, found on page 109, a 500-foot radius applied to this campus would require approximately 6 shelter locations. This map can be used as a planning tool when new projects and renovations are begun. As funding is available, the addition of storm shelter spaces would improve the safety of campus occupants.

Facility Life Safety: Each building has a series of components that contribute to life safety. These are typically identified as code requirements. New construction and alterations on campus should comply with current codes, which are defined by state of Missouri statute. At the current time, this is the 2012 International Building Code. Code requirements include items such as fire resistive construction, smoke detection, fire alarm systems, fire suppression systems, emergency and backup power, as well as occupant load limitations and exiting requirements.

The campus has little to no redundancy or emergency power provisions currently in place. Throughout each facility there is a mixture of partial systems for smoke detection and fire suppression, with few buildings being fully sprinkled. A fire alarm system was visible in each facility. Occupant load limitations are not posted, and most if not all handrails are noncompliant in the older facilities.

The facilities – with the exception of GISC and Agenstein/Remington – are suffering from an overall lack of life safety features and general noncompliance with current building codes.

Emergency Vehicle Access: The center of campus has been identified as an area with limited access by emergency vehicles. In addition, it appears that emergency vehicles currently are required to utilize wide sidewalks in the

residential complex for access, and likely do not have full access to those facilities as currently defined in the building code.

Accessibility Introduction

The Americans with Disabilities Act Regulations (ADA) cover public and private entities, which includes state-funded schools such as universities and colleges. Universities that receive federal funding are also covered by the regulations of Section 504 (Subpart E) of the Rehabilitation Act, which is a civil rights statute enforced by the Office for Civil Rights (OCR), U.S. Department of Justice, and the Equal Employment Opportunity Commission (EEOC).

The overall effect of these regulations is that a university cannot discriminate on the basis of disability. It must ensure that the programs, services, amenities, and opportunities that are offered are accessible to students with disabilities. Universities can accomplish this in a variety of ways including removal of architectural barriers, providing aids and services for assistance, and by modifying policies and procedures.

State agencies and instrumentalities of the state are subject specifically to Title II of the regulations, which requires an evaluation of current services, policies, and practices to identify noncompliant conditions and develop a plan to make corrections. This activity is described in the regulation as "self-evaluation" and the resulting document itemizing planned improvements to physical conditions is called the university's "transition plan."

This plan is required to be kept up to date as alterations are completed, and full compliance is assumed to be the ultimate goal of the transition plan.

Alterations and new construction "shall be made so as to ensure that, to the maximum extent feasible, the altered portions of the facility are readily accessible … " The regulations define "maximum extent feasible" as applying to the occasional case where the nature of an existing facility makes it virtually impossible to comply fully with the accessibility standards through a planned alteration. In these cases alterations shall provide the maximum physical accessibility feasible.

Prioritization of improvements to existing facilities is recommended by the regulations, particularly when total compliance cannot be achieved within a single alteration. When undertaking modifications for purposes other than to improve the accessibility of the facility, the "path of travel" description sets out priorities for accessibility improvements that must be included in the scope of the project, and begin with parking, access to the entrance, the entrance itself, the restrooms, and access to the primary purpose of the facility (classrooms, offices, lab space, etc.).

Observations

Many improvements have been implemented throughout the campus to provide improved accessibility. The majority of the facilities on campus were constructed prior to 1991, when the standards for accessibility were first published, therefore were constructed in a mostly noncompliant manner. Many of the facilities are also challenged by the existing topography.

Accessible parking has been distributed throughout campus to provide convenient locations at each building. Sidewalk ramps have been located to direct pedestrian circulation from the accessible parking to the designated entrance in most cases. Entrance doors themselves are typically outfitted with access control operators, and allow for adequate width and clearances. In general, automated access controls have been added at designated entrances and at restroom entrances throughout the campus. The remainder of door hardware in many buildings is noncompliant or partially upgraded. Restroom facilities have typically been upgraded to provide at least one accessible stall for each gender, and include grab bars and turning radii.

There are several locations where access is limited and/or challenging to navigate from parking spaces to building entrances, such as the Fulkerson Center, Spratt, and the Hearnes Center. The quantity of spaces at various locations appears to be out of sync with the anticipated occupancies in some high-use areas. The location of spaces is frequently at the back of the facility, where users must share circulation space with loading docks and trash dumpsters. This creates an unpleasant and potentially dangerous conflict

between mobility-challenged pedestrians and reduced-visibility truck traffic. Cross-campus circulation is challenged by topography at the east and north portions of the campus, while the western core campus has a few options for cross-campus routes that are reasonably accessible *(see diagram on page 110).*

Within the facilities, elevators typically are old enough to be out of compliance but getting by. Situations such as at the Hearnes Center where users must call for assistance may meet compliance requirements but are not user friendly. Wilson Hall's elevator is smaller than a compliant elevator, and many buildings still include handrails and objects such as signage and transaction counters that are noncompliant.

There are office areas in several of the older facilities that have noncompliant doors, door hardware, and inadequate clear floor space at door openings. Adequate clear floor space and turning radii are lacking, as well, at the library stacks.

Recommendations

Missouri Western is strongly encouraged to implement an accessibility improvement plan to identify noncompliant conditions, document a plan for corrections, and to develop new facilities under the requirements of the 2010 Standards for Accessibility.

Several strategies can be implemented that would improve the overall accessibility of the campus. Relocation of accessible parking to correspond to front door entrances is recommended, in addition to adjusting total parking quantities to adequately serve spaces with large groups such as Potter Hall.

Identification of designated accessible routes and entrances can allow the university to reduce costs associated with providing electronic access operators at multiple locations, as well as provide a user-friendly system for navigation *(see diagram on page 111 for cross-campus accessible path).* Electronic access operators are not required but are beneficial at exterior door locations where wind pressures necessitate an electronic assist to operate the door. At interior door locations, accessible door handles are a more cost-effective way to provide accessibility.

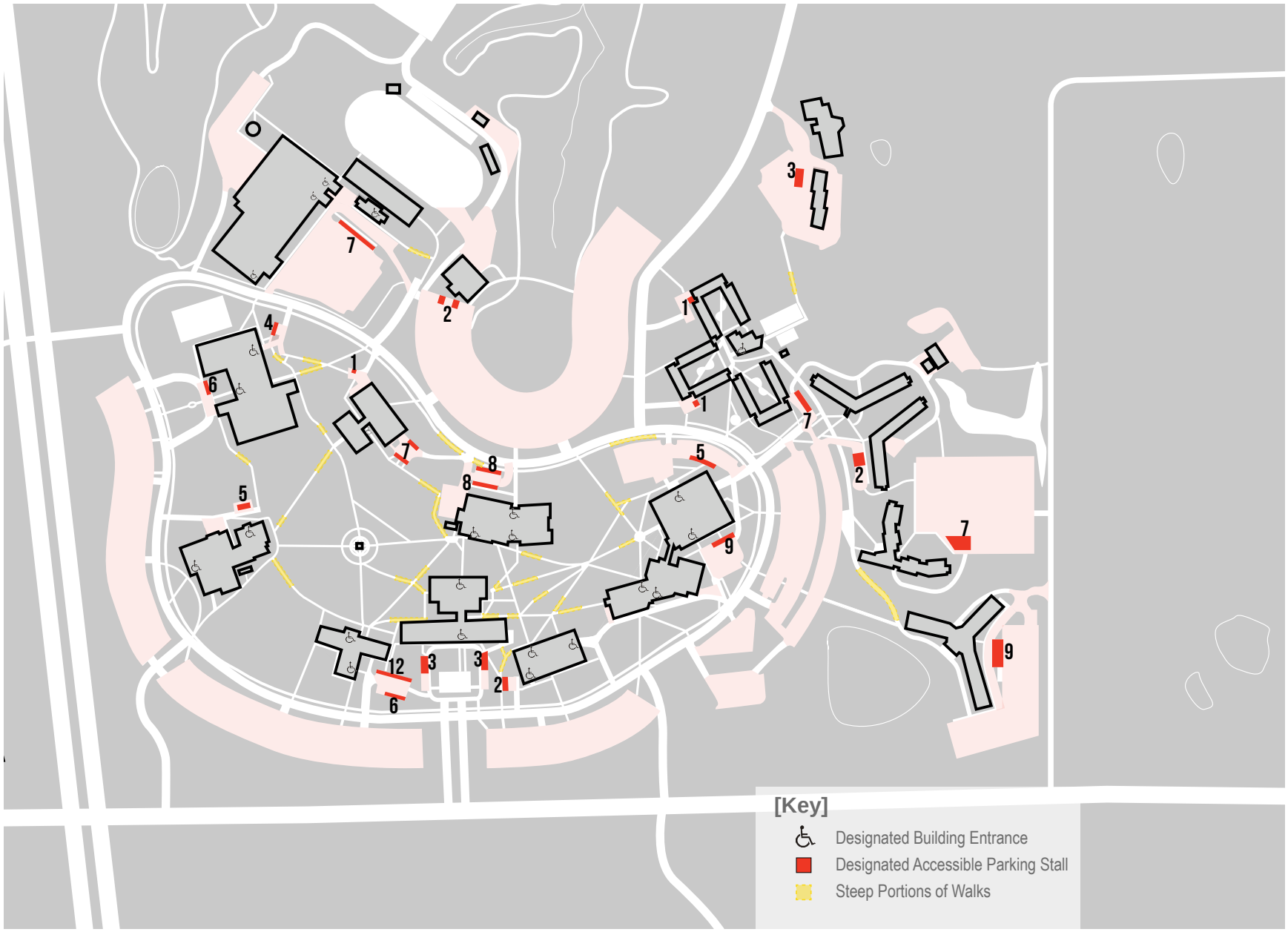
Handrail replacement is needed at existing stair locations, as well as elevator controls and/or cab replacements where necessary.

Signage and wall-mounted or fixed objects should be reviewed to confirm their compliance, and additional improvements to restroom facilities should be implemented to provide compliant restrooms on each floor.

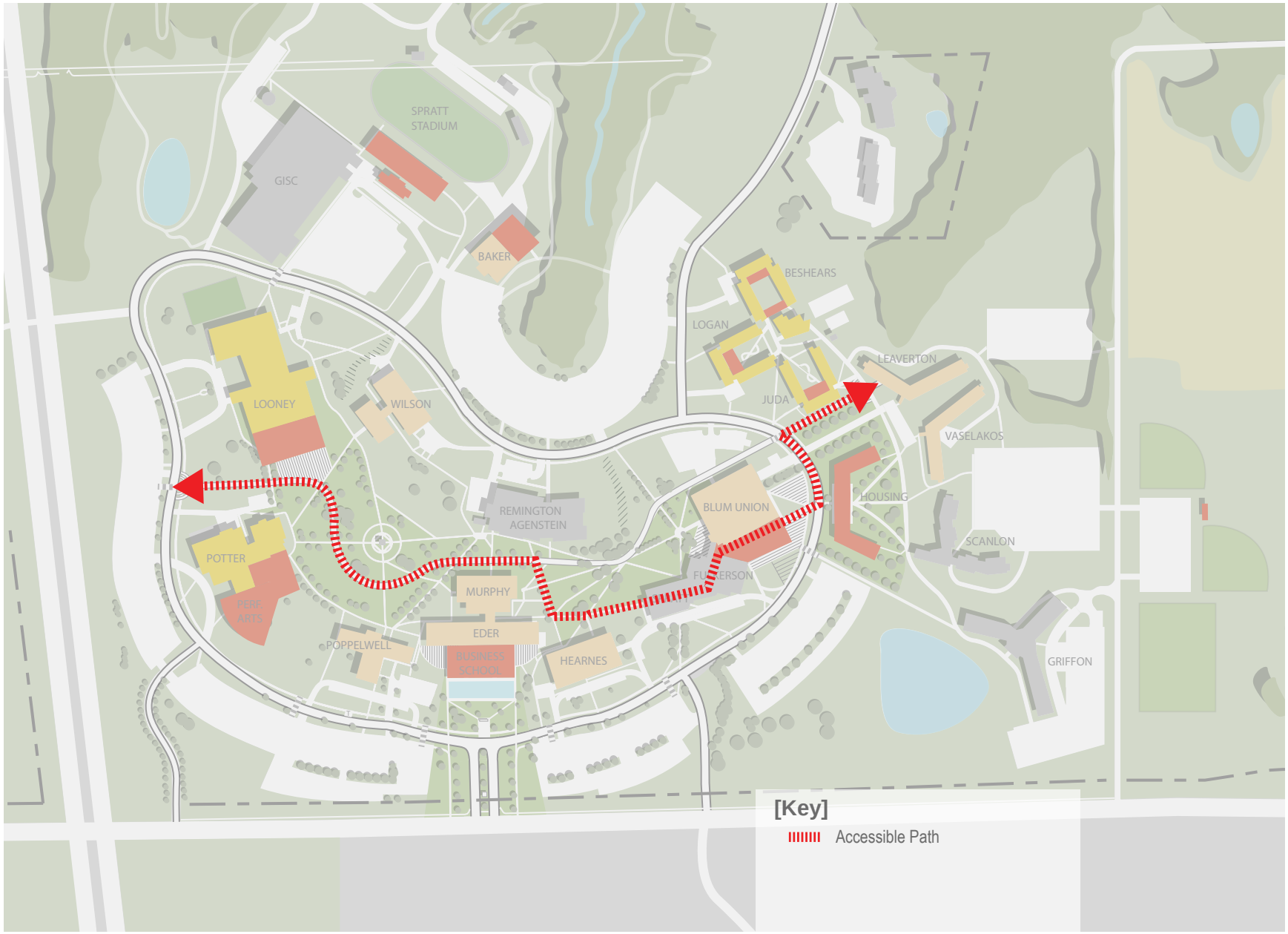
Construction and modification of interior walls and partitions and the location of semi-permanent furnishings such as library stacks and computer workstations should allow for adequate turning radii and clear floor space.

The creation of an accessibility map that identifies accessible routes, entrances, and services, and includes the university's policies for accommodation is also recommended. In combination with identification signage on-site, these strategies will improve the experience of the campus for all.

Storm Shelter Map



Existing Accessible Entrances and Parking



Cross-campus Accessible Path

STANDARDS AND IMPLEMENTATION

Policy Recommendations

Campuswide Space Standards

A policy for following the master plan recommendations would provide structure to ongoing implementation efforts and increase the chance of success toward achieving the master plan goals. Discipline applied to following the signage recommendations, for example, will deliver rewards in improved wayfinding, cost reduction, and reduce campus clutter. Utilizing the master plan to easily and successfully answer ongoing project requests for facility improvements, additional landscaping, donor ideas, and memorial gifts should be an outcome of this effort.

Quantitative standards for space should be finalized and put into place as policy. Standards for classrooms and classroom labs should acknowledge different pedagogies, furnishings, etc., in the establishment of the square foot/student allocated. Standards for university offices should be established as well to inform future projects and renovations. Qualitative standards would be helpful and should also be considered.

Classroom Cap

To incorporate facility and pedagogy goals and requirements, a policy normalizing the determination of classroom caps from a more centralized and unified perspective is recommended.

Centralized Scheduling

Current centralized scheduling policy should be reviewed to improve the positive impact it can have on classroom and class lab efficiency. This effort would then position the campus to maximize the utilization of classroom and classroom lab space and ensure the campus capacity for handling future growth to 7,500 students without major capital projects put toward classroom buildings.

Shipping and Logistics

Currently there exists a hybrid for shipping and receiving packages and mail. Deliveries come directly to some buildings, the Union and Hearnes for example. Many other items are centrally delivered to the campus with deliveries and pickups to independent buildings from the West Campus location. A logistics study is recommended to determine the costs saved in changing this policy.

Design

The current impression of the campus design, in general, is the one established in the 1970s. Over the years, an emphasis on economy of choice and individual and decentralized design decisions have led to a lack of design cohesiveness on the campus. New policies should address ways to

bring a newer aesthetic and a more cohesive appearance to the design of the grounds and the buildings.

Requiring programs such as LEED-rated building design, the 2030 Challenge, STARS, or requiring a percent reduction of energy use below the ASHRE baseline requirements should be considered. One additional benefit other than sustainable practice and leadership is serious long-term energy savings and cost reduction.

Coordination with Energy Study

The current energy measures taken by the campus are a very good start to moving the facilities toward safer and more efficient structures. These actions will bring immediate returns.

The energy study made many recommendations that were not chosen at this point but should be pursued in any long-term energy reduction program. In addition, the nature of the recent energy study is focused on short-term gains. An analysis of potential broader utility and energy approaches should be undertaken with a focus on long-term advantages and sustainability.

Purchasing

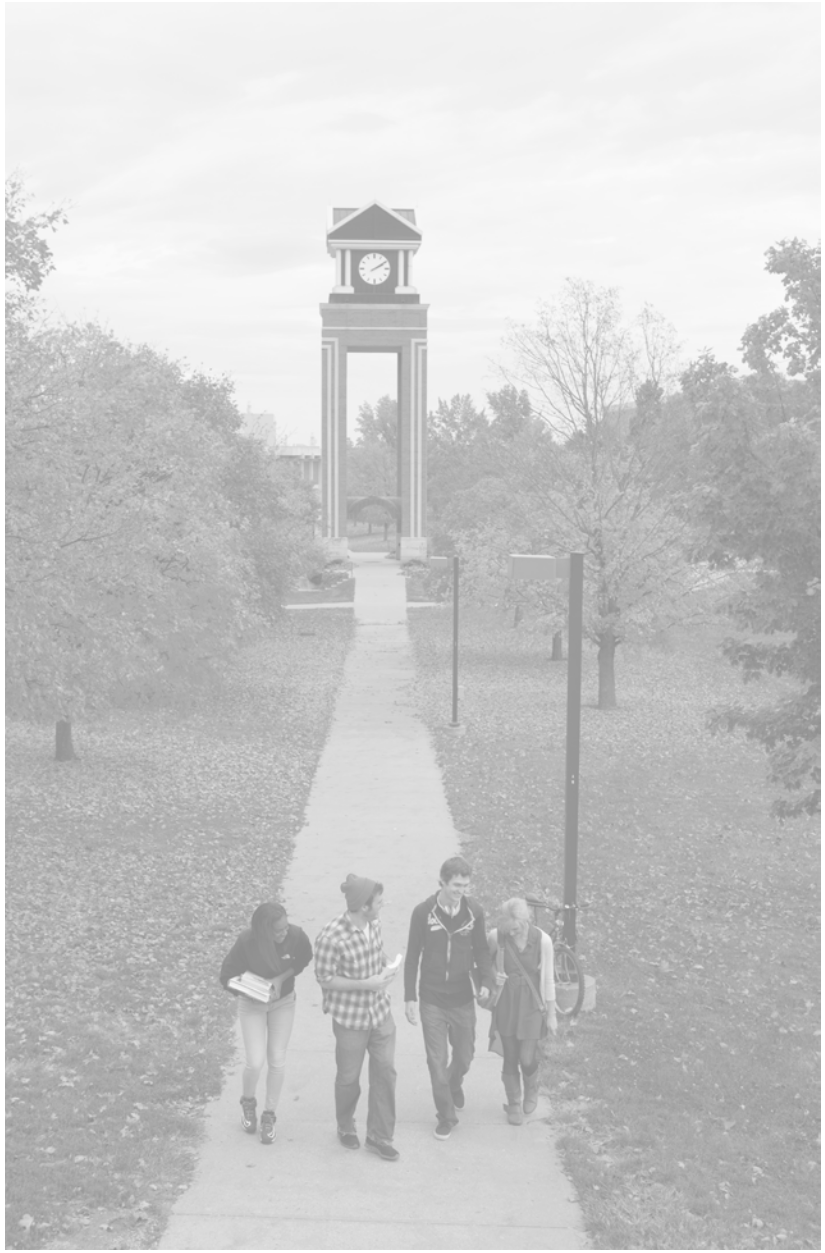
Purchasing policy should be reviewed. A goal of consistency of choice would achieve three things: more predictability in future costs, more sustainability, and more design cohesiveness. Items that would fall under such a policy would be, for example, trash receptacles, light fixtures, benches, restroom accessories, and supplies.

Operations and Maintenance

Throughout the master planning process many stakeholders commented on the desire to improve the process for maintenance planning and requests. A change in this current policy should be considered and could pay dividends in higher quality projects, more comprehensively applied, with more design unity and sustainability.

Turf Maintenance

A follow-up to the suggestions in the turf maintenance analysis is recommended. The large quantity of turf and landscape under current university ownership requires a significant ongoing operational investment. Any policy that can moderate these costs should be considered.



CONSULTANT TEAM

Clark Huesemann - **Master Planners**
918C Massachusetts Street
Lawrence, KS 66044
785.691.5547

Olsson Associates - **Traffic / Parking**
7301 W. 133rd St. #200
Overland Park, KS 66213
913.381.1170

Professional Engineering Consultants - **Stormwater / Pavement**
616 Vermont Street
Lawrence, KS 66044
785.842.6464

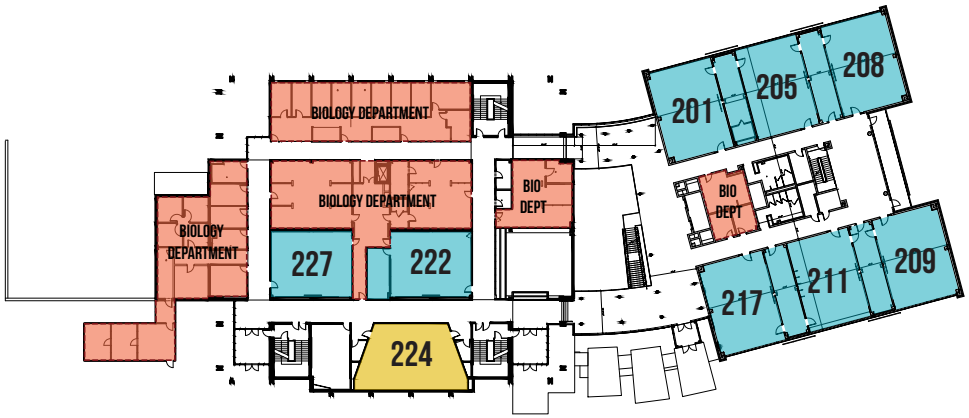
Vireo - **Landscape / Wayfinding / Signage**
929 Walnut, Suite 700
Kansas City, Missouri 64106
816.756.5690

04 APPENDIX

BUILDING USAGE

VERIFICATION DRAWINGS

The following verification drawings represent building usage as understood by the university and Clark I Huesemann at the time of this report and are intended to illustrate the types of spaces that were cataloged in the utilization analysis.



SECOND FLOOR PLAN

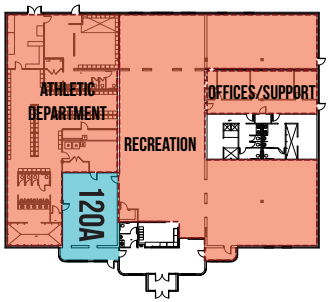
THIRD FLOOR PLAN

FIRST FLOOR PLAN

AGENSTEIN - REMINGTON HALL

Open Labs
Class Labs
Other
Classrooms

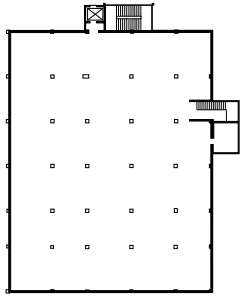
BASEMENT FLOOR PLAN



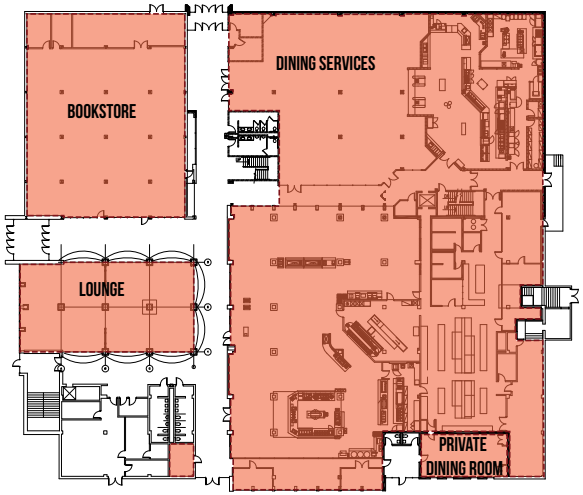
FIRST FLOOR PLAN

BAKER FAMILY FITNESS CENTER

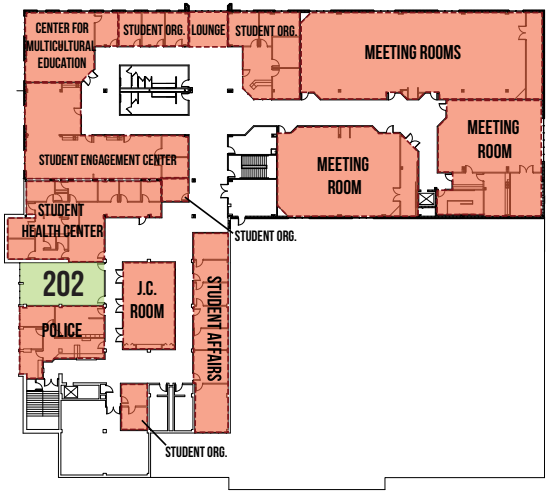
Open Labs
Class Labs
Other
Classrooms



BASEMENT FLOOR PLAN



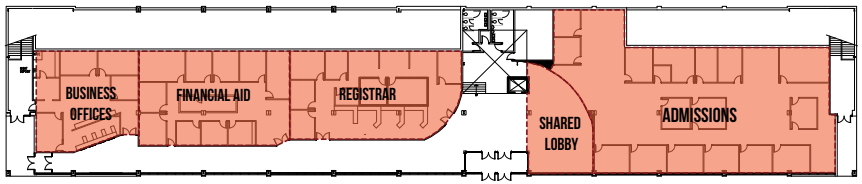
FIRST FLOOR PLAN



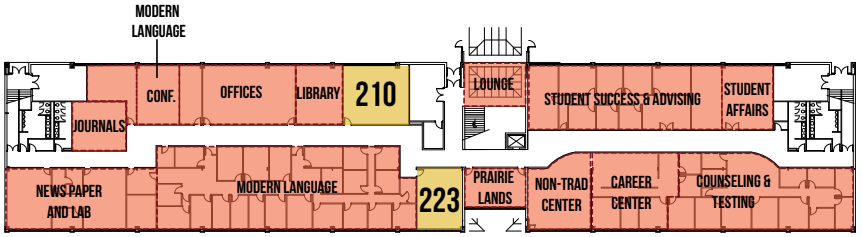
SECOND FLOOR PLAN

BLUM UNION

Open Labs
Other
Class Labs
Classrooms



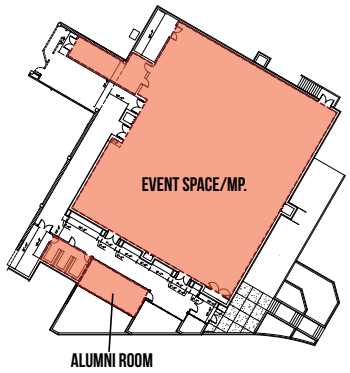
FIRST FLOOR PLAN



SECOND FLOOR PLAN

EDER HALL

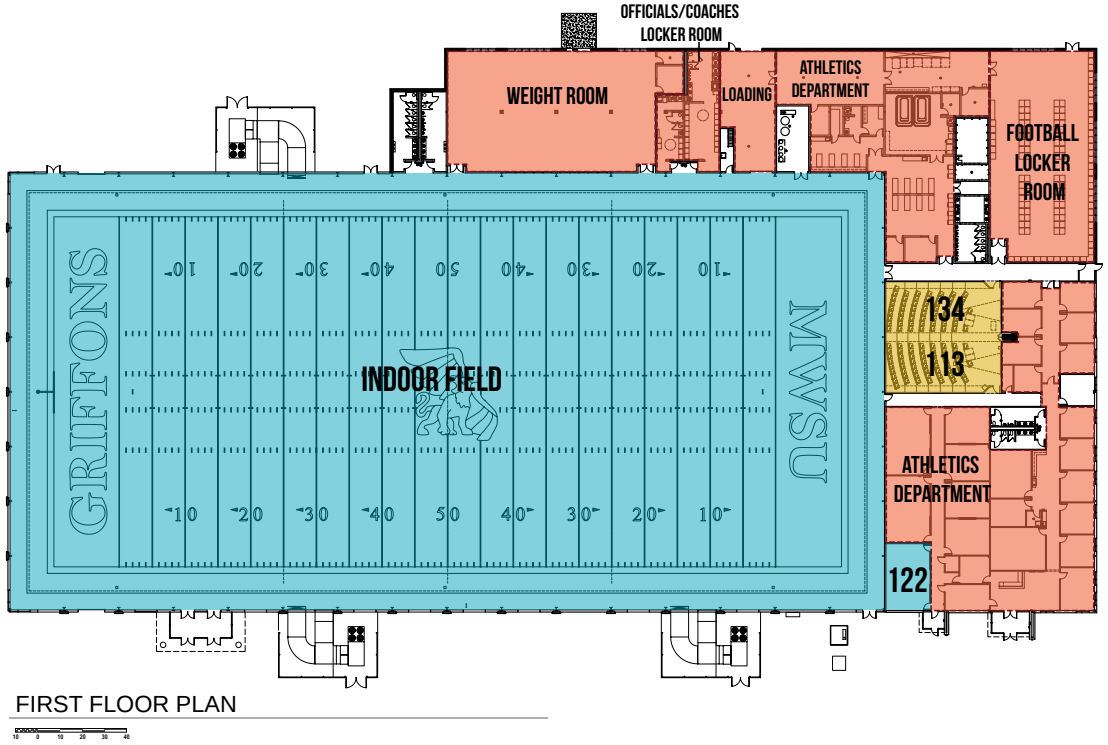
Open Labs
Class Labs
Other
Classrooms



FIRST FLOOR PLAN

FULKERSON CENTER

Open Labs
Other
Class Labs
Classrooms



FIRST FLOOR PLAN

Open Labs
Other
Class Labs
Classrooms

GISC

FIRST FLOOR PLAN

SECOND FLOOR PLAN

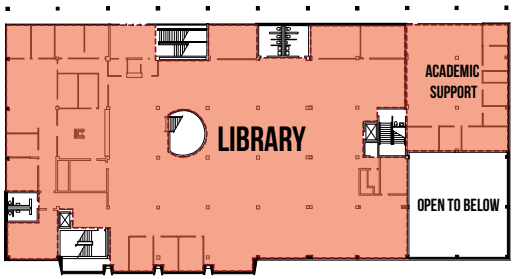
KIT BOND INCUBATOR

Open Labs

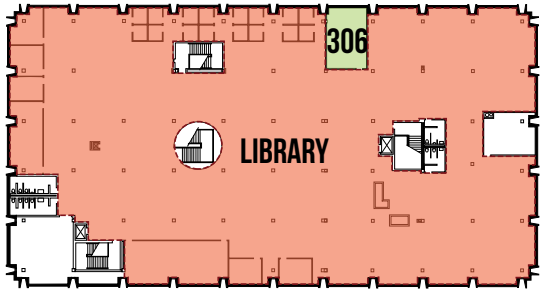
Other

Class Labs

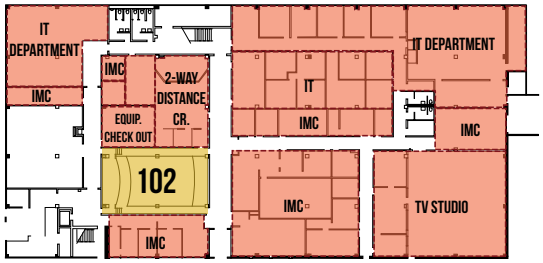
Classrooms



SECOND FLOOR PLAN



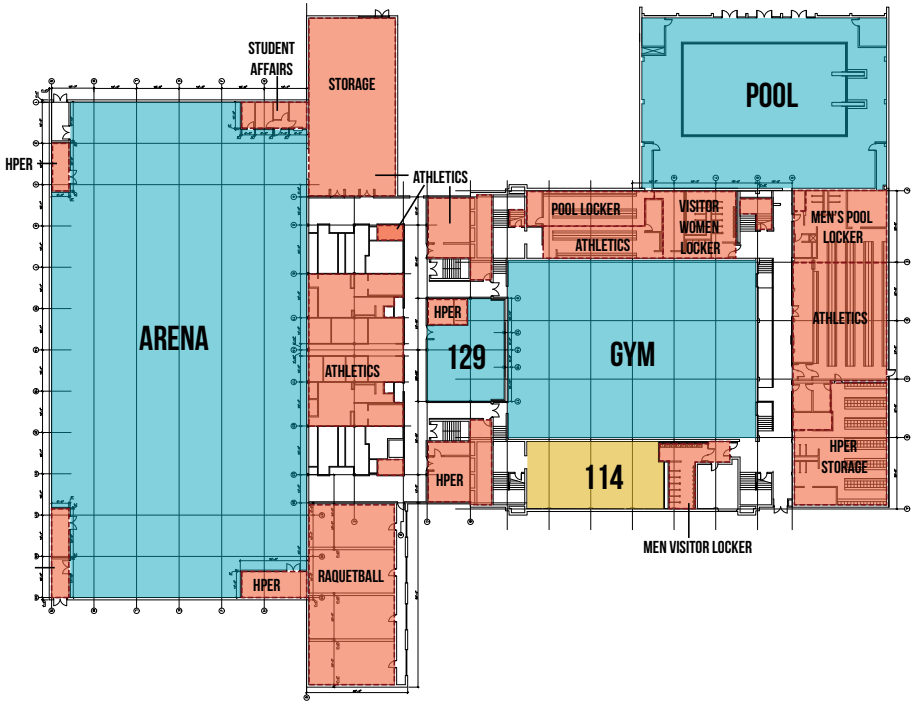
THIRD FLOOR PLAN



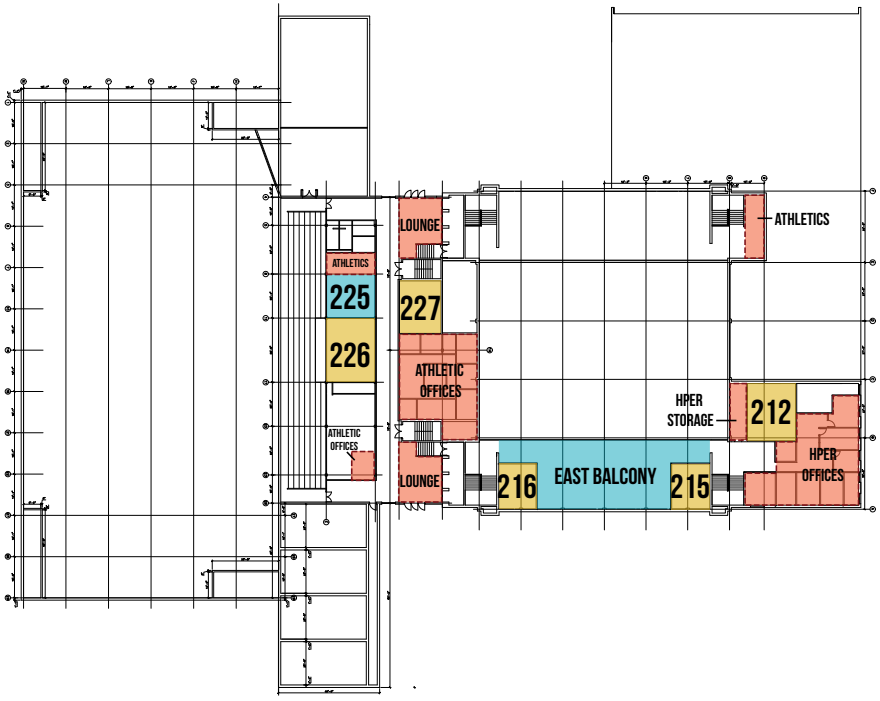
FIRST FLOOR PLAN

HEARNES CENTER

Open Labs
Other
Class Labs
Classrooms



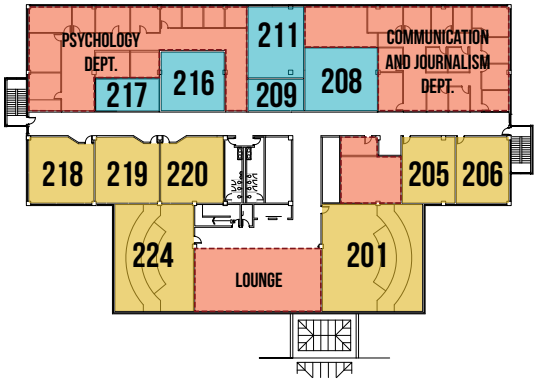
FIRST FLOOR PLAN



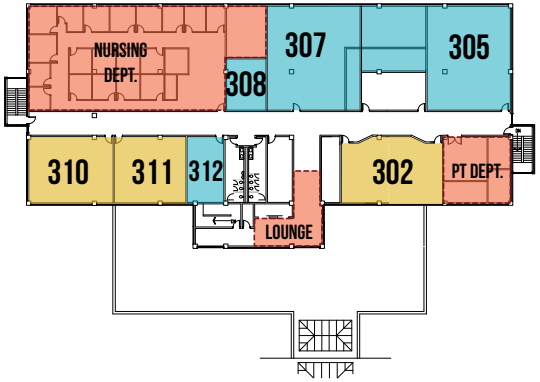
SECOND FLOOR PLAN

LOONEY COMPLEX

Open Labs
Other
Class Labs
Classrooms



SECOND FLOOR PLAN

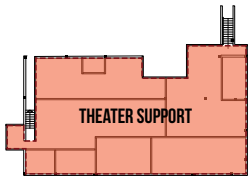


THIRD FLOOR PLAN

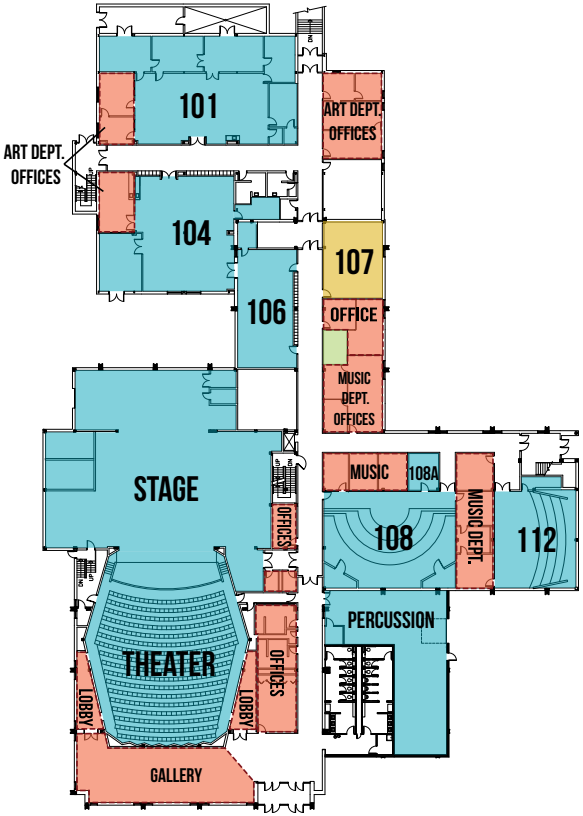
FIRST FLOOR PLAN

MURPHY HALL

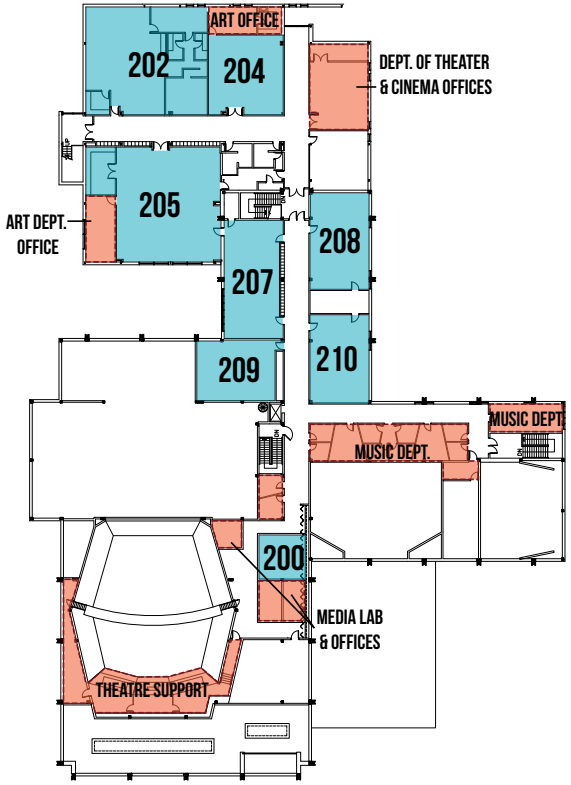
Open Labs
Other
Class Labs
Classrooms



PARTIAL BASMENT FLOOR PLAN



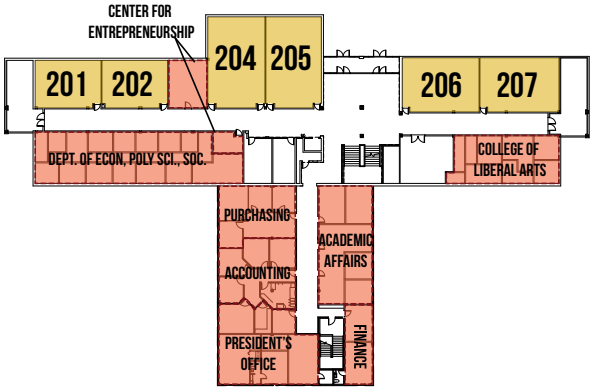
FIRST FLOOR PLAN



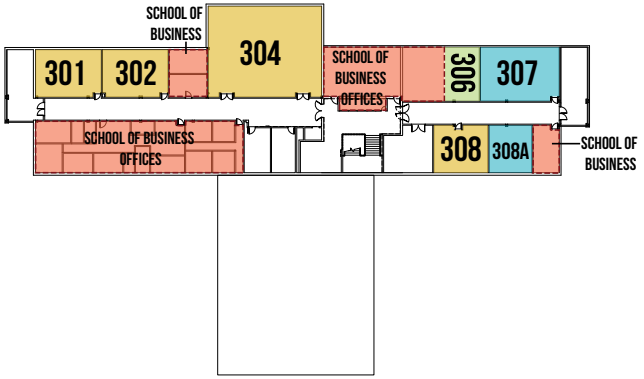
SECOND FLOOR PLAN

POTTER HALL

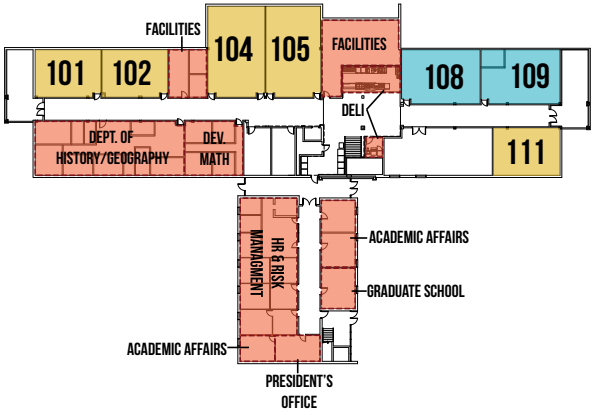
Open Labs
Other
Class Labs
Classrooms



SECOND FLOOR PLAN



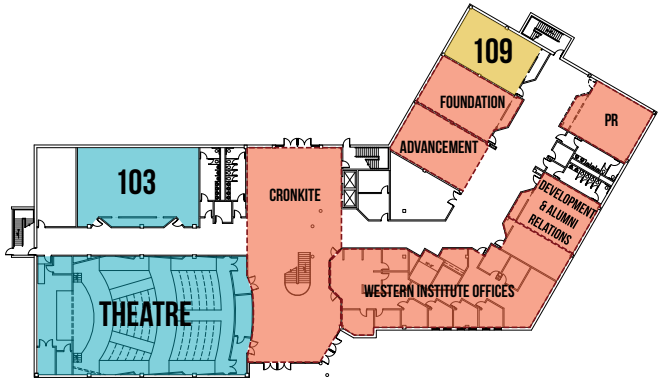
THIRD FLOOR PLAN



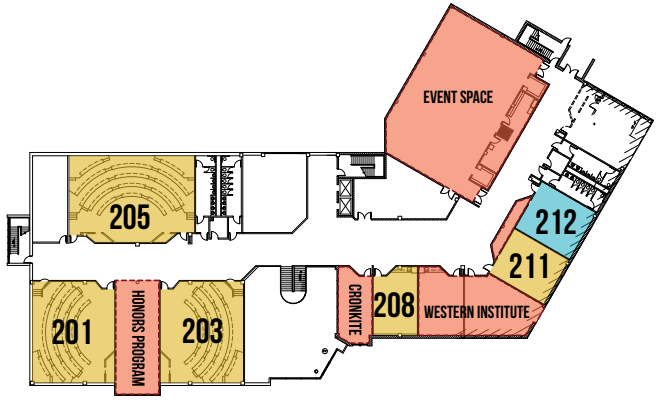
FIRST FLOOR PLAN

POPPLEWELL HALL

Open Labs
Other
Class Labs
Classrooms



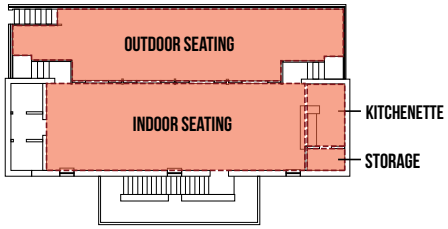
FIRST FLOOR PLAN



SECOND FLOOR PLAN

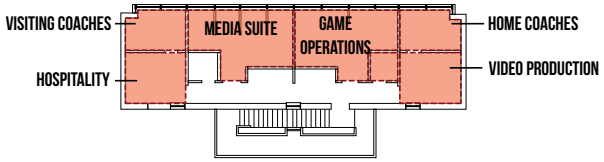
SPRATT HALL

Open Labs
Class Labs
Other
Classrooms



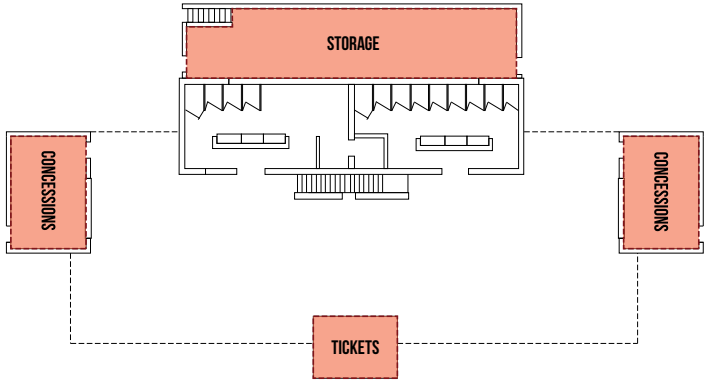
SECOND FLOOR PLAN

10 0 10 20 30 40



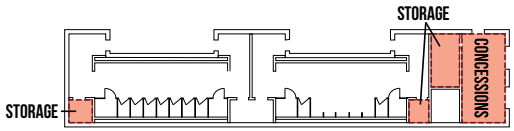
THIRD FLOOR PLAN

10 0 10 20 30 40



FIRST FLOOR PLAN

10 0 10 20 30 40



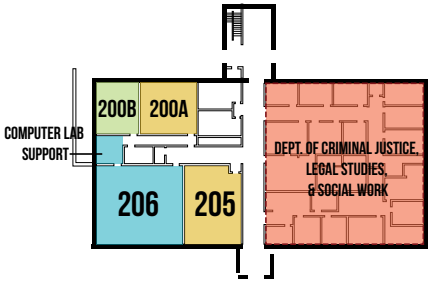
VISITOR CONCESSION'S BUIDLING

10 0 10 20 30 40

SPRATT STADIUM

Open Labs
Other
Class Labs
Classrooms

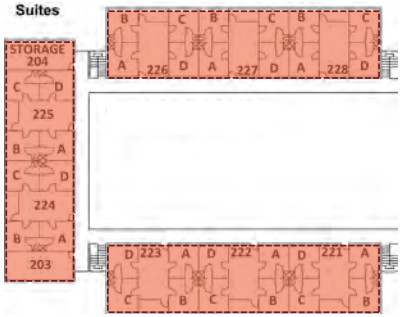
FIRST FLOOR PLAN



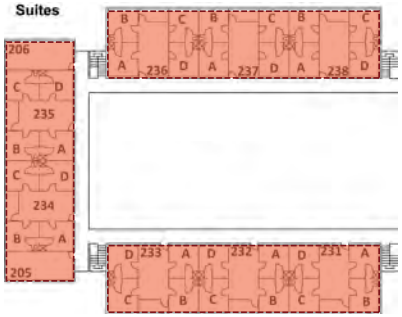
SECOND FLOOR PLAN

WILSON HALL

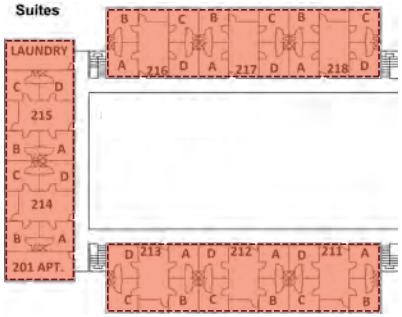
Open Labs
Other
Class Labs
Classrooms



SECOND FLOOR PLAN



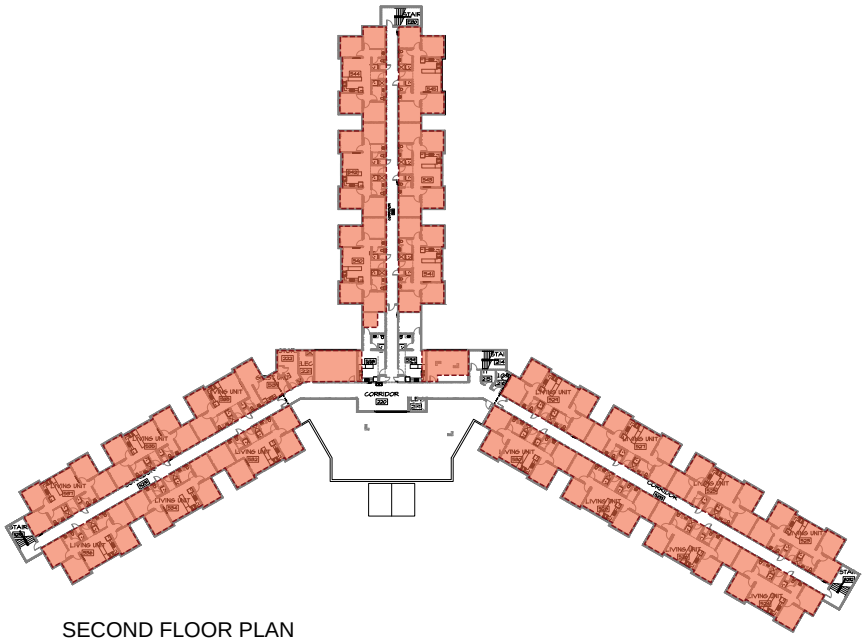
THIRD FLOOR PLAN



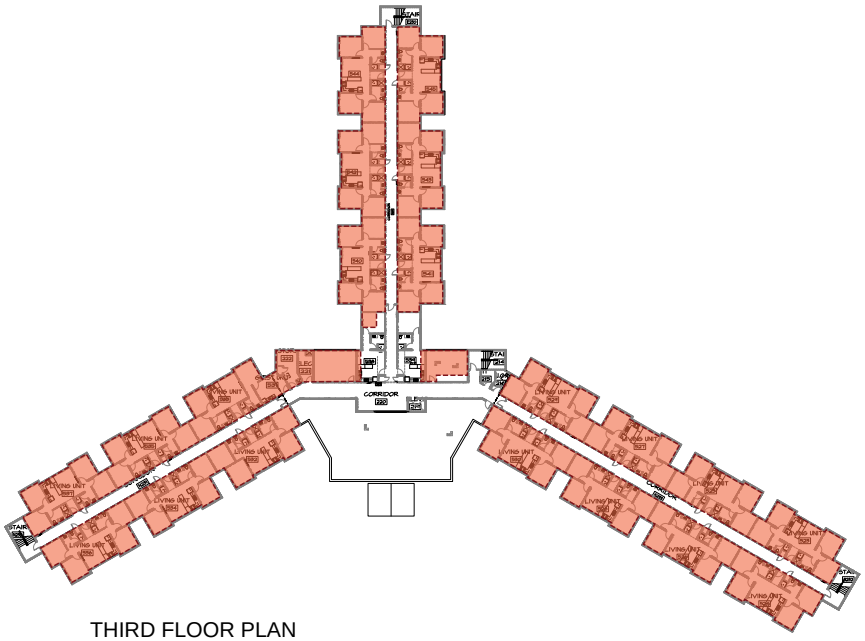
FIRST FLOOR PLAN

LOGAN, BESHEARS AND JUDA HALLS

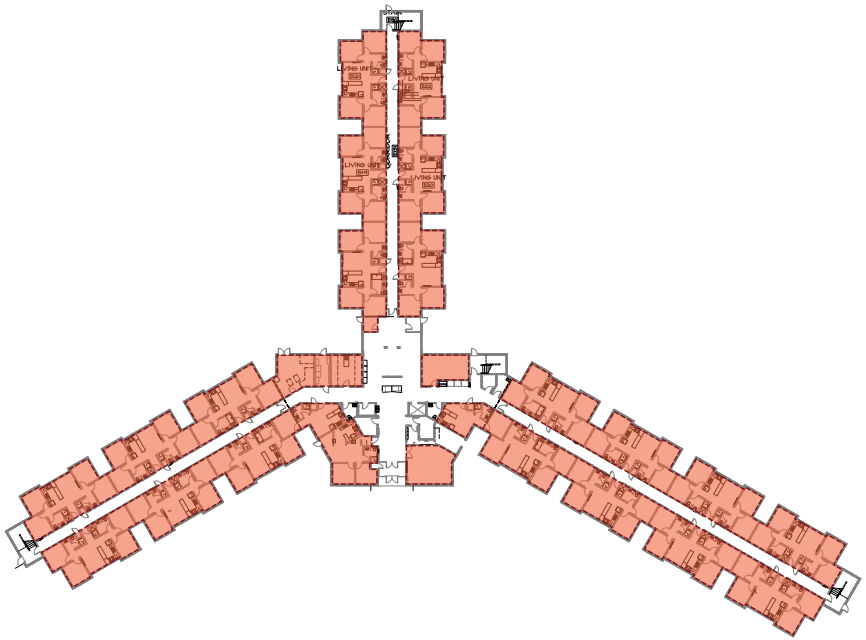
Open Labs
Other
Class Labs
Classrooms



SECOND FLOOR PLAN



THIRD FLOOR PLAN



FIRST FLOOR PLAN

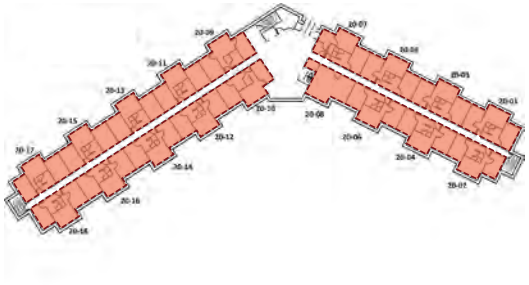
GRIFFON HALL

Open Labs

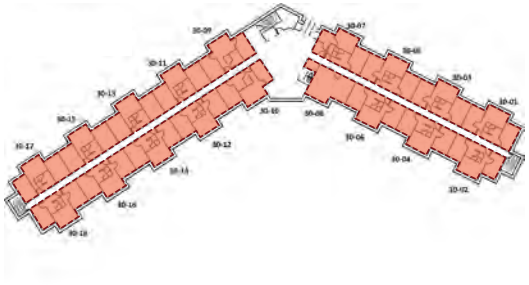
Class Labs

Other

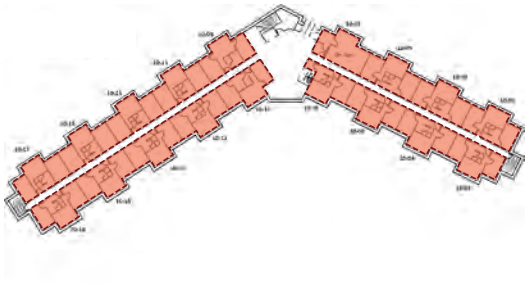
Classrooms



SECOND FLOOR PLAN



THIRD FLOOR PLAN



FIRST FLOOR PLAN

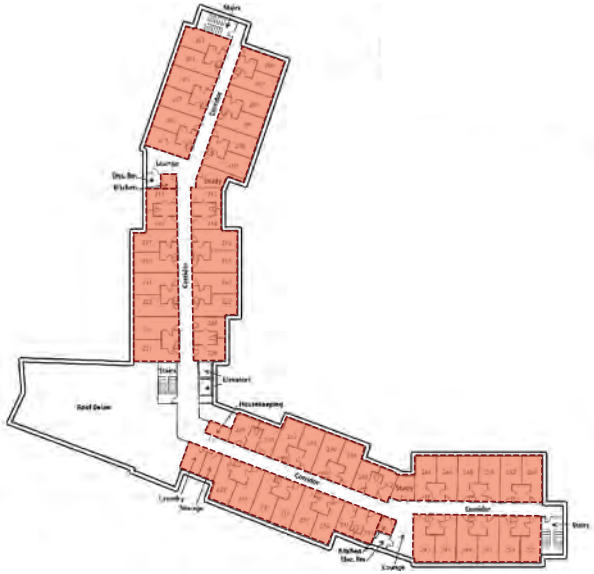
LEAVERTON AND VASELAKOS HALLS

Open Labs

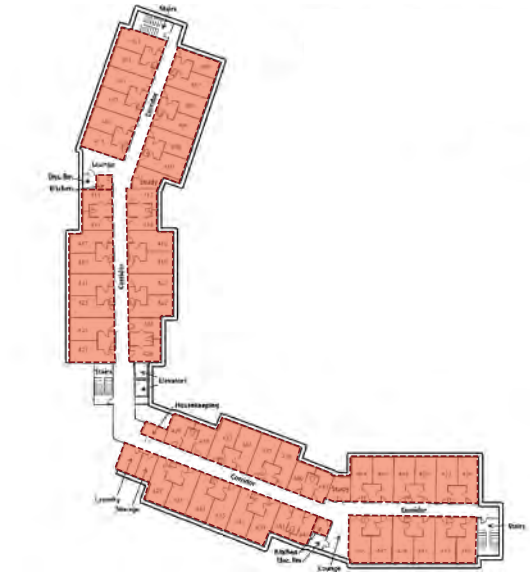
Class Labs

Other

Classrooms

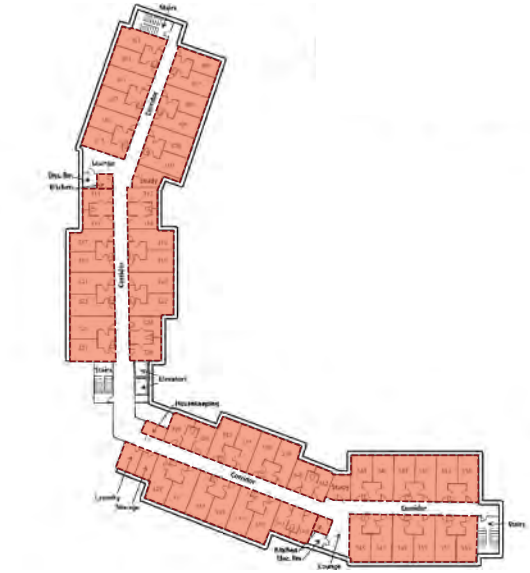


SECOND FLOOR PLAN



FOURTH FLOOR PLAN

FIRST FLOOR PLAN



THIRD FLOOR PLAN

SCANLON HALL

Open Labs

Class Labs

Other

Classrooms

FIRST FLOOR PLAN

Open Labs
Class Labs
Other
Classrooms

MISSOURI DEPARTMENT OF CONSERVATION

Page intentionally left blank.

BUILDING COMPONENT ANALYSIS

Building Condition:

A comprehensive building condition analysis of each primary building on campus was performed. Two ways of defining the condition are provided. A summary narrative of the evaluation describes the building condition in an overview. In addition, each building's condition is described on a building component analysis form.

The building component analysis form evaluates separately, the value of all the primary systems of each building. These systems are defined as the following:

1.Exterior Building Components
- a. Substructure
  - i. Standard Foundations
  - ii. Special Foundations
  - iii. Slab on Grade
  - iv. Basement Excavation
  - v. Basement Walls
- b. Superstructure
  - i. Floor Construction
  - ii. Roof Construction
- c. Exterior Enclosure - Walls
- d. Exterior Enclosure – Doors and Windows
- e. Roofing
  - i. Roof Coverings
  - ii. Roof Openings

2.Interior Building
- a. Walls, Partitions and Doors
- b. Floors
- c. Ceilings
- d. Finishes, Fittings and Trim
- e. Stairs

3.Engineered Systems
- a. Vertical Conveyance
- b. Plumbing
- c. Heating/Ventilation/AC
- d. Fire Protection and Life Safety
- e. Electrical and Lighting

The form identifies the cost of replacement of each primary system as a percentage of the total cost of a similar building. These percentages will vary based on the function of the facility. For example, classroom buildings will require different types of construction systems than gymnasiums. Percentages of each system will also vary depending on the size and number of stories of each building. For example, multistory buildings must allocate cost to stairs and elevators that single story buildings do not.

Each primary system's condition is evaluated and given a value from excellent to unsalvageable. The resultant contribution of value of any system takes into account the condition and the percent of cost of a typical facility.

The total resultant value then is an estimate of the percent of current value of an existing building, as it would compare to the replacement cost of the same facility if built new.

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Agenstein/Remington Hall

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	3.4%	x					3.2%
	Superstructure	8.7%	x					8.1%
	Exterior Enclosure - Walls	2.2%	x					2.0%
	Exterior Enclosure - Windows and Doors	3.4%	x					3.2%
Maximum Value *19.6%*	Roofing	1.9%	x					1.8%
B. Interior Building Components								
	Walls, Partitions and Doors	7.9%	x					7.3%
	Floors	3.8%	x					3.5%
	Ceilings	4.8%	x					4.5%
	Finishes, Fittings and Trim	8.0%	x					7.4%
Maximum Value *26.6%*	Stairs	2.1%	x					2.0%
C. Engineered Systems Components								
	Vertical Conveyance	2.4%		x				1.9%
	Plumbing	18.1%		x				14.3%
	Heating/Ventilation/AC	16.0%	x					14.9%
	Fire Protection and Life Safety	2.5%	x					2.3%
Maximum Value *53.8%*	Electrical and Lighting	14.8%	x					13.8%
	Total Value	100.00%						

Variation / Percent Allocation Adjustment: ***Overall Percent Condition*** 90.1%

Significant staining of brick on Remington from through wall drains or vents

Adjusted Percent Condition **90.1%**

AGENSTEIN - REMINGTON HALL

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Baker Family Fitness Center

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	9.4%		x				7.4%
	Superstructure	7.3%		x				5.8%
	Exterior Enclosure - Walls	6.2%			x			3.7%
	Exterior Enclosure - Windows and Doors	5.1%			x			3.0%
Maximum Value *34.4%*	Roofing	6.4%		x				5.1%
B. Interior Building Components								
	Walls, Partitions and Doors	7.7%		x				6.1%
	Floors	6.3%		x				5.0%
	Ceilings	5.1%		x				4.0%
	Finishes, Fittings, Built-ins and Trim	1.5%		x				1.2%
Maximum Value *20.6%*	Stairs	0.0%						
C. Engineered Systems Components								
	Vertical Conveyance	0.0%						
	Plumbing	6.3%			x			3.7%
	Heating/Ventilation/AC	15.5%		x				12.2%
	Fire Protection and Life Safety	3.8%		x				3.0%
Maximum Value *45.1%*	Electrical and Lighting	19.5%		x				15.4%
	Total Value	100%						

Variation / Percent Allocation Adjustment: ***Overall Percent Condition*** 75.6%

Recent renovation left some items unaddressed

Adjusted Percent Condition **75.6%**

BAKER FAMILY FITNESS CENTER

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Commons

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	9.4%	x					8.7%
	Superstructure	7.3%	x					6.8%
	Exterior Enclosure - Walls	6.2%		x				4.9%
	Exterior Enclosure - Windows and Doors	5.1%		x				4.0%
Maximum Value *34.4%*	Roofing	6.4%		x				5.1%
B. Interior Building Components								
	Walls, Partitions and Doors	7.7%		x				6.1%
	Floors	6.3%		x				5.0%
	Ceilings	5.1%		x				4.0%
	Finishes, Fittings, Built-ins and Trim	1.5%		x				1.2%
Maximum Value *20.6%*	Stairs	0.0%						
C. Engineered Systems Components								
	Vertical Conveyance	0.0%						
	Plumbing	6.3%		x				5.0%
	Heating/Ventilation/AC	15.5%		x				12.2%
	Fire Protection and Life Safety	3.8%		x				3.0%
Maximum Value *45.1%*	Electrical and Lighting	19.5%		x				15.4%
	Total Value	100%						
							Overall Percent Condition	81.4%

Variation / Percent Allocation Adjustment:

None

Adjusted Percent Condition **81.4%**

COMMONS

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Blum Union

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	5.1%		x				4.0%
	Superstructure	16.4%		x				13.0%
	Exterior Enclosure - Walls	8.5%		x				6.7%
	Exterior Enclosure - Windows and Doors	3.8%			x			2.3%
Maximum Value *36.3%*	Roofing	2.5%				x		0.8%
B. Interior Building Components								
	Walls, Partitions and Doors	10.2%		x				8.1%
	Floors	5.6%			x			3.3%
	Ceilings	3.5%			x			2.1%
	Finishes, Fittings, Built-ins and Trim	2.7%		x				2.1%
Maximum Value *23.0%*	Stairs	1.0%				x		0.3%
C. Engineered Systems Components								
	Vertical Conveyance	2.9%				x		0.9%
	Plumbing	3.7%				x		1.2%
	Heating/Ventilation/AC	15.9%			x			9.5%
	Fire Protection and Life Safety	3.3%			x			2.0%
Maximum Value *40.9%*	Electrical and Lighting	15.1%		x				11.9%
	Total Value	100%						

Variation / Percent Allocation Adjustment: ***Overall Percent Condition*** 68.2%

Partially sprinkled, soffit water damage

Adjusted Percent Condition **68.2%**

BLUM UNION

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Eder Hall

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	3.5%		x				2.8%
	Superstructure	9.1%		x				7.2%
	Exterior Enclosure - Walls	2.2%			x			1.3%
	Exterior Enclosure - Windows and Doors	3.5%				x		1.1%
Maximum Value *20.3%*	Roofing	2.0%				x		0.6%
B. Interior Building Components								
	Walls, Partitions and Doors	9.6%		x				7.6%
	Floors	3.6%			x			2.1%
	Ceilings	4.9%		x				3.9%
	Finishes, Fittings and Trim	7.1%				x		2.3%
Maximum Value *27.6%*	Stairs	2.4%				x		0.8%
C. Engineered Systems Components								
	Vertical Conveyance	2.6%				x		0.8%
	Plumbing	14.0%				x		4.5%
	Heating/Ventilation/AC	14.2%			x			8.4%
	Fire Protection and Life Safety	2.6%				x		0.8%
Maximum Value *52.1%*	Electrical and Lighting	18.7%			x			11.1%
	Total Value	100%						

Variation / Percent Allocation Adjustment:

Overall Percent Condition 55.4%

Floor has indications of differential settlement - a bump
Condition and quality varies widely across the structure given multiple renovations

Adjusted Percent Condition **55.4%**

EDER HALL

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Fulkerson Center

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	3.5%		x				2.8%
	Superstructure	9.1%	x					8.5%
	Exterior Enclosure - Walls	2.2%		x				1.7%
	Exterior Enclosure - Windows and Doors	3.5%		x				2.8%
Maximum Value *20.3%*	Roofing	2.0%			x			1.2%
B. Interior Building Components								
	Walls, Partitions and Doors	9.6%		x				7.6%
	Floors	3.6%		x				2.8%
	Ceilings	4.9%		x				3.9%
	Finishes, Fittings and Trim	7.1%		x				5.6%
Maximum Value *27.6%*	Stairs	2.4%		x				1.9%
C. Engineered Systems Components								
	Vertical Conveyance	2.6%		x				2.1%
	Plumbing	14.0%		x				11.1%
	Heating/Ventilation/AC	14.2%			x			8.4%
	Fire Protection and Life Safety	2.6%		x				2.1%
Maximum Value *52.1%*	Electrical and Lighting	18.7%		x				14.8%
	Total Value	100%						

Variation / Percent Allocation Adjustment:

None

Overall Percent Condition 77.1%

Adjusted Percent Condition **77.1%**

FULKERSON CENTER

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Griffin Indoor Sports Complex

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	8.1%	x					7.5%
	Superstructure	15.2%	x					14.1%
	Exterior Enclosure - Walls	7.5%	x					7.0%
	Exterior Enclosure - Windows and Doors	3.8%	x					3.5%
Maximum Value 38.9%	Roofing	4.3%	x					4.0%
B. Interior Building Components								
	Walls, Partitions and Doors	3.6%	x					3.3%
	Floors	12.6%		x				10.0%
	Ceilings	0.9%	x					0.8%
	Finishes, Fittings, Built-ins and Trim	9.0%	x					8.4%
Maximum Value 26.1%	Stairs	0.0%						
C. Engineered Systems Components								
	Vertical Conveyance	0.0%						
	Plumbing	10.4%	x					9.7%
	Heating/Ventilation/AC	9.2%	x					8.6%
	Fire Protection and Life Safety	3.9%	x					3.6%
Maximum Value 35.0%	Electrical and Lighting	11.5%			x			6.8%
	Total Value	100%						

Variation / Percent Allocation Adjustment: ***Overall Percent Condition*** 87.4%

None

Adjusted Percent Condition **87.4%**

GISC

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Hearnes

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	5.2%		x				4.1%
	Superstructure	18.7%		x				14.8%
	Exterior Enclosure - Walls	13.2%			x			7.9%
	Exterior Enclosure - Windows and Doors	2.8%			x			1.7%
Maximum Value *42.0%*	Roofing	2.1%				x		0.7%
B. Interior Building Components								
	Walls, Partitions and Doors	5.5%			x			3.3%
	Floors	3.2%			x			1.9%
	Ceilings	5.8%			x			3.5%
	Finishes, Fittings, Built-ins and Trim	0.5%			x			0.3%
Maximum Value *15.7%*	Stairs	0.7%				x		0.2%
C. Engineered Systems Components								
	Vertical Conveyance	3.6%					x	0.0%
	Plumbing	4.9%			x			2.9%
	Heating/Ventilation/AC	17.7%				x		5.7%
	Fire Protection and Life Safety	3.5%				x		1.1%
Maximum Value *42.3%*	Electrical and Lighting	12.6%			x			7.5%
	Total Value	100%						

Variation / Percent Allocation Adjustment: ***Overall Percent Condition*** 55.4%

High variability of condition and quality due to partial renovations

Adjusted Percent Condition **55.4%**

HEARNES CENTER

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Leah Spratt Hall

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	3.5%		x				2.8%
	Superstructure	9.1%		x				7.2%
	Exterior Enclosure - Walls	2.2%		x				1.7%
	Exterior Enclosure - Windows and Doors	3.5%			x			2.1%
Maximum Value *20.3%*	Roofing	2.0%		x				1.6%
B. Interior Building Components								
	Walls, Partitions and Doors	9.6%		x				7.6%
	Floors	3.6%		x				2.8%
	Ceilings	4.9%		x				3.9%
	Finishes, Fittings and Trim	7.1%		x				5.6%
Maximum Value *27.6%*	Stairs	2.4%		x				1.9%
C. Engineered Systems Components								
	Vertical Conveyance	2.6%		x				2.1%
	Plumbing	14.0%		x				11.1%
	Heating/Ventilation/AC	14.2%			x			8.4%
	Fire Protection and Life Safety	2.6%			x			1.5%
Maximum Value *52.1%*	Electrical and Lighting	18.7%		x				14.8%
	Total Value	100%						

Variation / Percent Allocation Adjustment: ***Overall Percent Condition*** 75.0%

None

Adjusted Percent Condition **75.0%**

SPRATT HALL

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Looney Complex

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	7.2%		x				5.7%
	Superstructure	14.2%		x				11.2%
	Exterior Enclosure - Walls	7.5%			x			4.5%
	Exterior Enclosure - Windows and Doors	3.8%				x		1.2%
Maximum Value 36.9%	Roofing	4.2%				x		1.3%
B. Interior Building Components								
	Walls, Partitions and Doors	3.6%			x			2.1%
	Floors	12.6%			x			7.5%
	Ceilings	0.9%			x			0.5%
	Finishes, Fittings, Built-ins and Trim	8.5%			x			5.1%
Maximum Value 26.3%	Stairs	0.7%				x		0.2%
C. Engineered Systems Components								
	Vertical Conveyance	2.8%					x	0.0%
	Plumbing	9.4%				x		3.0%
	Heating/Ventilation/AC	9.2%				x		2.9%
	Fire Protection and Life Safety	3.9%				x		1.2%
Maximum Value 36.8%	Electrical and Lighting	11.5%				x		3.7%
	Total Value	100%						
							Overall Percent Condition	50.3%

Variation / Percent Allocation Adjustment:

None

Adjusted Percent Condition **50.3%**

LOONEY COMPLEX

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Murphy Hall

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	3.5%		x				2.8%
	Superstructure	9.1%		x				7.2%
	Exterior Enclosure - Walls	2.2%		x				1.7%
	Exterior Enclosure - Windows and Doors	3.5%		x				2.8%
Maximum Value *20.3%*	Roofing	2.0%			x			1.2%
B. Interior Building Components								
	Walls, Partitions and Doors	9.6%		x				7.6%
	Floors	3.6%		x				2.8%
	Ceilings	4.9%		x				3.9%
	Finishes, Fittings and Trim	7.1%			x			4.2%
Maximum Value *27.6%*	Stairs	2.4%			x			1.4%
C. Engineered Systems Components								
	Vertical Conveyance	2.6%		x				2.1%
	Plumbing	14.0%		x				11.1%
	Heating/Ventilation/AC	14.2%			x			8.4%
	Fire Protection and Life Safety	2.6%		x				2.1%
Maximum Value *52.1%*	Electrical and Lighting	18.7%		x				14.8%
	Total Value	100%						

Variation / Percent Allocation Adjustment: ***Overall Percent Condition*** 74.0%

Materials and finishes of lesser quality and showing wear

Adjusted Percent Condition **74.0%**

MURPHY HALL

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Popplewell Hall

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	3.5%		x				2.8%
	Superstructure	9.1%		x				7.2%
	Exterior Enclosure - Walls	2.2%			x			1.3%
	Exterior Enclosure - Windows and Doors	3.5%				x		1.1%
Maximum Value *20.3%*	Roofing	2.0%		x				1.6%
B. Interior Building Components								
	Walls, Partitions and Doors	9.6%			x			5.7%
	Floors	3.6%			x			2.1%
	Ceilings	4.9%			x			2.9%
	Finishes, Fittings and Trim	7.1%			x			4.2%
Maximum Value *27.6%*	Stairs	2.4%				x		0.8%
C. Engineered Systems Components								
	Vertical Conveyance	2.6%				x		0.8%
	Plumbing	14.0%				x		4.5%
	Heating/Ventilation/AC	14.2%			x			8.4%
	Fire Protection and Life Safety	2.6%				x		0.8%
Maximum Value *52.1%*	Electrical and Lighting	18.7%			x			11.1%
	Total Value	100%						

Variation / Percent Allocation Adjustment:

none

Overall Percent Condition 55.4%

Adjusted Percent Condition **55.4%**

POPPLEWELL HALL

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Potter

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	3.5%		x				2.8%
	Superstructure	9.1%		x				7.2%
	Exterior Enclosure - Walls	2.2%			x			1.3%
	Exterior Enclosure - Windows and Doors	3.5%				x		1.1%
Maximum Value *20.3%*	Roofing	2.0%				x		0.6%
B. Interior Building Components								
	Walls, Partitions and Doors	9.6%				x		3.1%
	Floors	3.6%				x		1.2%
	Ceilings	4.9%				x		1.6%
	Finishes, Fittings and Trim	7.1%					x	0.0%
Maximum Value *27.6%*	Stairs	2.4%				x		0.8%
C. Engineered Systems Components								
	Vertical Conveyance	2.6%				x		0.8%
	Plumbing	14.0%				x		4.5%
	Heating/Ventilation/AC	14.2%				x		4.5%
	Fire Protection and Life Safety	2.6%			x			1.5%
Maximum Value *52.1%*	Electrical and Lighting	18.7%			x			11.1%
	Total Value	100%						

Variation / Percent Allocation Adjustment: ***Overall Percent Condition*** 42.1%

None

Adjusted Percent Condition **42.1%**

POTTER HALL

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Spratt Stadium Building and Seating

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	4.3%		x				3.4%
	Superstructure	10.4%			x			6.2%
	Exterior Enclosure - Walls	12.0%				x		3.8%
	Exterior Enclosure - Windows and Doors	3.7%					x	0.0%
Maximum Value *32.0%*	Roofing	1.6%					x	0.0%
B. Interior Building Components								
	Walls, Partitions and Doors	7.1%				x		2.3%
	Floors	6.0%				x		1.9%
	Ceilings	4.8%				x		1.5%
	Finishes, Fittings and Trim	1.6%					x	0.0%
Maximum Value *23.0%*	Stairs	3.5%					x	0.0%
C. Engineered Systems Components								
	Vertical Conveyance	9.1%					x	0.0%
	Plumbing	3.4%			x			2.0%
	Heating/Ventilation/AC	12.1%					x	0.0%
	Fire Protection and Life Safety	3.4%					x	0.0%
Maximum Value *44.7%*	Electrical and Lighting	16.7%				x		5.3%
	Total Value	100%						

Variation / Percent Allocation Adjustment:
The main stair is in very poor condition, shored up with wood posts and shims and needs to be addressed immediately.

Overall Percent Condition 26.5%

Adjusted Percent Condition **26.5%**

SPRATT STADIUM

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Wilson

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	3.5%		x				2.8%
	Superstructure	9.1%		x				7.2%
	Exterior Enclosure - Walls	2.2%			x			1.3%
	Exterior Enclosure - Windows and Doors	3.5%				x		1.1%
Maximum Value *20.3%*	Roofing	2.0%				x		0.6%
B. Interior Building Components								
	Walls, Partitions and Doors	9.6%				x		3.1%
	Floors	3.6%				x		1.2%
	Ceilings	4.9%				x		1.6%
	Finishes, Fittings and Trim	7.1%					x	0.0%
Maximum Value *27.6%*	Stairs	2.4%				x		0.8%
C. Engineered Systems Components								
	Vertical Conveyance	2.6%				x		0.8%
	Plumbing	14.0%				x		4.5%
	Heating/Ventilation/AC	14.2%				x		4.5%
	Fire Protection and Life Safety	2.6%				x		0.8%
Maximum Value *52.1%*	Electrical and Lighting	18.7%				x		6.0%
	Total Value	100%						

Variation / Percent Allocation Adjustment: ***Overall Percent Condition*** 36.3%

Exterior wall at the south corner has indications of differential settlement

Newly remodeled accessible restrooms

Adjusted Percent Condition **36.3%**

WILSON HALL

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Logan, Beshears and Juda Hall

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	3.4%		x				2.7%
	Superstructure	13.7%		x				10.8%
	Exterior Enclosure - Walls	9.8%				x		3.1%
	Exterior Enclosure - Windows and Doors	3.4%				x		1.1%
Maximum Value *31.4%*	Roofing	1.1%			x			0.7%
B. Interior Building Components								
	Walls, Partitions and Doors	8.9%			x			5.3%
	Floors	6.6%			x			3.9%
	Ceilings	0.6%			x			0.4%
	Finishes, Fittings, Built-ins and Trim	6.6%					x	0.0%
Maximum Value *24.4%*	Stairs	1.7%				x		0.5%
C. Engineered Systems Components								
	Vertical Conveyance	3.2%					x	0.0%
	Plumbing	17.0%				x		5.4%
	Heating/Ventilation/AC	8.2%					x	0.0%
	Fire Protection and Life Safety	2.6%					x	0.0%
Maximum Value *44.2%*	Electrical and Lighting	13.2%			x			7.9%
	Total Value	100%						

Variation / Percent Allocation Adjustment: ***Overall Percent Condition*** 41.8%

HVAC systems are energy inefficient

Adjusted Percent Condition **41.8%**

LOGAN, BESHEARS AND JUDA HALLS

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Griffon Hall

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	3.4%	x					3.2%
	Superstructure	13.7%	x					12.7%
	Exterior Enclosure - Walls	9.8%	x					9.1%
	Exterior Enclosure - Windows and Doors	3.4%	x					3.2%
Maximum Value *31.4%*	Roofing	1.1%		x				0.9%
B. Interior Building Components								
	Walls, Partitions and Doors	8.9%		x				7.0%
	Floors	6.6%		x				5.2%
	Ceilings	0.6%		x				0.5%
	Finishes, Fittings, Built-ins and Trim	6.6%		x				5.2%
Maximum Value *24.4%*	Stairs	1.7%	x					1.6%
C. Engineered Systems Components								
	Vertical Conveyance	3.2%	x					3.0%
	Plumbing	17.0%		x				13.4%
	Heating/Ventilation/AC	8.2%			x			4.9%
	Fire Protection and Life Safety	2.6%		x				2.1%
Maximum Value *44.2%*	Electrical and Lighting	13.2%		x				10.4%
	Total Value	100%						

Variation / Percent Allocation Adjustment: ***Overall Percent Condition*** 82.3%

Less durable finishes and equipment are showing early wear
HVAC systems are energy inefficient

Adjusted Percent Condition **82.3%**

GRIFFON HALL

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Vaselakos and Leaverton Halls

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	3.4%		x				2.7%
	Superstructure	13.7%		x				10.8%
	Exterior Enclosure - Walls	9.8%			x			5.8%
	Exterior Enclosure - Windows and Doors	3.4%			x			2.0%
Maximum Value *31.4%*	Roofing	1.1%		x				0.9%
B. Interior Building Components								
	Walls, Partitions and Doors	8.9%		x				7.0%
	Floors	6.6%		x				5.2%
	Ceilings	0.6%		x				0.5%
	Finishes, Fittings, Built-ins and Trim	6.6%			x			3.9%
Maximum Value *24.4%*	Stairs	1.7%		x				1.3%
C. Engineered Systems Components								
	Vertical Conveyance	3.2%			x			1.9%
	Plumbing	17.0%		x				13.4%
	Heating/Ventilation/AC	8.2%				x		2.6%
	Fire Protection and Life Safety	2.6%			x			1.5%
Maximum Value *44.2%*	Electrical and Lighting	13.2%			x			7.9%
	Total Value	100%						

Variation / Percent Allocation Adjustment: ***Overall Percent Condition*** 67.6%

HVAC systems are energy inefficient

Adjusted Percent Condition **67.6%**

VASELAKOS AND LEAVERTON HALLS

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Scanlon Hall

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	2.5%	x					2.3%
	Superstructure	17.6%	x					16.4%
	Exterior Enclosure - Walls	5.2%		x				4.1%
	Exterior Enclosure - Windows and Doors	2.2%		x				1.7%
Maximum Value *28.0%*	Roofing	0.5%		x				0.4%
B. Interior Building Components								
	Walls, Partitions and Doors	11.7%		x				9.2%
	Floors	6.5%		x				5.1%
	Ceilings	0.6%		x				0.5%
	Finishes, Fittings, Built-ins and Trim	6.9%			x			4.1%
Maximum Value *28.0%*	Stairs	2.3%		x				1.8%
C. Engineered Systems Components								
	Vertical Conveyance	5.6%		x				4.4%
	Plumbing	15.2%		x				12.0%
	Heating/Ventilation/AC	9.3%			x			5.5%
	Fire Protection and Life Safety	2.4%		x				1.9%
Maximum Value *44.0%*	Electrical and Lighting	11.5%		x				9.1%
	Total Value	100%						

Variation / Percent Allocation Adjustment: ***Overall Percent Condition*** 78.7%

HVAC systems are energy inefficient

Adjusted Percent Condition **78.7%**

SCANLON HALL

clark huesemann

Building Component Analysis

Campus MWSU

Building Name Incubator

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	3.4%	x					3.2%
	Superstructure	8.7%	x					8.1%
	Exterior Enclosure - Walls	2.2%		x				1.7%
	Exterior Enclosure - Windows and Doors	3.4%		x				2.7%
Maximum Value *19.6%*	Roofing	1.9%		x				1.5%
B. Interior Building Components								
	Walls, Partitions and Doors	7.9%		x				6.2%
	Floors	3.8%		x				3.0%
	Ceilings	4.8%		x				3.8%
	Finishes, Fittings and Trim	8.0%		x				6.3%
Maximum Value *26.6%*	Stairs	2.1%		x				1.7%
C. Engineered Systems Components								
	Vertical Conveyance	2.4%		x				1.9%
	Plumbing	18.1%		x				14.3%
	Heating/Ventilation/AC	16.0%			x			9.5%
	Fire Protection and Life Safety	2.5%		x				2.0%
Maximum Value *53.8%*	Electrical and Lighting	14.8%		x				11.7%
	Total Value	100.00%						

Variation / Percent Allocation Adjustment:

None

Overall Percent Condition 77.6%

Adjusted Percent Condition **77.6%**

KIT BOND INCUBATOR

clark huesemann

Building Component Analysis

Campus MWSU

Building Name West Campus Physical Plant Facilities

		Value	Excellent	Good	Fair	Poor	Unsalvageable	Resultant Value
A. Exterior Building Components								
	Substructure	9.4%			x			5.6%
	Superstructure	7.3%			x			4.3%
	Exterior Enclosure - Walls	6.2%				x		2.0%
	Exterior Enclosure - Windows and Doors	5.1%			x			3.0%
Maximum Value *34.4%*	Roofing	6.4%				x		2.0%
B. Interior Building Components								
	Walls, Partitions and Doors	7.7%			x			4.6%
	Floors	6.3%			x			3.7%
	Ceilings	5.1%			x			3.0%
	Finishes, Fittings, Built-ins and Trim	1.5%			x			0.9%
Maximum Value *20.6%*	Stairs	0.0%						
C. Engineered Systems Components								
	Vertical Conveyance	0.0%						
	Plumbing	6.3%			x			3.7%
	Heating/Ventilation/AC	15.5%			x			9.2%
	Fire Protection and Life Safety	3.8%			x			2.3%
Maximum Value *45.1%*	Electrical and Lighting	19.5%			x			11.6%
	Total Value	100%						

Variation / Percent Allocation Adjustment:

None

Overall Percent Condition 56.1%

Adjusted Percent Condition **56.1%**

WEST CAMPUS FACILITIES

STORM WATER ANALYSIS

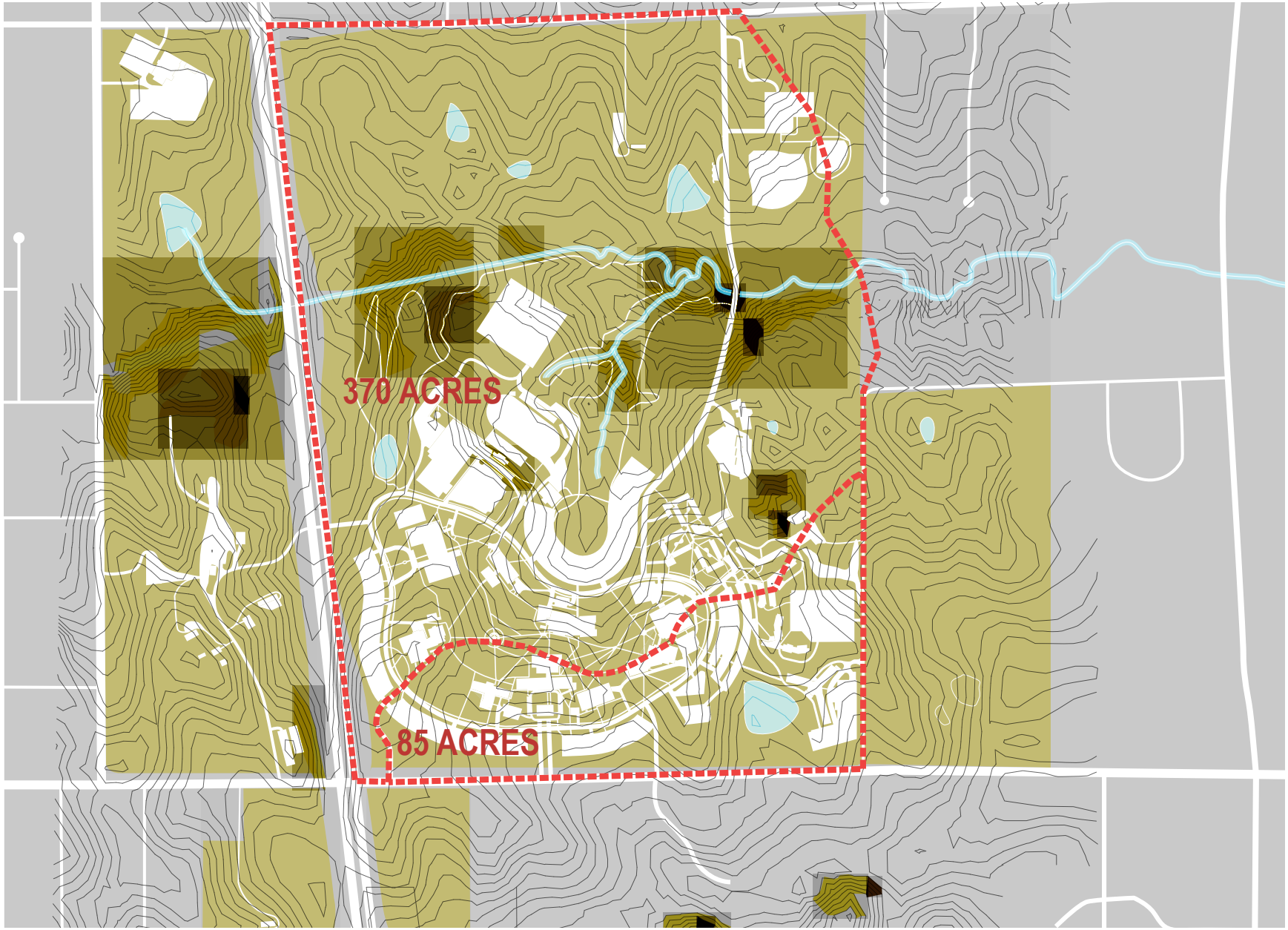
Drainage Evaluation

The campus of Missouri Western State University is roughly 723 acres in its entirety, with 200 acres of wooded natural habitat along the Otoe creek, which runs east and west through campus. Along with Otoe Creek, the campus includes nine man-made ponds.

The main portion of campus has a foot print of approximately 455 acres and is split into two drainage areas. A small portion of the southern end of campus, 85 acres, drains toward the southeast corner of campus at the intersection of Mitchell Avenue and 50th Street. The north portion of main campus is an accumulative area of 370 acres draining to Otoe Creek.

Storm water is mostly contained on campus by surface drainage, however there are storm sewer systems in both parking lots and in green spaces. The inlets on the campus range from curb inlets to area inlets. From the site visit in August 2014, the curb inlets appear to be in good condition and are operating correctly and efficiently. On the other hand, the area inlets appear to have a range of issues. Many of the area inlets have tops that are greatly below grade causing ponding issues in the green spaces and extreme grades adjacent to buildings and sidewalks. Those area inlets that are at grade, or have an open throat, seem to show erosion problems around the inlet due to the excessive amount of surface drainage that they are to contain.

The paved areas on campus that do not convey water to a storm sewer system are basically discharging water into flumes which end on to natural grade or just discharge through a curb cut directly to natural grade. The problems that are being seen in these instances are extreme erosion issues. Maintenance in some of these areas is evident, but are not solving the erosion problem. The erosion issues, both around the inlets and flumes, are starting to cause issues with the surrounding pavement areas, which is quickly compounding smaller scale problems into more critical ones. Meaning the cost for a solution is only increasing.



Drainage Area Map

PAVEMENT CONDITION ANALYSIS

Pavement Evaluation

The purpose of this report is to provide an evaluation of current conditions of the pavement of both the parking lots and campus roads of Missouri Western State University. This report is not a complete pavement condition survey. Note that no soil or pavement samples were taken for evaluation, and that no field measurements were made. Available record drawings for the construction of each parking lot, if available, have not been researched.

A site visit was made in August 2014 to each pavement section and a pavement condition evaluation was made. The observations made with initial recommendation for each section with associated costs are presented herein. The data is organized by lot classification and subdivided by the physical characteristics of the sections, i.e. entrances, concrete barriers, and directional. Page 168 shows the map with the designations for each pavement section listed.

The parking lots at Missouri Western State University range in age and condition from old to new and poor to excellent. The combined evaluation provides a unified comprehensive approach for future allocation of assets by the university.

The current evaluation is a snap shot in time of the current surface condition of the pavement and is most effective when compared with previous reports. For this report, the PASER (Pavement Surface Evaluation and Rating) system published by the Transportation Information Center at the University of Wisconsin – Madison was used to evaluate the existing surface condition of parking lot pavements. A brief description of the individual PASER scores follows.

Surface Rating		Visible Distress	General Condition/ Treatment Measures
10	Excellent	None	New Construction
9	Excellent	None	Recent overlay, like new.
8	Very Good	- No longitudinal cracks except reflective cracking of PCC pavement joints. - Occasional transverse cracks, widely spaced at 40 feet or greater.	Recent seal coat or overlay. Little or no maintenance required.
7	Good	- Very slight or no raveling, surface shows some traffic wear. - Longitudinal cracks, widths up to 1⁄4”, spaced due to reflective cracking or through PCC joints. - Transverse cracks, widths up to 1⁄4”, spaced 10 feet or more apart with little or slight crack raveling. - No patching or very few patches in excellent condition.	First signs of aging. Maintain with routine crack filling.
6	Good	- Slight raveling and traffic wear. - Longitudinal cracks, widths 1⁄4”-1⁄2” due to reflective cracking. - Transverse cracks, widths 1⁄4”–1⁄2”, some spaced less than 10 feet apart. - Slight to moderate polishing. - Occasional patching in good condition.	Pavement shows signs of aging, sound structural condition. Could extend life with seal coat.

5	Fair	- Moderate to severe raveling (loss of fines and coarse aggregate). - Longitudinal cracks, widths > 1⁄2", show some slight raveling and secondary cracks. First signs of longitudinal cracking along wheel paths. - Transverse cracks, widths > 1⁄2", and first signs of block cracking with slight raveling. - Extensive to severe polishing of surface aggregate. Some patching or edge wedging in good condition.	Surface aging, sound structural condition. Needs seal Coat or non-structural overlay with minor patching or crack sealing.
4	Fair	- Severe surface raveling. - Multiple longitudinal and transverse cracking with raveling. - Block cracking from 25% to 50% of the surface area. - Patching in fair condition. - Slight rutting or distortions, 1" deep or less in wheel paths or parking areas.	Significant aging and first signs of need for structural repair or strengthening. Would benefit from overlay or 75% depth recycling.
3	Poor	- Closely spaced longitudinal and transverse cracks often accompanied by raveling and crack erosion. - Block cracking over 50% of the surface. - Patches in fair to poor condition. - Moderate rutting or distortion, 1" or 2" deep. Occasional Potholes.	Pavement is reaching the end of its useful lifecycle. Needs minor and full depth patching to correct deficiencies and requires mill/ overlay or full depth recycling.
2	Very Poor	- Alligator cracking over 25% of surface area. - Severe distortions over 2" deep. - Extensive patching in poor condition. - Potholes.	Severe deterioration. Needs reconstruction with extensive sub-grade repairs.
1	Failed	Severe distress with extensive loss of surface integrity.	Failed section. Needs total reconstruction and possible sub-grade modification.

Types of Maintenance

There are differing levels of maintenance that can or must be done for each surface rating. Some of these tasks can be implemented into a continuous maintenance program extending the lifespan of the pavement. Other types of maintenance require outsourcing projects to competitive bid to reconstruct or rehabilitate the pavement and restore its lifespan. Picking the proper maintenance task to apply can be made easier by reviewing the evaluation score sheets attached to this report. Timing and implementation of maintenance is left to the owner.

High PASER Scores (8, 9 or 10) require routine maintenance. This employs the typical day-to-day maintenance activities of sweeping, clearing of drainage pathways, crack sealing, paint striping and other minor repairs to keep the pavement system clean of debris. A pavement section with a high PASER score will deteriorate to a middle score within five to six years, if routine maintenance is ignored.

Middle PASER Scores (4, 5, 6 or 7) require capital preventive maintenance. This type of maintenance is a planned set of cost effective treatments to preserve an existing pavement system. It slows the rate of deterioration and maintains or improves the functional condition of the pavement. It typically does not employ extensive structural repairs to the sub-base or sub-grade but may include some minor or full depth patching in order to restore the structural integrity of the pavement section. This preventative program reduces lifecycle costs of the pavement system by correcting surface deficiencies before they become structural deficiencies. The deficiencies are usually caused by environmental or pavement material defects. Examples of repair treatments include: nonstructural bituminous overlay of one inch or less, surface milling and nonstructural bituminous overlay, crack filling, joint sealing, crack repair (clean and seal, saw and seal, or rout and seal), or seal coat (slurry seal). Overlays and slurry seals generally extend the pavement lifespan from five to seven years. If preventive maintenance is not provided on a middle PASER score parking lot, in three to four years the pavement will then have a low score.

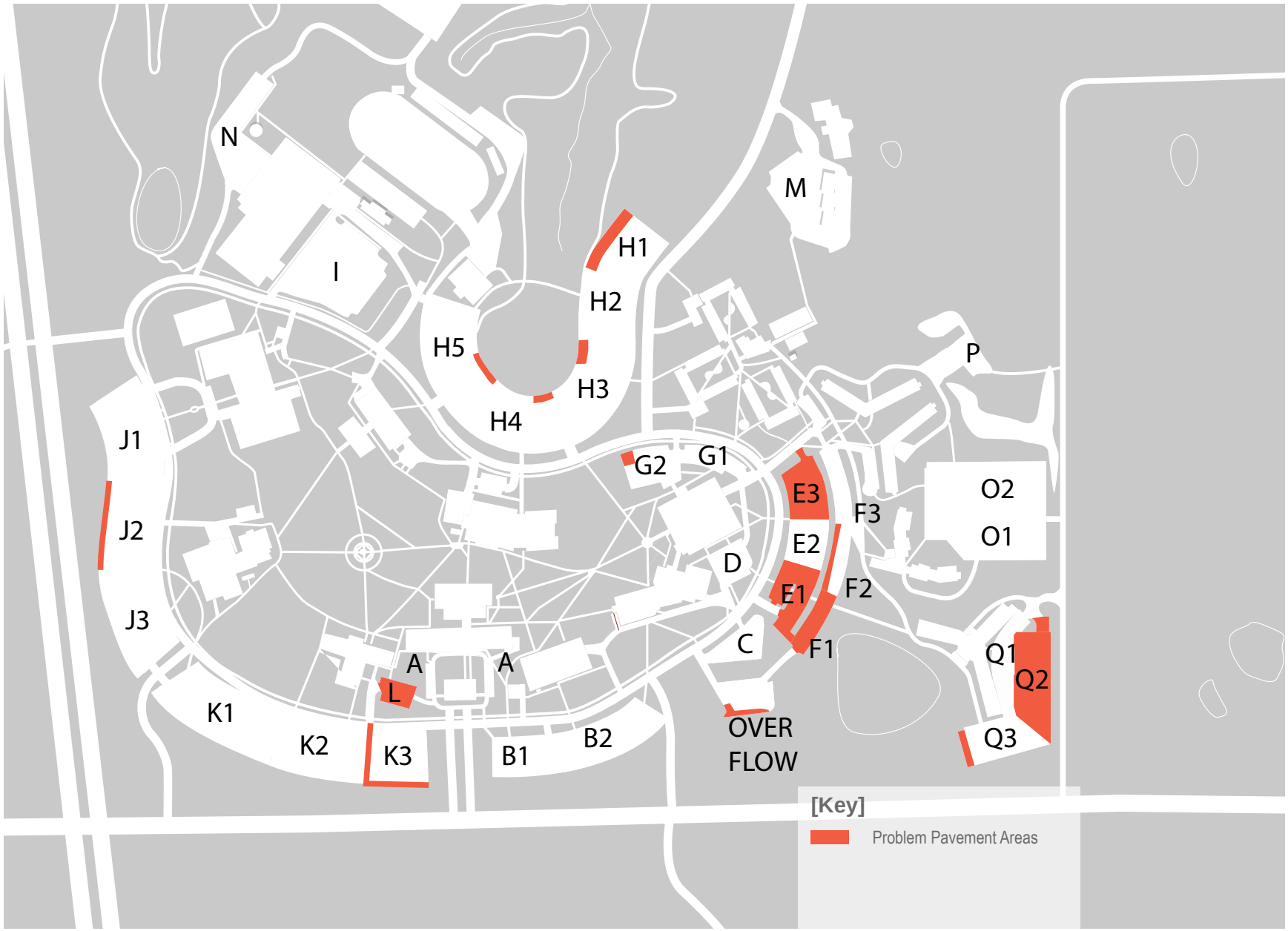
Low PASER Scores (1, 2, or 3) require more than routine or preventative maintenance. Scores in this range have severe deterioration of the surface and the structural integrity of the flexible pavement system requires extensive work. These projects require some sort of an investigation to determine how much damage has occurred to the pavement section and sub-grade so proper repairs can be made. Rehabilitation projects extend the lifespan of the pavement by seven to 10 years. These types of projects include milling with multiple course overlays; in-place recycling of the pavement by rubblizing the existing pavement then mixing with new aggregates and binders; and typically include sealing deep linear cracks. Reconstruction is any fix that removes or recycles the entire pavement section. Sub-grade stabilization may be required to repair a weak or soft sub-grade due to the intrusion of water over a prolonged period of time. Reconstruction projects recreate the 10-year life cycle of the paved area.

Reactive maintenance is independent of PASER scoring and is any activity that must be done in response to events beyond the control of the operator. This type of activity is not scheduled because events occur without warning but need to be addressed immediately. Examples of reactive maintenance include snow plowing, pothole patching, repairing pavement blowouts and accidental damage from construction activities, vehicular accidents or other impact-type damage.

Project Cost Basis

To accomplish the maintenance tasks, many different repair treatments must be completed to restore the pavement. Each repair treatment may require multiple work items to correct the pavement deficiencies, with each work item having its own cost. These work items and their unit costs (2014 dollars) are displayed in the following table.

Specific Work Item			
Mobilization	$3,500 + $0.75/SY	Asphalt Removal	$1.50/SY
2” Milling	$2.50/SY	Sub-grade Repair	$10.00/SY
4” Asphalt Base Course	$17.50/SY	2” Asphalt Surface Course	$10.00/SY
Minor Patch (Asphalt)	$30.00/SY	Major Patch (Asphalt)	$40.00/SY
Crack Filling	$2.00/SY	Major Patch (Concrete)	$60.00/SY
Pavement Marking	$0.50/SY	Slurry Seal	$2.25/SY
Additional Project Costs			
5% for Lighting, Signing & Drainage		5% for Sidewalk, Ramps & Curbs	
10% for Contingencies		33% for Project Soft Costs	


N
I
M
H1
H2
H5
H3
H4
P
J1
J2
J3
G2
G1
E3
F3
O2
O1
E2
D
E1
F2
C
F1
Q1
Q2
A
A
L
K1
K2
K3
B1
B2
OVER
FLOW
Q3
[Key]
Problem Pavement Areas

Pavement ID

		RECOMMENDATIONS								ESTIMATED CONSTRUCTION COSTS (2014 DOLLARS)			COMMENTS
Lot ID	Pavement Score (10/2014)	No Improv. Req'd	Seal Coat Surface	Crack & Patch Repairs	Mill & Overlay	Replacement	Crack Filling % of Perimeter	Minor Patch % of Area	Full Depth Patch % of Area	% Parking Area Per Lot	Total Lot Area (Sq. Ft.)	**Estimated Repair Cost**	
PARKING LOTS													
A	**5**				x		60%	25%	0%	50%	19,160	$ 79,000	Circle drive and parking lot A, South of Eder Hall
B1	**8**			x			10%	0%	0%	100%	26,030	$ 12,000	West / Asphalt section of parking lot B
B2	**9**	x								100%	64,210	$ -	East/Concrete section of parking lot B
C	**4**				x		75%	25%	30%	100%	26,620	$ 165,000	Parking lot C
C-Over	**6**		x				40%	10%	0%	100%	27,360	$ 38,000	Overflow parking lot south of lot C
D	**6**			x			20%	10%	5%	100%	32,900	$ 43,000	Parking lot D, South of Blum Union, includes Cronkite Memorial Drive
E1	**7**			x			20%	10%	5%	100%	30,920	$ 40,500	South segment of parking lot E
E2	**7**			x			20%	10%	5%	100%	24,030	$ 33,000	Center segment of parking lot E
E3	**6**			x			40%	15%	10%	100%	28,950	$ 56,500	North segment of parking lot E
F1	**5**				x		60%	25%	10%	100%	14,110	$ 70,000	South segment of parking lot F
F2	**7**			x			10%	0%	0%	100%	17,110	$ 10,000	Center segment of parking lot F
F3	**8**			x			10%	0%	0%	100%	32,710	$ 13,500	North segment of parking lot F
G1	**5**				x		60%	25%	10%	100%	19,580	$ 95,000	East segment of parking lot G, North of Blum Union
G2	**5**				x		60%	25%	20%	100%	26,840	$ 147,000	West segment of parking lot G, North of Blum Union
H1	**8**			x			10%	0%	0%	100%	47,650	$ 16,500	Residential parking in northeast segment of parking lot H
H2	**6**			x			40%	15%	10%	100%	51,410	$ 96,000	Southeast segment of parking lot H
H3	**4**				x		75%	25%	30%	100%	80,020	$ 483,500	South central segment of parking lot H
H4	**9**	x								100%	83,950	$ -	Southwest segment of parking lot H
H5	**4**				x		0%	25%	30%	100%	76,990	$ 464,500	Northwest segment of parking lot H
I	**8**	x								100%	104,790	$ -	Parking lot I, East of Griffon Indoor Sports Complex
J1	**8**	x								100%	50,440	$ -	North segment of parking lot J

MWSU Pavement Analysis - Estimated Probable Construction Costs

		RECOMMENDATIONS								ESTIMATED CONSTRUCTION COSTS (2014 DOLLARS)			COMMENTS
Lot ID	Pavement Score (10/2014)	No Improv. Req'd	Seal Coat Surface	Crack & Patch Repairs	Mill & Overlay	Replacement	Crack Filling % of Perimeter	Minor Patch % of Area	Full Depth Patch % of Area	% Parking Area Per Lot	Total Lot Area (Sq. Ft.)	**Estimated Repair Cost**	
J2	**8**			x			10%	0%	5%	100%	41,840	$ 30,500	Center segment of parking lot J
J3	**8**			x			10%	0%	0%	100%	51,910	$ 17,500	South segment of parking lot J
K1	**7**			x			20%	5%	0%	100%	63,160	$ 37,000	North segment of parking lot K
K2	**7**			x			20%	5%	0%	100%	51,260	$ 31,500	Center segment of parking lot K
K3	**9**	x								100%	26,610	$ -	Southeast segment of parking lot K
L	**4**				x		0%	25%	30%	100%	14,620	$ 93,000	Handicap/Reserved in parking lot L, S. of Popplewell Hall
M	**-**									100%	-	$ -	Missouri Department of Conservation parking lot
N	**7**			x			20%	0%	0%	100%	57,350	$ 19,000	Parking lot N, West of Griffon Indoor Sports Complex
O1	**7**			x			15%	0%	0%	100%	54,310	$ 18,000	South segment of parking lot O
O2	**7**			x			15%	0%	0%	100%	90,170	$ 26,000	North segment of parking lot O
P	**-**									100%	-	$ -	Gravel lot east of Leaverton Hall
Q1	**9**	x								100%	23,170	$ -	Front drive and adjacent parking of Griffon Hall
Q2	**6**			x			20%	5%	25%	100%	48,800	$ 117,500	East segment of parking lot Q
Q3	**7**			x			15%	5%	15%	100%	33,170	$ 58,000	South segment of parking lot Q
ROADWAYS													
SE U Dr.	**6**			x			50%	0%	25%	-	20,130	$ 64,500	SE University Drive
RR Way	**6**			x			50%	0%	25%	-	19,200	$ 62,000	Ronald S. Reed, Jr. Way
SW U Dr.	**5**			x			75%	0%	50%	-	21,660	$ 127,500	SW University Drive
DD K1	**8**			x			20%	0%	15%	-	12,750	$ 29,500	Downs Drive respectively to parking lot K1
DD K2	**7**			x			40%	0%	20%	-	8,750	$ 27,000	Downs Drive respectively to parking lot K2
DD K3	**7**			x			40%	0%	20%	-	8,620	$ 26,500	Downs Drive respectively to parking lot K3
DD B1	**7**			x			40%	0%	20%	-	7,990	$ 25,000	Downs Drive respectively to parking lot B1

MWSU Pavement Analysis - Estimated Probable Construction Costs

		RECOMMENDATIONS								ESTIMATED CONSTRUCTION COSTS (2014 DOLLARS)			COMMENTS
Lot ID	Pavement Score (10/2014)	No Improv. Req'd	Seal Coat Surface	Crack & Patch Repairs	Mill & Overlay	Replacement	Crack Filling % of Perimeter	Minor Patch % of Area	Full Depth Patch % of Area	% Parking Area Per Lot	Total Lot Area (Sq. Ft.)	**Estimated Repair Cost**	
DD B2	**7**			x			40%	0%	20%	-	12,600	$ 36,000	Downs Drive respectively to parking lot B2
DD C	**7**			x			40%	0%	20%	-	12,880	$ 36,500	Downs Drive respectively to parking lot C
DD E	**6**			x			50%	0%	25%	-	14,260	$ 47,500	Downs Drive respectively to parking lot E
DD G	**7**			x			40%	0%	20%	-	18,000	$ 49,000	Downs Drive respectively to parking lot G
DD H	**7**			x			40%	0%	20%	-	24,150	$ 63,500	Downs Drive respectively to parking lot H
DD I	**6**			x			50%	0%	25%	-	14,400	$ 48,000	Downs Drive respectively to parking lot I
DD N	**6**			x			50%	0%	25%	-	20,200	$ 65,000	Downs Drive respectively to parking lot N
DD J1	**6**			x			50%	0%	25%	-	10,720	$ 37,500	Downs Drive respectively to parking lot J1
DD J2	**6**			x			50%	0%	25%	-	7,300	$ 27,500	Downs Drive respectively to parking lot J2
DD J3	**7**			x			40%	0%	20%	-	9,250	$ 28,000	Downs Drive respectively to parking lot J3
JMc C N.	**8**			x			20%	0%	15%	-	97,250	$ 184,500	James McCarthy Drive north of parking lot H to Faraon Street
JMc C S.	**7**			x			40%	0%	20%	-	18,340	$ 49,500	James McCarthy Drive south, respectively to parking lot H

Total Estimate of Probable Construction Costs (2014 Dollars) $3,346,000

Restoration Maintenance Program

A Pavement Management System utilizing each of the maintenance categories mentioned previously is highly recommended. The owner must create a comprehensive program whereby preventative maintenance for parking lots with scores of 4 or higher is combined with rehabilitation or reconstruction projects. Appendix B (Estimated Probable Construction Costs) provides recommendations as to the type of repairs, degree of crack filling or patching that are anticipated to restore the parking lot inventory to an acceptable level.

Working with 2014 dollars the estimated cost to restore the inventory is $3,346,000. When extending improvements over a 10-year period with an allowance of 3% for inflation each year, a budget of $395,400 per year would be required (See tables below).

Recommendation	Lot Area (Square ft)	Cost (2014 Dollars)
No Improvement Required	353,200	$0
Seal Coat Surface Treatment	27,400	$38,000
Crack & Patch Repairs	1,142,130	$1,711,000
Mill & Overlay	277,900	$1,597,000
Full Depth Replacement	0	$0
Total	**1,800,600**	**$3,346,000**

Total Cost Plus Inflation Indexing			
Inflation Rate	1.00%	3.00%	5.00%
Year	Annual Cost	Annual Cost	Annual Cost
1	$ 338,000	$ 345,000	$ 352,000
2	342,000	355,000	369,000
3	345,000	366,000	388,000
4	349,000	377,000	407,000
5	$ 352,000	$ 388,000	$ 428,000
6	356,000	400,000	449,000
7	359,000	412,000	471,000
8	363,000	424,000	495,000
9	366,000	437,000	520,000
10	370,000	450,000	546,000
Total Over Program Cycle	**$ 3,540,000**	**$ 3,954,000**	**$ 4,425,000**
Years In Program Cycle	10	10	10
Average Annual Budget Amount	***$354,000***	***$395,400***	***$442,500***

Field Visit Notes

Parking Lot A – Pavement rating of 5.
This is the circle drive in front of the administration building. Pavement condition is fair. Significant alligator crack pattern in the majority of the parking area. All parking is bounded by combined curb and gutter in good condition primarily.

Parking Lot B

Section 1 – Pavement rating of 8.
Section 1 is asphalt pavement. The perimeter is bounded with concrete parking blocks. Pavement conditions are good. Asphalt is oxidized. Cracking is minor and of small dimension.

Section 2 – Pavement rating of 9.
Section 2 is reinforced concrete pavement. The perimeter is protected by concrete parking blocks. Pavement panels appear to be about 15 feet square. Pavement is laid out in a radial pattern rather than orthogonal. Pavement condition is very good.

Parking lot C – Pavement rating of 4.
This lot is asphalt pavement. The perimeter is bounded by concrete parking blocks. Pavement condition is fair to poor. Longitudinal cracks along the apparent asphalt lift lines. Several secondary cracks along these lines. Very limited patching is evident. No curb inlets or storm sewer on this lot.

Parking Lot C Overflow – Pavement rating of 6.
This lot is an asphalt parking lot apparently of newer construction. The perimeter is bounded by combined curb and gutter with a standard curb section. Cracks are evident along almost all asphalt lift lines. Drainage is to the southwest corner with the concrete flume discharging to turf. Erosion is evident at the end of the concrete flume.

Parking Lot D – Pavement rating of 7.
This lot is an inner parking lot with standard combined curb and gutter along the perimeter. Pavement condition is fair. Some of the curb and gutter has been replaced.

Cronkite Memorial Drive – Pavement rating of east leg is 7 and west leg is 5.
The driveway in front of the Cronkite Memorial is asphalt pavement with combined curb and gutter. Condition is good. The lower levels have drainage problems at the west end where water collects on the pavement because it cannot discharge through the flume. The western most has a vertical concrete curb in very poor condition. The western entrance at the road has erosion issues.

Parking Lot E

Section 1 – Pavement rating of 7.
This pavement is asphalt with combined curb and gutter. Crack repair and minor patching is required. Some groundwater seepage is evident in this section. There is a small turf median island. Drainage is accomplished with curb inlets and storm sewer in section 2.

Section 2 – Pavement rating of 7.
This lot is similar to section 1. This area is currently blocked off to vehicle traffic.

Section 3 – Pavement rating of 6.
This is an asphalt pavement with combined curb and gutter on the perimeter. Water drainage is directed to curb inlets in the next section. Water seepage is evident throughout this section.

Parking Lot F

Section 1 – Pavement rating of 5.
Pavement condition is asphalt with combined curb and gutter. Pavement condition is of poor quality compared to adjacent lot.

Section 2 – Pavement rating of 7.
Condition is similar to Section 3. Asphalt pavement with concrete combined curb and gutter. Storm water directed to curb inlets. Some raveling is evident in the lowest portions of the parking lot.

Section 3 – Pavement rating of 8.
This is asphalt pavement with combined curb and gutter on the perimeter. Asphalt pavement is in good condition. No thermal cracks are evident. Some minor cracking is evident.

Parking Lot G

Section 1 – Pavement rating of 5.
Parking lot is asphalt pavement with combined curb and gutter on the perimeter. All asphalt is heavily oxidized. It has unraveling in some locations, cracking is less severe than most lots.

Section 2 – Pavement rating of 5.
This is asphalt pavement with combined curb and gutter around the perimeter. The surface is heavily oxidized and is beginning to lose aggregate in some locations. Combined curb and gutter is in fair condition. Some rutting from static wheel loads is evident. Water is directed from both section 1 and section 2 to the northwest corner of the lot to a flume that discharges onto the surface.

Parking Lot H

Section 1 – Pavement rating of 8.
This is the residential parking in the northern end. Pavement is asphalt, condition is fair to good. No significant cracking is evident. Perimeter is

combined curb and gutter in poor condition. Drainage is directed to the downstream flume then to the stream. Water is discharged to a flume which is collected to a pipe down the stream bank to the bottom of the channel. Some crack repair might be required.

Section 2 – Pavement rating of 6.

This is asphalt pavement with combined curb and gutter on both sides. This pavement has significantly more deterioration than in the previous section. Drainage is directed to a flume at the northwest corner of this section. Pavement is unraveling along some joints. Evidence of groundwater can be seen.

Section 3 – Pavement rating of 4.

This section has even more deterioration than the previous section. The surface course is unraveling in many locations. There is evidence of groundwater seepage. Drainage is directed to a flume at the northwest corner of the section. Section 3 of parking lot H has concrete parking blocks on the upstream side and combined curb and gutter on the downstream side.

Section 4 – Pavement rating of 9.

This was reconstructed in summer 2014. It is an asphalt pavement with combined curb and gutter on the downstream edge and concrete parking blocks on the upstream side. For section 4, the pavement directs the drainage to curb inlets at the northwest and northeast corners of the area and is then carried in pipes down to the creek. The drive approach separating the sections is concrete valley gutters carrying water from Downs Dr. to the inlets.

Section 5 – Pavement rating of 4.

This is asphalt pavement with concrete parking blocks on the perimeter except the downstream edge, which is combined curb and gutter. Drainage is directed to the curb inlet in the southeast corner of the section. Approximately 15% of this parking lot was patched with the reconstruction of section 4. There is evidence of water seepage from groundwater on this segment.

Parking Lot I – Pavement rating of 8.

Parking lot I is an asphalt pavement with combined curb and gutter around the perimeter. Area inlets are located internal to the parking stalls. Large curb inlet in south corner of the lot. Pavement condition is good. Parking lot is possibly five years old.

Parking Lot N – Pavement rating of 7.

This parking lot is asphalt construction with a concrete role type curb around the perimeter. Pavement condition is fair to good. Cracking is beginning to occur with a relatively random pattern, none of these cracks is large in size.

Parking Lot J

Section 1 – Pavement rating of 8.

This is the northern portion. It is an asphalt parking lot with combined curb and gutter around the perimeter. Drainage is directed to a curb inlet at the northwest corner of the segment. Pavement condition is pretty good.

Section 2 – Pavement rating of 8.

Parking lot J, section 2 is asphalt pavement with combined curb and gutter on the perimeter. It also is in fairly good condition. There is evidence of groundwater seepage in a portion of this segment along the west curb line.

Section 3 – Pavement rating of 8.

Asphalt pavement with combined curb and gutter. Evidence of asphalt overlay as shown by asphalt being placed over the gutter pan on the west edge. The inside edge has parking blocks in lieu of curb. Parking blocks outline the outside edge on the southernmost portion of the parking lot. Pavement condition is good. Minimal crack repair required.

Parking Lot K

Section 1 – Pavement rating of 7.

This is asphalt pavement with concrete parking blocks on both edges. Thermal cracking is evident in large segments. No alligator cracking is evident. Slurry seal has been applied at least once on this parking lot.

Section 2 – Pavement rating of 7.

Parking lot K, section 2 is similar to section 1 of the same lot.

Section 3 – Pavement rating of 9.
Parking lot K, section 3 is asphalt pavement with concrete parking blocks. Pavement condition is good. There is no drainage collection system on the lot. Erosion is evident at the downstream edge of the lot. There also is ponded water in the island area between section 2 and section 3.

Parking Lot L – Pavement rating of 4.
This is asphalt pavement with concrete combined curb and gutter. This lot is almost exclusively handicap parking. Sidewalk and curb and gutter, particularly the handicap ramps, are in poor condition. Pavement condition is poor to fair. There is one area inlet near the southeast corner of the lot. Curb and gutter in wheelchair ramps need to be replaced.

Parking Lot Q

Section 1 – Pavement rating of 9.
This lot is asphalt. The edges are either turned down sidewalk or combined curb and gutter. Pavement condition is very good. Drainage is collected in curb inlets and storm sewer.

Section 2 – Pavement rating of 6.
This is asphalt with sidewalk or combined curb and gutter. Storm water is collected in a series of curb inlets and storm sewers. The parking lot is approximately three years old, and serves the newest residence hall. There is evidence of groundwater seepage and sub-grade failure in the lot.

Section 3 – Pavement rating of 7.
Section 3 of parking lot Q is asphalt with combined curb and gutter along the perimeter. Storm water is collected into the curb inlets and storm sewers. There is evidence of groundwater seepage mainly the westerly portion of this section. Section 3's condition is better than the previous section.

Parking Lot O

Section 1 – Pavement rating of 7.
This is the south portion of the lot, south of the driveway. This portion of the lot consists of asphalt pavement with combined curb and gutter along the perimeter. The water is collected in curb inlets along the south side. Thermal cracks have developed and are fairly wide. Otherwise pavement condition is good.

Section 2 – Pavement rating of 7.
Section 2 of parking lot O is asphalt with combined curb and gutter on the perimeter. Water drainage is directed to flumes discharging onto earth. Corrosion problems continue to occur at each location. Pavement shows evident thermal cracks in large pattern.

University Drive – Pavement rating of 6.
University Dr. is the eastern most access road. The pavement is concrete with monolithic roll type curb. At least one third of the payment has recently been reconstructed. Panels appear to be 12' x 20'. Mid panel transfers cracks are evident.

Ronald S. Reed Jr Way – Pavement rating of 6.
This roadway is a divided entrance roadway. The pavement is concrete pavement with standard monolithic roll type curb. Pavement condition is poor to fair. Significant mid panel cracks have occurred. Concrete has not deteriorated significantly. Approximately a third of the pavement has been removed and replaced.

SW University Drive – Pavement rating of 5.
SW University Dr. is concrete pavement with monolithic roll curb section. There is a longitudinal crack parallel to the pavement edge approximately 3 to 4 feet from the back of curb in both lanes. Significant cracking has occurred in the pavement throughout its length.

Downs Drive

Section K-1 – Pavement rating of 8.
Downs Drive is concrete pavement, two lanes with monolithic roll type curb unless otherwise noted later. This segment has approximately 40% of the panels with a longitudinal crack in one lane or the other. 60 to 70% of the panels are intact, faulting is minimal.

Section K-2 – Pavement rating of 7.
Pavement construction is same as previous section. 80% of the panels in the westbound lane exhibit a longitudinal crack 3 to 4 feet from the back of curb. Eastbound panels are primarily totally intact, faulting is noticeable but not major.

Section K-3 – Pavement rating of 7.
Groundwater seepage from the K-2 – K-3 drive is evident. Approximately 80% of the panels in both lanes have a longitudinal crack parallel to the back of curb 3 to 5 feet away from back of curb. Faulting is minor.
Section B-1 – Pavement rating of 7.
Pavement construction is the same, select panels in this segment have been removed and replaced. Remaining panels exhibit cracking, usually longitudinally.
Section B-2 – Pavement rating of 7.
This segment is the same construction, the westbound lane exhibits a longitudinal crack almost the entire length. The eastbound lane has a longitudinal crack approximately 50% of the way.
Section C – Pavement rating of 7.
Pavement construction is the same, longitudinal crack previously mentioned is evident in both lanes approximately 50% of the length.
Section E – Pavement rating of 6.
This segment is of the same construction. Select panels have been replaced. The longitudinal crack is evident two thirds of this segment.
Section G – Pavement rating of 7.
Pavement construction is of same type. Longitudinal crack is evident in both lanes in approximately 80% of the panels.
Section H – Pavement rating of 7.
This segment is of similar construction. Longitudinal crack is evident in approximately one third of the panels.
Section I – Pavement rating of 6.
This segment is of the same construction. Select panels have been removed and replaced. Longitudinal crack is evident in over half of the remaining panels.
Section N – Pavement rating of 6.
Pavement is of same construction. Approximately one fourth of the panels have been removed and replaced. 50% of the remaining panels indicate the longitudinal crack.
Section J-1 – Pavement rating of 6.
Pavement is of same construction. Longitudinal crack is evident in approximately 50% of the panels.
Section J-2 – Pavement rating of 6.
Pavement is of same construction. Longitudinal crack is evident in approximately 50% of the panels.
Section J-3 – Pavement rating of 7.
Pavement is of same construction. Longitudinal crack evident in a third of the panels.

James McCarthy Drive

North Segment – Pavement rating of 8
5% or less of the panels require removal and replacement.
South Segment – Pavement rating of 7
The south segment, adjacent parking lot H, has several areas where longitudinal cracking is evident.

Map with Photo Callouts

Photo Number: 5
Location: Sidewalk
Description: Erosion along sidewalk from large amounts of surface drainage flowing toward Downs Drive

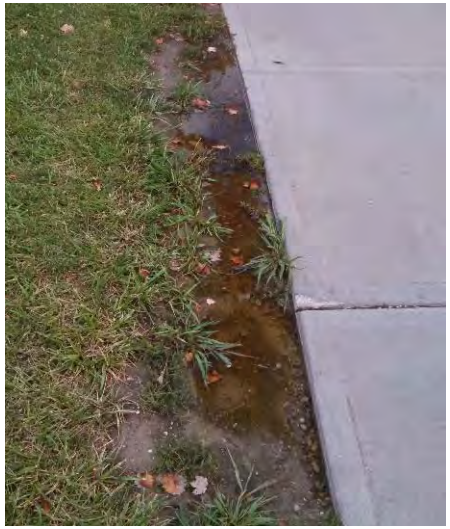


Photo Number: 6
Location: Area Inlet
Description: Surface drainage under cutting sidewalk at area inlet.

Photo Number: 7
Location: Parking Lot G
Description: Erosion at end of concrete flume

Photo Number: 8
Location: Downs Drive
Description: Longitudinal crack

Photo Number: 9
Location: Parking Lot O
Description: Major erosion around concrete at discharge location.

Photo Number: 10
Location: Parking Lot O
Description: Major erosion around concrete at discharge location.

Photo Number: 11
Location: Parking Lot O
Description: Major erosion around concrete discharge location

Photo Number: 12
Location: Parking Lot O
Description: Major erosion around concrete discharge location

Photos Referenced on Map

Photo Number: 13
Location: Parking Lot O
Description: Major erosion around concrete discharge location

Photo Number: 2
Location: Downs Drive
Description: Longitudinal crack in both lanes

Photo Number: 3
Location: Parking Lot H
Description: Water seeping through asphalt

Photo Number: 4
Location: Parking Lot H
Description: Water seeping through asphalt

Photos Referenced on Map

TURF ANALYSIS

Introduction

The Missouri Western campus is a picturesque landscape of deciduous and coniferous trees and fescue turf, similar to what many consider the vernacular for the state of Missouri. It's home like, therefore comforting and welcoming. The topography is rolling, trees provide shade, and the turf is mown short on a weekly basis. These may not, however, be the most sustainable and cost-effective practices. How could the campus and environment benefit from re-evaluating current mowing practices?

Existing Turf Management

Maintenance Practices

The following practices, as provided by Missouri Western employees, are taking place campuswide and are intended to paint a picture of the level of effort and funding required to maintain the current aesthetic. From year to year, as administrations and state appropriations vary, these practices may vary, often resulting in a lack of continuity.

The university employs six full-time workers that mow once per week from April to October, or +/-28 mowings. There are also two part-time employees who work 40-hour weeks from June 1 to mid-August (the beginning of the fall semester). A typical week includes 3 1/2 days of mowing, 1/2 day of machine maintenance, and 1 day for maintaining planting beds and taking care of odd jobs. Mowing equipment consists of (2) tri-deck mowers (12' and 17'), (2) 6' John Deere mowers, and (1) track mower, which are rebuilt each winter.

Mowing height and frequency: The total campus area is 723 acres of which 62 1/2 acres are within the loop road. A total of 240 acres of existing turf areas (33% of the campus) are mown to a height of 3 1/2 inches every week for roughly 7 months. Additionally, mowing patterns are varied from week to week, which reduces compaction.

Type(s) of turf seed used: Missouri Western 80/20 blend, developed by a local distributor, consists of three varieties of fescue and one rye. The fescue seed consists of two tall turf-types and one creeping red.

Weed eating: Trimming is performed at all facilities, art displays, trees, light poles, etc.

Aerating: Is done as needed with a tow-behind aerator using 3/4-inch spikes driven 10-inches deep.

Fertilizing/feeding: Are only applied to specific areas as needed, not the entire campus, using a 50-10-10 (N-P-K) fertilizer.

Herbicides/weed management: Herbicides are applied as needed around light poles and other features using a liquid herbicide (60%

glyphosphate). Spraying for +/-75 acres of dandelions is hired out every other year for roughly $5,000.

Insecticides: Not applied. Bag worms have not been an issue.

Pesticides: Not applied.

Irrigating: Three irrigation systems are utilized on campus. They are located at Ronald S Reed Junior Way, the Spring Sports Complex, and the Kansas City Chiefs practice fields. The university relies primarily on rainwater for watering the remainder of the landscape.

De-icing: Although not a turf maintenance practice, snow and ice removal does have an impact on turf health at the edges of walkways, roads and parking lots. In the past, sand, rock salt and chat have all been used to de-ice the campus, but rock salt is currently the preferred method. Equipment can be better dialed in for applications resulting in higher efficiency. Roughly 7 miles of sidewalks are treated at each snow/ice event each winter. In a typical snow and/or ice situation, areas are treated and plowed or shoveled onto turf areas, which in turn reduces the availability of water to plants in the soil and kills the turf.

Annual Turf-related Expenditures

Not only is there a significant amount of effort associated with the tasks mentioned above but there are also significant annual costs. Ranging from gas to deicing materials, the following expenditures convey the need to investigate alternatives to extensive mowing of non-native turf.

Fuel costs: Cost per year = $14,200. Cost per acre = $2.11. Assume 28 weeks of mowing. **Weed eating costs:** Cost per year = $11,760. Cost per acre = $1.75. Assume 28 weeks of mowing.

Equipment and equipment-maintenance costs: New equipment is purchased from year to year as state appropriations allow, roughly $4-5,000/year. As stated above, equipment is rebuilt yearly during the winter months. Cost per year = $5,040. Cost per acre = $0.75. Assume 28 weeks of mowing.

Water costs: Water costs for the irrigation system at Ronald S Reed cannot be calculated as it is not metered separately. The Chiefs practice fields are metered separately and cost $11,000/year.

Seed costs: Unknown.

Fertilizer and herbicide costs: $1,200 per year.

Aeration costs: Unknown.

Cleaning artificial turf costs (for informational purposes only): $3,000/year.

Labor: Cost per year = $49,980. Cost per acre = $7.43. Assume 28 weeks of mowing. **De-icing costs:** Unknown. Varies from year to year.

Recommendations

Implementation of the master plan may include a number of approaches to reduce annual maintenance costs campuswide. One or all of the recommendations mentioned below may be executed as the new framework for turf maintenance, and each can be a positive sustainable approach.

One of the most obvious recommendations is to reduce the acreage of turf mowed, which can be accomplished by converting turf areas to prairie ecosystems which do not require frequent mowing, converting non-native turf areas to native turf that does not require frequent mowing (Figure 1), limiting mowing in some areas to parking lot and walkway edges (Figure 2), and converting turf areas to additional hay production (Figure 3).

Figure 1: Example of fescue area that could be converted to hay, prairie, reduced mowing or no mowing.

Figure 2: On-campus (northeast of stadium) example of a mown edge.

Figure 3: Potential hay area west of I-29.

Scenario 1: Convert 60 acres of turf to a prairie ecosystem
(Biology Department led effort with installation and management assistance from the Missouri Department of Conservation)
Assume $12 per acre for mowing/maintaining turf
60 acres x $12 x 28 annual mowings = $20,160.00 per year saved in mowing costs, not including prairie planting and establishment costs

There is a large turf grass area adjacent to the northwest side of the MDC facility that has steep slopes that could be converted to a native prairie mix. Given the proximity to the MDC facility, the department would likely have an interest in assisting with management and perhaps using the area as an outdoor classroom.

Scenario 2: Convert 25 acres of turf to leased hay
Assume $12.00 per acre for mowing/maintaining turf
25 acres x $12 x 28 annual mowings = $8,400.00 per year saved in mowing costs 25 acres x $100 per acre per year = $2,500 per year earned with hay
Total = $10,900 per year gained.

Currently hay production on campus consists of 12 leased areas totaling 220 acres per year, generating $100 per acre, or $22,000. Implementing this scenario of reducing turf and increasing hay can lead to increased revenue for Missouri Western.

Other recommendations for reducing the acreage of mown turf include not mowing drainage swales or slopes (Figure 4), increasing the riparian corridor buffer a minimum of 50 feet (Figure 5), and adding buffer strips (10-foot minimum) at the perimeter of all ponds (Figure 6). Not only will these recommendations reduce labor and material costs but they will also reduce surface water pollution and should help deter the resident goose population.

Scenario 3: Reduce mowing by 10% campuswide

Assume $12 per acre for mowing/maintaining turf
240 acres x 10% = 24 acres x $12 x 28 annual mowings = $8,064.00 per year gained Reduction of mowing in areas of steep slopes provides greater soil stability, less compaction, and improved safety for maintenance staff.

Scenario 4: Provide a 50-foot riparian buffer (per 100 linear feet)

Assume $12 per acre for mowing/maintaining turf
0.12 acres x $12 x 28 annual mowings = $40.32 per year per 100 linear feet gained or $1,323.00 per year total gained

A native grass area around streams, ponds, and woodlands would provide a buffer for these sensitive resources and could be used for research by students and faculty.

Figure 4: Steep mown slope behind stadium.

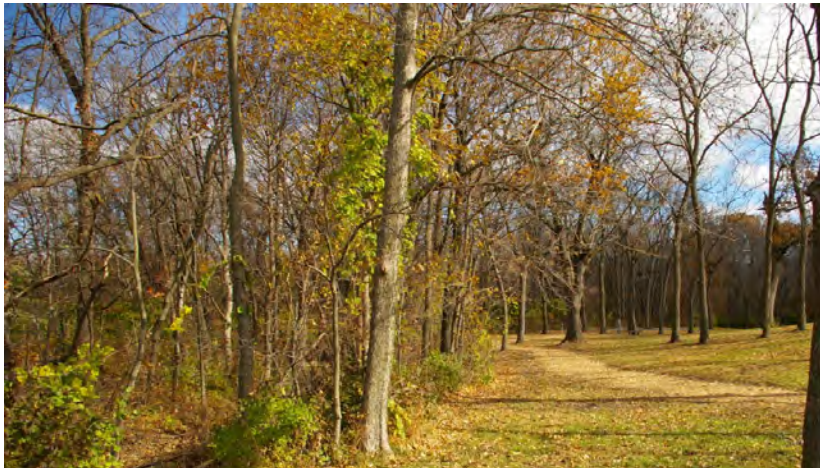


Figure 5: Riparian edge too closely mown.

Figure 6: Mown pond edge by Griffin Hall.

Continue mowing in varying patterns from week to week to reduce soil compaction and improve air, water, and fertilizer intake. Refer to aerating practices below.

Aerating at least once per year will reduce compaction and allow water, air and fertilizers to reach grass roots, thus improving turf health and reducing maintenance in the form of overseeding, watering, fertilizing, and weed management (Figure 7).

In addition to mowing practices, other seed varieties and species have been developed and can be incorporated that require less water and are more durable and disease resistant.

Mowing less frequently will improve turf performance and reduce fuel and labor costs.

Increasing the mowing height will help to control weeds, insulate against drought, and reduce mowing frequency.

Using organic fertilizers and other natural products is a more natural and environmentally friendly approach to lawn care and will improve soil health and water quality by preventing harmful products from entering ponds and the riparian corridor. This approach can reduce the labor and materials required to produce a healthy lawn.

The soil should be tested every few years campuswide to assess and better understand the condition of the soil and determine fertilizing needs and correction of soil pH.

Maintenance costs for the items mentioned above, such as fuel and oil consumption and mechanical labor should be considered for all equipment purchases. If purchasing a new mower, for example, chose one that is more fuel efficient, burns less oil, has a wider deck, and is less maintenance intensive.

A consideration for de-icing may be the use of calcium chloride as a replacement for sand, rock salt or chat. Calcium chloride alone can reduce salt damage to the turf (Figure 8). Calcium chloride can also be mixed with rock salt to improve its' effectiveness, although this will not reduce turf damage.

References

Refer to http://extension.missouri.edu/main/DisplayCategory.aspx?C=64 for additional grasses and groundcovers management recommendations.

Refer to http://www.ksre.k-state.edu/p.aspx?tabid=24 for additional lawn and garden recommendations.

Figure 7: Aeration plugs.

Figure 8: Turf damage caused by salt applications.

Page intentionally left blank.

LANDSCAPE ANALYSIS

Introduction

In order to manage a landscape analysis of this size, the team divided the campus into a number of typologies, or zones. Each zone, including everything from hay fields at the perimeter to the green spine at the core, was then studied to determine the user's experience and the condition of existing materials.

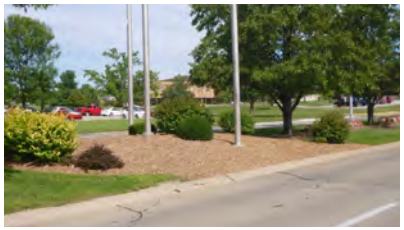
Overall, the team discovered an unclear sense of arrival, formally landscaped roads and lawn, hot parking lots, a picturesque landscape of large trees and lawn, a campus core (green spine) consisting of open lawn areas and a number of tree-lined walks, a well preserved natural landscape within the riparian corridor, and an opportunity to unify plant and landscape materials.

Edges

Perimeter of campus at roadways and internal loop road looking in. Mostly unplanted south edge of campus along Mitchell Avenue. Minimal but attractive plantings of trees, shrubs and native grasses along paved trail at Faraon Street. Trees include European Linden, crabapple and redbud. Views toward halls and clock tower from internal loop road consisting of both deciduous and evergreen trees such as European Linden, Sugar Maple, Sweet Gum, Spruce and White Pine.

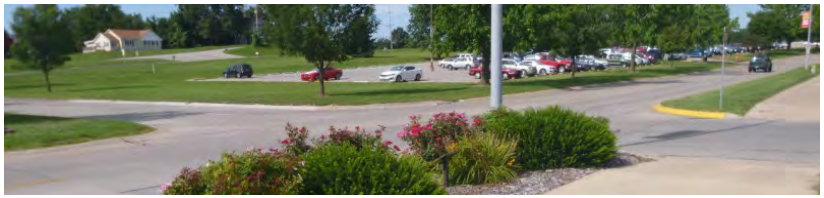
Roads Entry / Exit Drives

Vehicular access and exit points. Formal planting of European Lindens and annuals along Ronald S. Reed Jr. Way provides a colorful and attractive experience, but perhaps maintenance intensive. Opportunity to reinforce shrub plantings at flag area. Meandering exit road to Mitchell further west is lined with European Lindens and is very attractive.



Road - Internal Loop Road

Internal vehicular loop (Downs Drive) surrounding the green spine and academic zone. Attractive street trees consisting of Sweet Gum, Sugar Maple, Green Ash, European Linden, Northern Red Oak, and Littleleaf Linden planted to the outside of the road on the south and west. No street tree plantings on the inside of the loop. This keeps views open to Halls and the green spine. Opportunity to reduce maintenance with accent plantings at the intersection of Reed Way and Downs Drive.



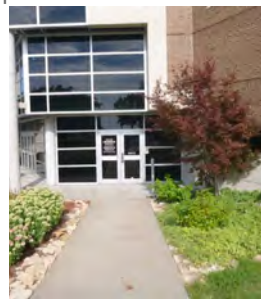
Parking

Campus parking located mostly outside of internal loop road. Opportunity to introduce shade trees to unplanted areas. Some areas include deciduous shade trees such as Pin Oak, ash, Sugar Maple and pecan. Users prefer to park under or near shade trees where available, even if a walk to their destination is greater. Areas planted with shade trees are also much more attractive and reduce the heat island effect.

Building - Entries

Entry and exit points to academic halls. Treatment ranges from no landscaping to minimal landscaping with potted plants to intensive landscaping using both deciduous and evergreen ornamental trees, shrubs, perennials and annuals.





Building - Facades

Building facades not including entry and exit points. Treatment ranges from turf only to plants widely spaced around building perimeters to an intensive use of deciduous and evergreen shrubs, perennials and annuals.



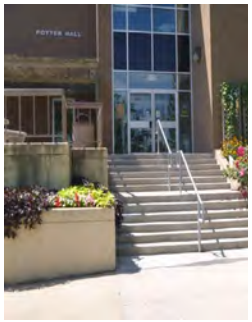
Green Spine

Heart of campus within loop road and academic halls. Landscape ranges from turf only to allées of deciduous shade trees including Sweet Gum, European Linden, Green Ash, Sugar Maple, White Pine, Spruce, crabapple, River Birch and mimosa. Glenn E. Marion Memorial Clock Tower is nicely accentuated within evergreen shrubs, perennials and annuals.



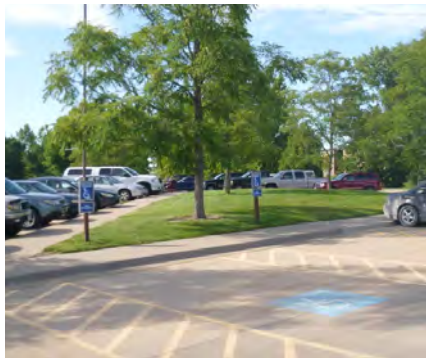
Housing

Student housing on eastern side of campus. Landscape ranges from turf only to heavily mulched areas with minimal planting to nicely planted entries. Plants consist of both deciduous and evergreen trees, shrubs and perennials. Tree species include Sugar Maple, crabapple, pine and spruce. Opportunity to soften the landscape, increase shade and accentuate building entries.



Missouri Department of Conservation

MDC property located off of James McCarthy Drive, north of student housing. Nicely planted sign, building entry and parking lot consisting of deciduous and evergreen trees, shrubs, and perennials. Species include European Linden, Northern Red Oak, Red Maple, Sugar Maple, and sycamore. A mass of native grasses and forbs also exists near the entry including bee balm and coneflower.



Support Areas

Maintenance complex and Extension office west of I-29. Mostly open landscape (turf only) except for deciduous and evergreen trees naturally spaced throughout. Accent plantings can be found adjacent to Physical Plant Office. Residence south of Extension office is attractively planted with deciduous and evergreen shade trees, shrubs, and perennials. Species include pine, spruce, European Linden, elm, Black Walnut and oak.

Undeveloped Areas

Areas throughout campus that have not been developed for use by the university. Landscapes include hay production to the north, east and west consisting of cool season grasses and invasive Johnson Grass. Heavily wooded areas exist north of the main campus including the Otoe Creek Nature Area. Woodland species include Black Walnut, cottonwood, mulberry, hickory, oak, elm, Black Willow, shrub or bush honeysuckle and a mixed understory. Opportunity to reduce mowing if desired.

Site Furnishings

Furnishings located throughout campus: benches, trash receptacles, bike racks, planters, etc. Good opportunity to unify site furnishings in style or color.

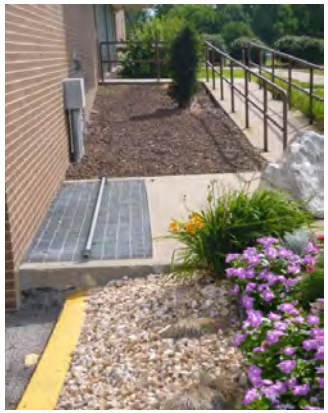




Other

Various landscape treatments located throughout campus. Opportunity to unify mulch treatments, reduce maintenance at sculptures, and refine planting beds.



Landscape Typologies

As it exists today, the campus consists of a number of zones, shown on page 193, that can be characterized by landscape type, among other factors. Landscape types may include formal, informal, cropland, wooded, shaded, unshaded, ornate, simple, complex, etc. Some zones may share the same landscape type while others have a type all their own. These types include everything from mown lawn and trees within the green spine to the hay fields at the campus fringe to the dense woods near Otoe Creek.

There are also several edges to the campus defined by landscaping. The visible edge is what can be seen from I-29. The identity edge is what can be seen in more detail from the main entry road, Mitchell Avenue. The third edge is the campus core edge, which is experienced from Downs Drive and looks into the academic core and green spine.

Land Uses

As shown in the diagram on page 194, a number of land uses utilize the existing campus property ranging from academics and housing to research areas and trails.

The master planning process will determine if these uses remain in their current location and if other uses need to be incorporated onto the campus.

Heat Islands

A positive experience at Missouri Western may not begin with parking but it is one factor that contributes to the overall impression of students, faculty, staff and visitors when on campus. A majority of existing parking lots are vast expanses of asphalt with little relief from shade trees and other landscaping. Not only does this generate high temperatures and hot cars but also the opportunity to improve the campus aesthetic. The master planning phase will investigate options to combat the heat island effect which will, in turn, improve both air quality and personal experiences *(see diagram on page 195).*

Annual Flower Beds

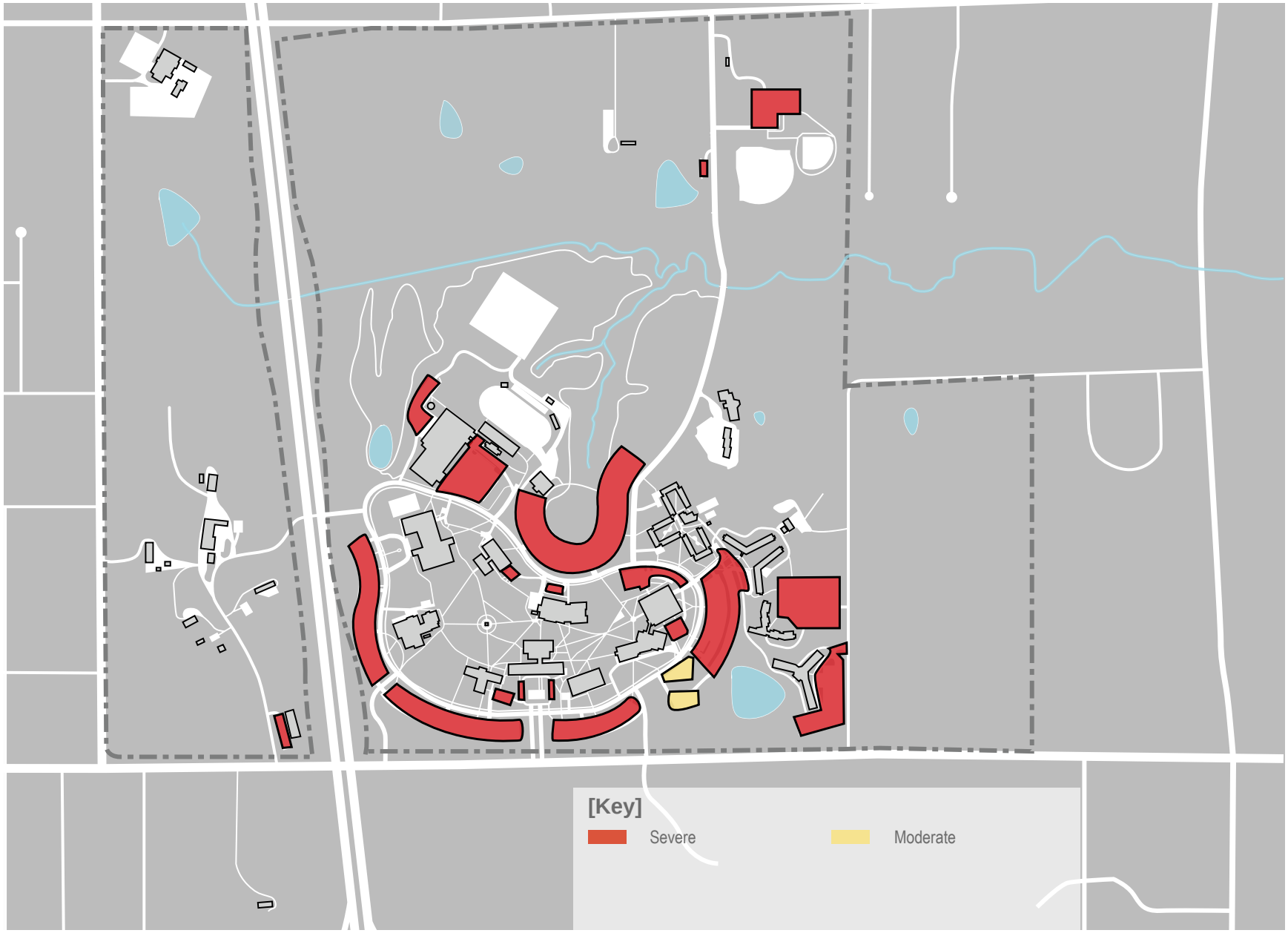
Currently there are 33 locations where annual flowers are planted and maintained throughout the growing season. An attractive feature, these beds are an important aspect of the overall look of the campus, but create additional drain on the limited maintenance resources *(see diagram on page 196).*


Faraon St
James McCiarthy Dr.
I-29
Woodbine Rd
Downs Dr.
Downs Dr.
Mitchell Ave
Ronald S Reagan Jr Way
University Dr.
[Key]
Identity Edge
Visible Edge
Campus Core Edge
Green Spine
Parking
Buildings
Housing
MDC
Support Areas
Athletics
Wooded Natural Area
Pastoral / Savanna
Hay Fields

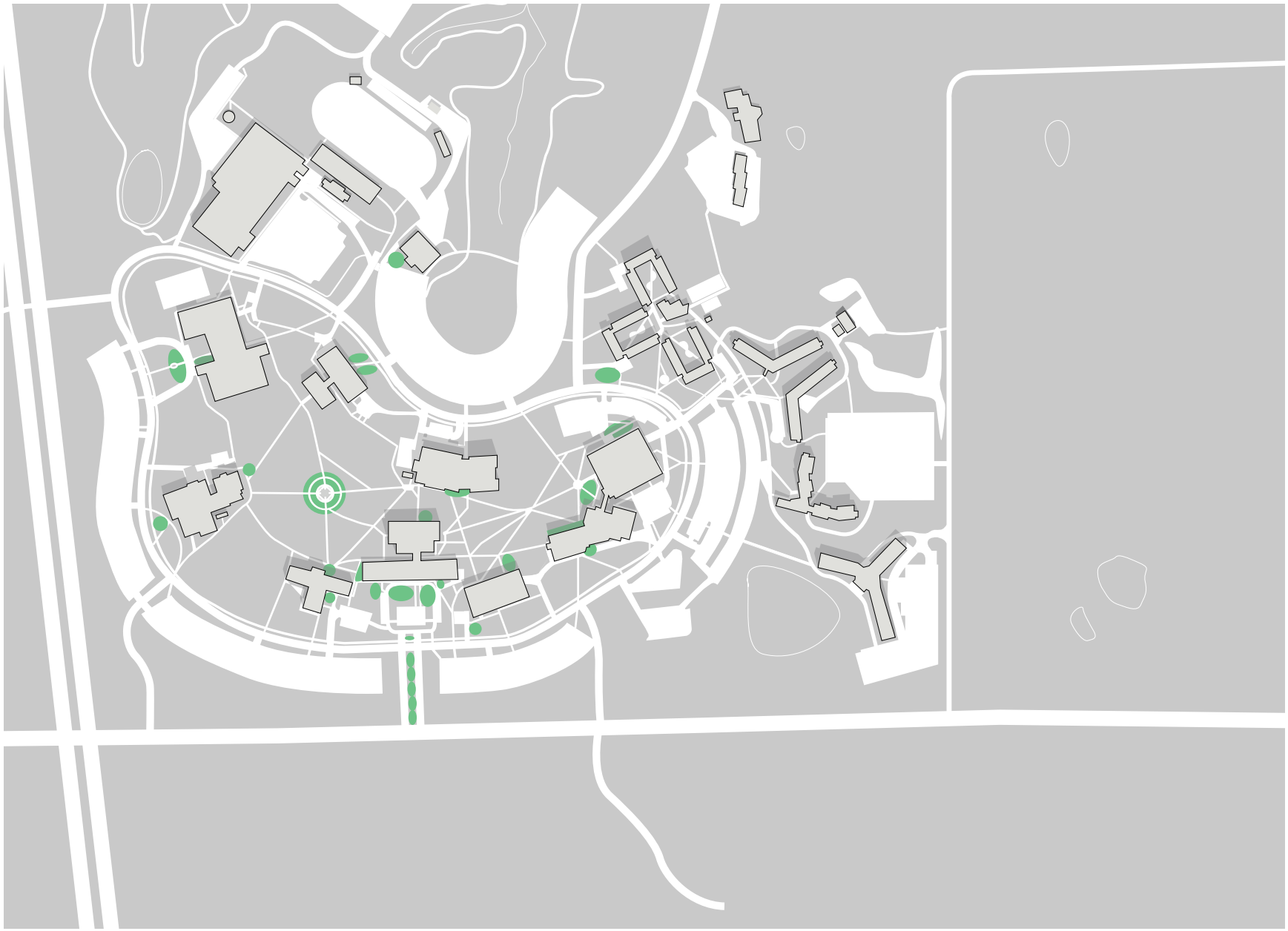
Typologies


[Key]
Academics
Student Housing
Athletics
MDC
Support Areas
Hay Lease Areas
Forensics
Pond / Research / Academic
Disc Golf
Trails
National Guard Armory

Land Uses



Heat Island



Annual Flower Beds

SIGNAGE AND WAYFINDING

Introduction

First and foremost, evaluating existing wayfinding and signage is wearing the hat of a first-time visitor. Signage can be the first opportunity to mark your arrival and make an impression. It can promote your identity and your brand.

From there the team studied the vehicular arrival sequence, pedestrian flow, and the location and condition of existing signage. Having collected this data, the team was then able to define the signage system, which included campus identity signs, vehicular wayfinding signs and facility identity signs, to name a few.

The result of this study, in summary, was that the existing sign system lacks unity, lacks regulation, seems cluttered, and would benefit from a clear progression of wayfinding signage.

Arrival Sequence

Whether a first time visitor or a faculty member who's been on campus for years, the sense of arrival is critical to a positive experience. Confusion and disorientation is not a desirable image to convey. At Missouri Western the dominant identity edge is along Mitchell Avenue. Where there should ideally be one "main entry" node there are two. Traveling from the west Ronald S. Reed Jr. Way conveys the "main entry" image with the tree-lined boulevard, monument sign, and accent plantings. Traveling from the east, the new intersection and traffic light at University Drive also conveys "main entry."

A secondary "back door" entry node exists at the north edge of campus along Faraon Street. This entry is more for those familiar with campus. Other nodes critical to the desired arrival sequence are along Woodbine Road.

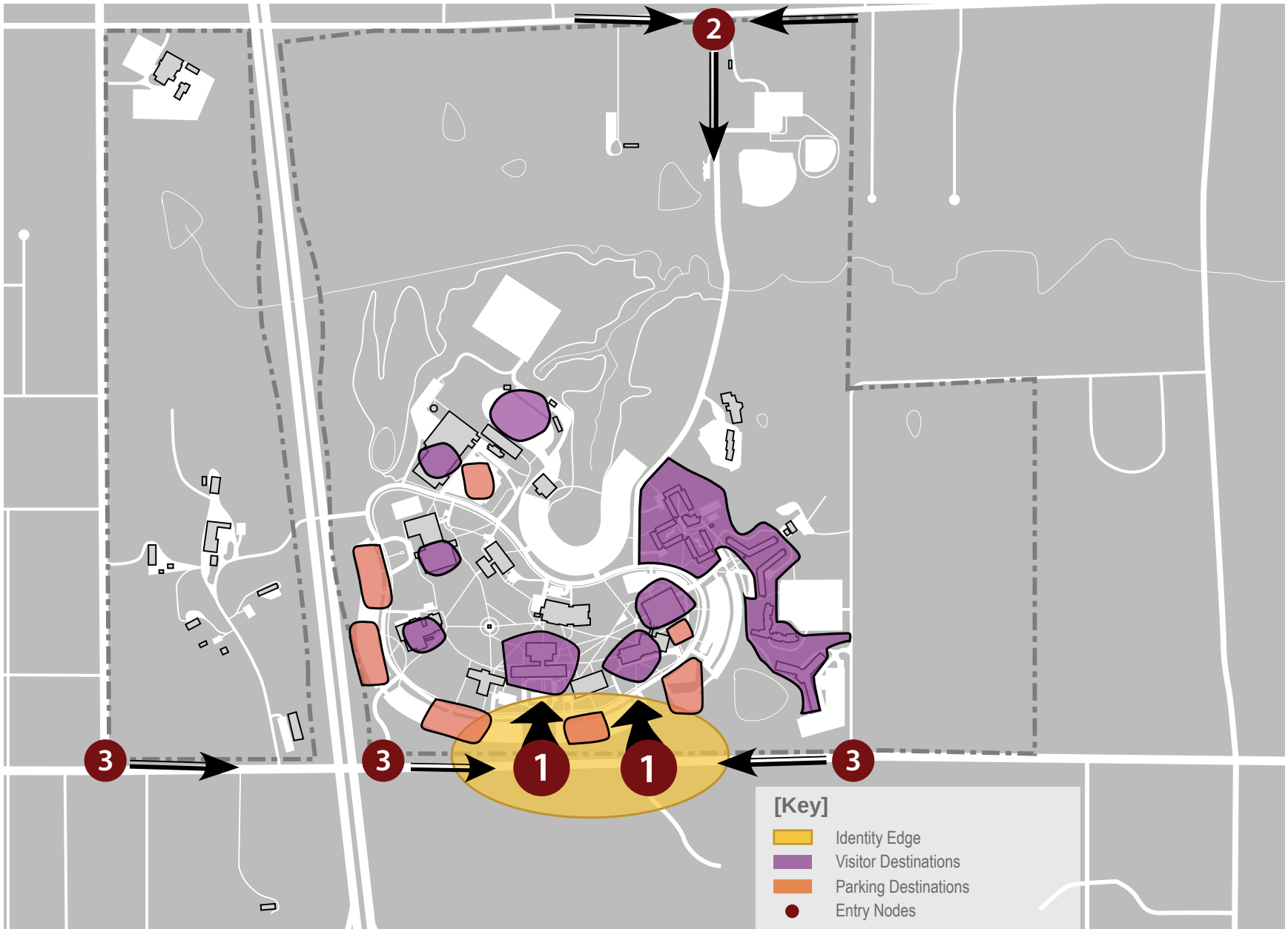
Following arrival, one should be directed to primary destinations for new students and visitors such as admissions, the student union, and student housing. Parking for those destinations is also critical *(see diagram on page 198).*

Existing Signage

The graphic on page 199 represents the predominant signage used on campus for vehicular and pedestrian wayfinding. Campus identity signs are located at the outer edges of campus and draw vehicles in.

From there, vehicular wayfinding signs should provide direction to facilities and attractions. As can be seen in the graphic, this type of signage may not be sufficient. Once direction is provided, facility identity signs mark arrival at your destination. It's time to find a parking spot! Application of this sign type is fairly complete. Now on foot, pedestrian wayfinding signs should direct people where to go, whether it be the residence halls, student union or admissions. The graphic shows a need for this type of signage.

All other signs are secondary and too numerous to show here. Feeder signs, located off campus, are sufficient on highways but require further study on local streets.



Arrival Sequence

Existing Signage

Feeder

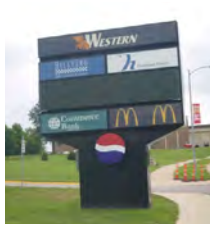
These signs are off campus and direct vehicular traffic from regional highways to the university. Currently located on I-29, US Route 36 and Riverside Road.

Except for custom billboard graphics these aluminum sign panels, with and without the MWSU logo, would require coordination with MoDOT.

Campus Identity

These are monument signs that identify the University from adjacent roadways. Located on Mitchell Avenue, Faraon Street, and Downs Drive.

A variety of styles, materials and colors. Newer brick signs match existing brick buildings but may not fit brand. Text on Mitchell Avenue sign is somewhat hard to read due to level of contrast. Text styles vary too.



Vehicular Wayfinding

These signs direct vehicles to various facilities and should be located throughout campus.

Signs vary in style, materials and colors. Some are very utilitarian. Text styles vary. MDC sign, although rustic, is the department's brand on Missouri Western's campus. Possibly too few of this family.

Traffic Regulatory

These signs provide regulations for vehicular traffic and are located throughout campus.
Signs of this nature are “off-the-shelf” as standardized by the Manual on Uniform Traffic Control Devices (MUTCD) and can be placed into an overall signage package.

Regulatory / Informational

These signs provide regulations and information for vehicles and pedestrians and are located throughout campus.

Signs vary in style, materials and colors. Very utilitarian with just rows of text. None of them seem to promote the character of campus.


Regulatory / Informational - Parking

Located throughout campus, these signs provide regulations for vehicles other than those standardized by MUTCD.

Facility Identity - Freestanding Signage

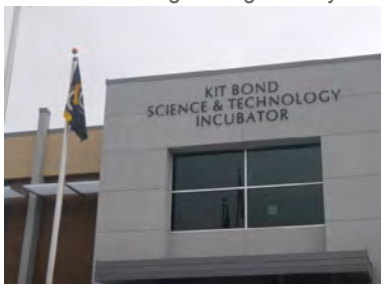
These signs identify each facility or primary feature on campus and are typically located adjacent to the facility or feature for visibility by both vehicles and pedestrians.

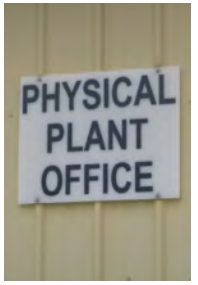
Signs vary in style, materials and colors. Text styles vary. Some do not convey the “brand” of MWSU. Many of the newer brick signs are a clean and legible sign family.

Facility Identity - Building Mounted

These signs identify each facility or primary feature on campus and are attached to the facility or feature for visibility by both vehicles and pedestrians.

Signs vary in style, materials and colors. Text styles vary. Many of the letters located on the halls are a clean and legible sign family.





SUPPORTING UTILIZATION DATA

Library Ethnography

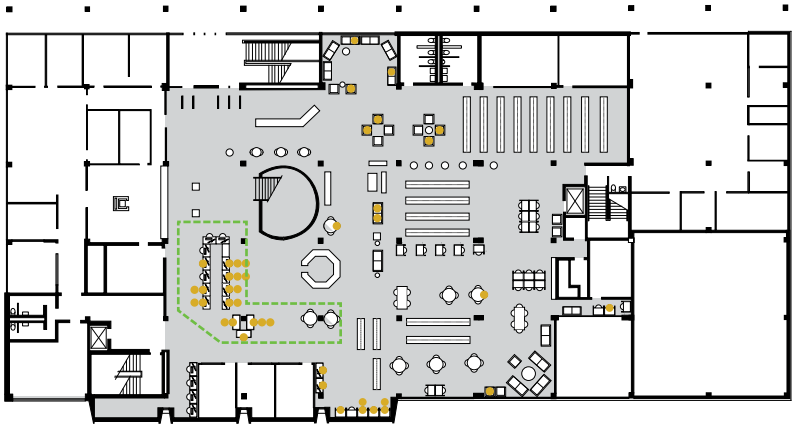
A review of the library usage included interviews and observations, in addition to review of provided data. Gate counts were reviewed from 2012, 2013, and 2014. A discussion with the library director confirmed that the peak times on a typical day are between 10 AM and 2 PM. Peak days during the year occur prior to finals and can increase the usage later into the evenings. A study of evening usage was conducted during 2013. It was noted that the library has a quantity of individual study rooms that is above the norm, and that the "back of house" office space is more than what is needed for the current operations. There is a significant quantity of bound journal volumes that can be reduced on the second level.

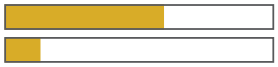
Utilization of the library space was observed and cataloged over the period of one day; on an hourly basis. Diagrams illustrating occupied seats by hour are included in the following pages. Summary observations reveal that the computer stations are heavily used, and individual users occupied several study spaces on the second floor most of the day. Traffic flow to the coffee bar during the morning hours was heavy. Usage was sparse at the larger study spaces and the individual study carrels *(see diagrams pages 204-208).*

Drop-in Computer Labs

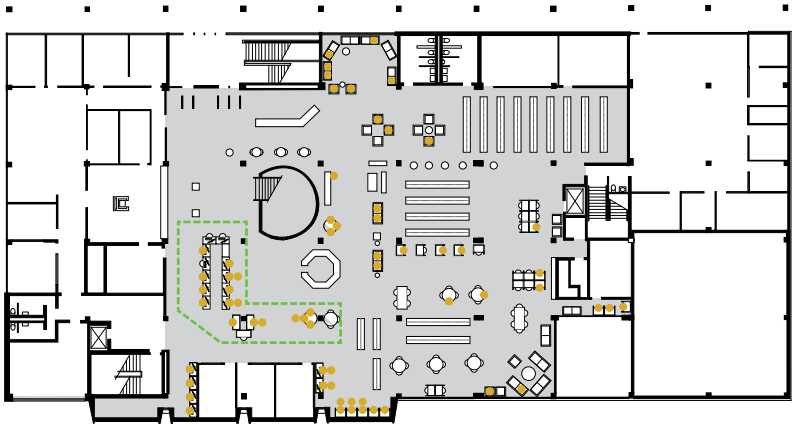
This analysis mapped the usage of computer labs throughout the day, the fourth week of fall semester. In this particular case, a Wednesday was selected. Included were both dedicated computer labs and labs that were classrooms but also allowed for drop-in time on computers. The finding is that, for this day at least, the labs as a whole were very under utilized *(see diagrams pages 209-210).*

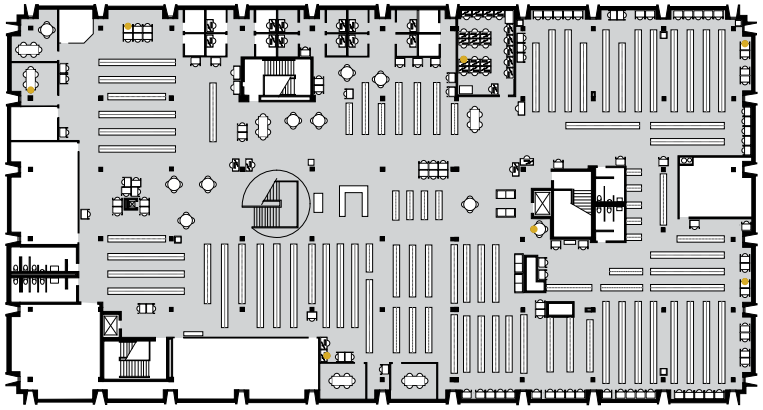
Third Floor - 8 AM

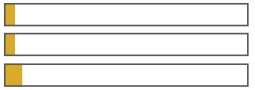




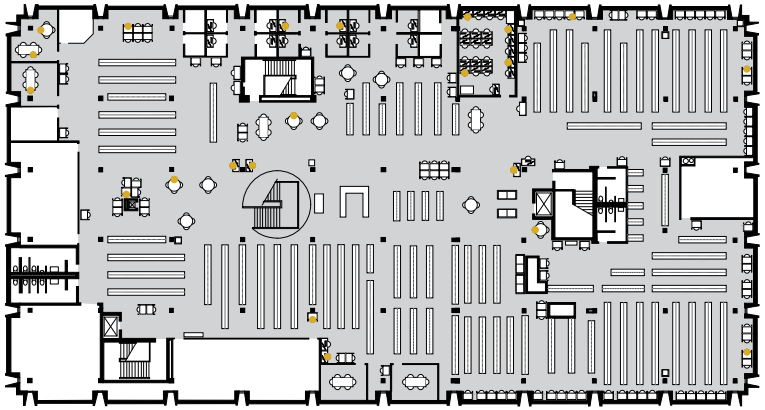
Third Floor - 9 AM

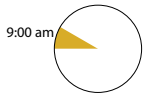






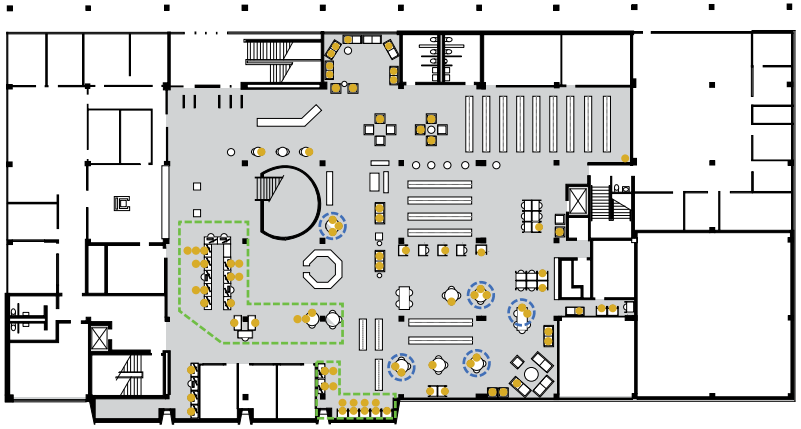
Second Floor - 8 AM

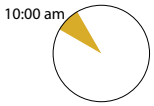




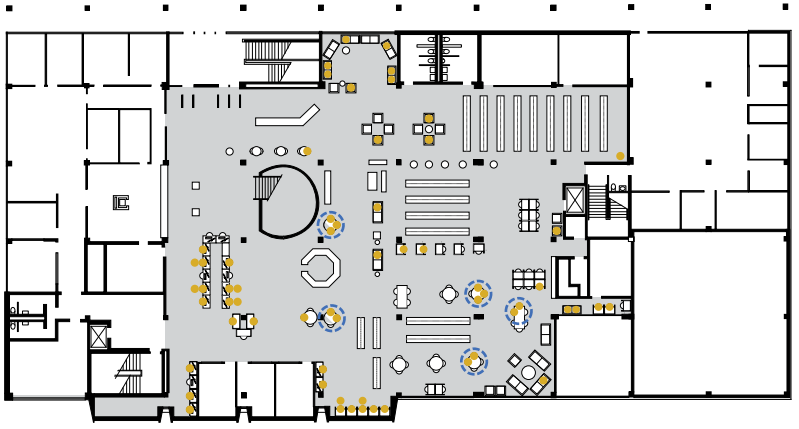
Second Floor - 9 AM

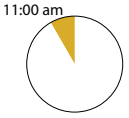
Third Floor - 10 AM

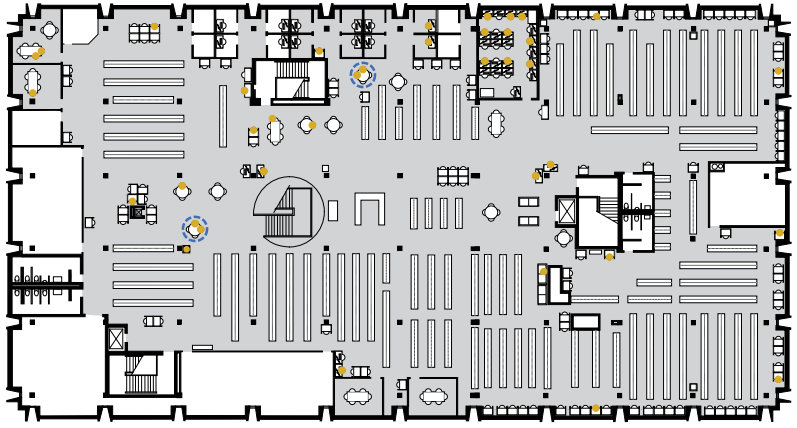


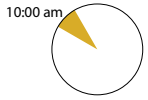


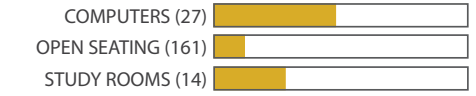
Third Floor - 11 AM



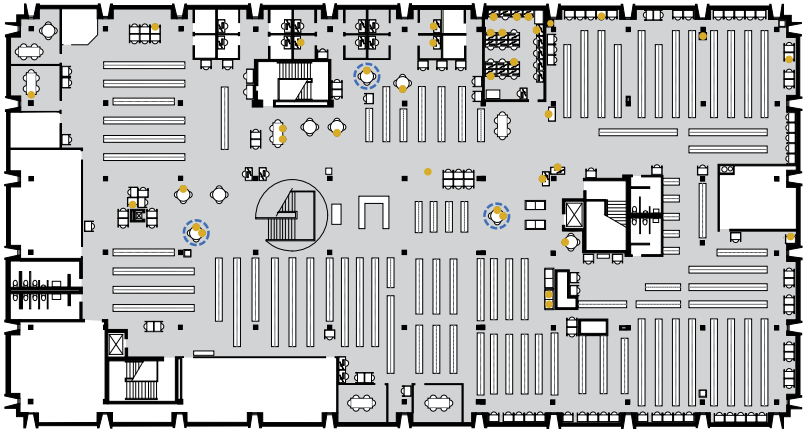


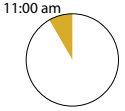


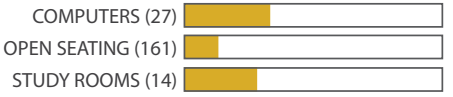




Second Floor - 10 AM

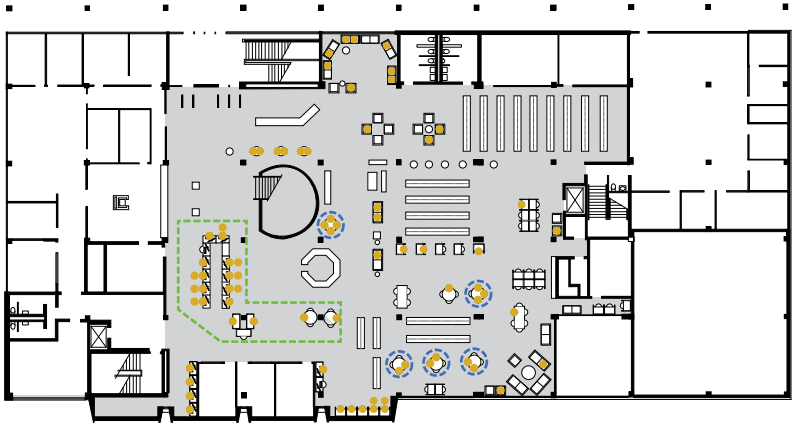


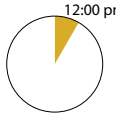


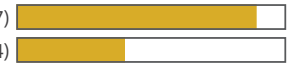


Second Floor - 11AM

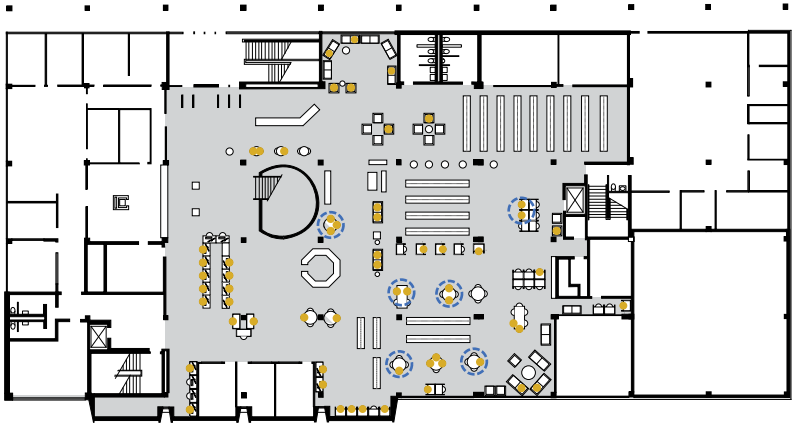
Third Floor - Noon

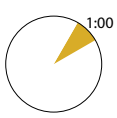


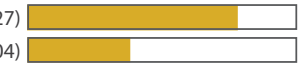


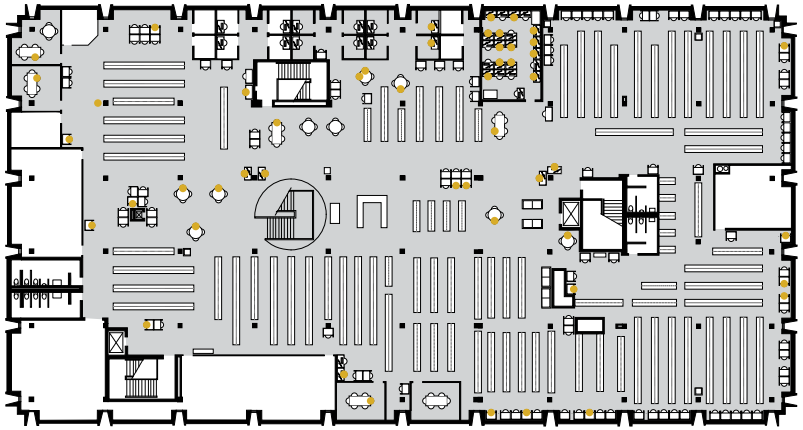


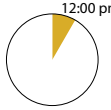
Third Floor - 1 PM

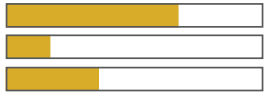




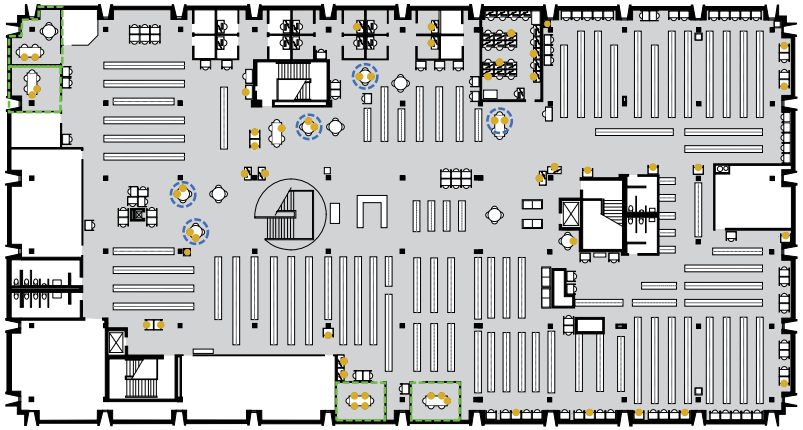


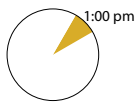


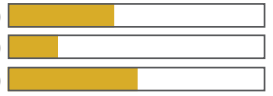




Second Floor - Noon

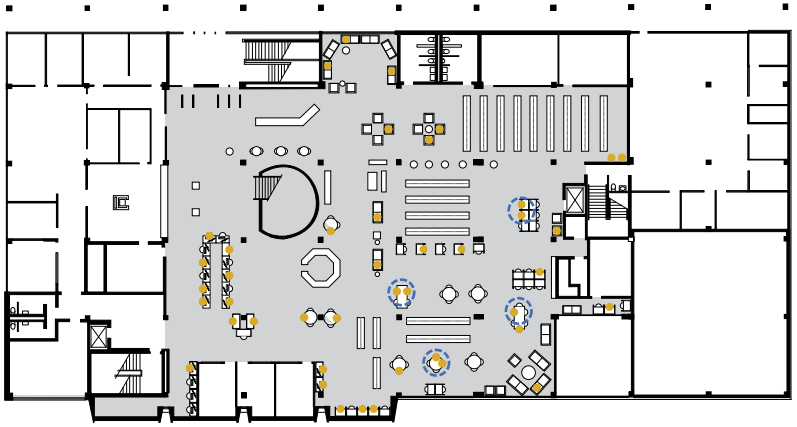


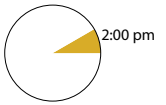




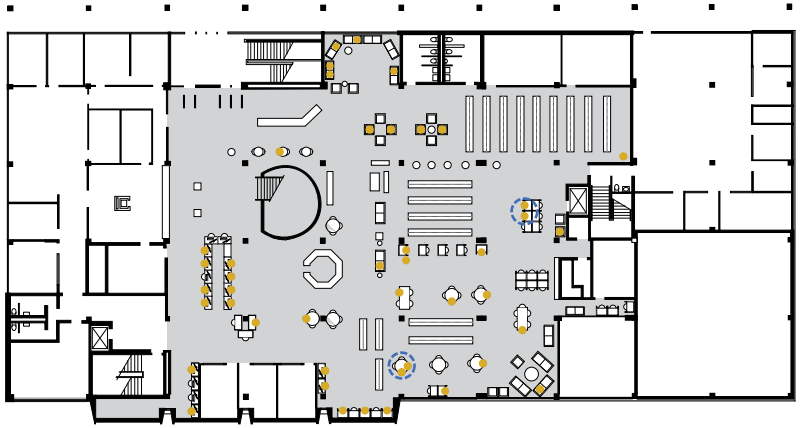
Second Floor - 1PM

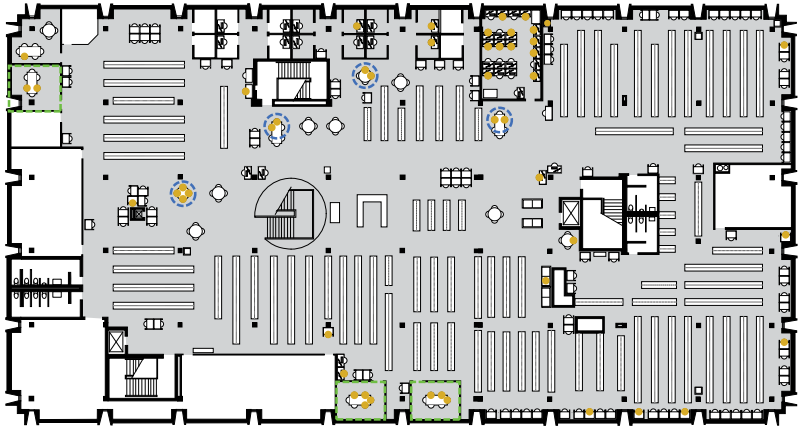
Third Floor - 2 PM

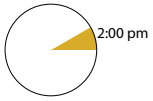




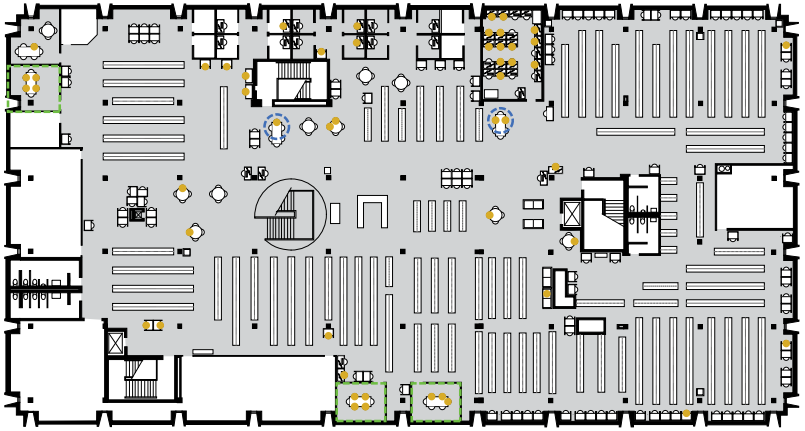
Third Floor - 3 PM

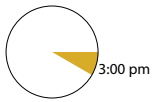


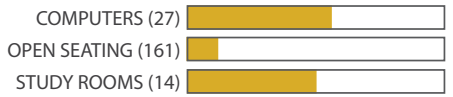




Second Floor - 2 PM

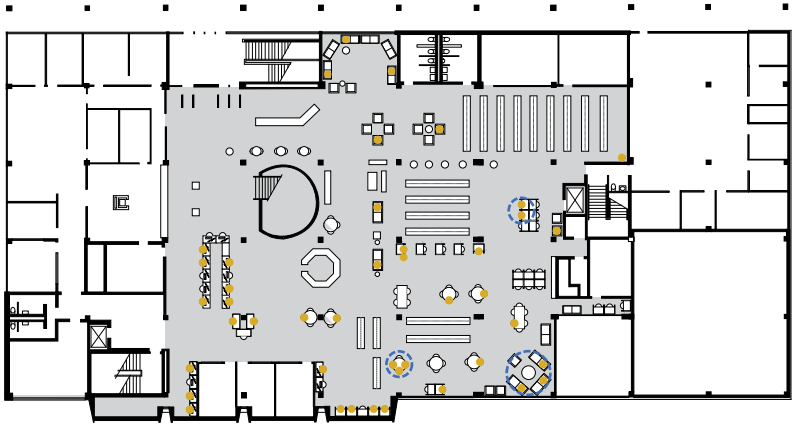


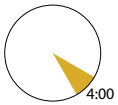




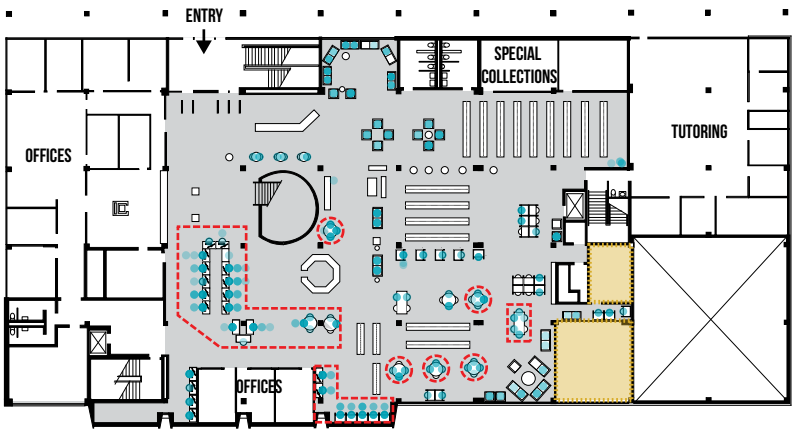
Second Floor - 3 PM

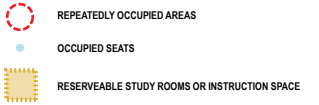
Third Floor - 4 PM

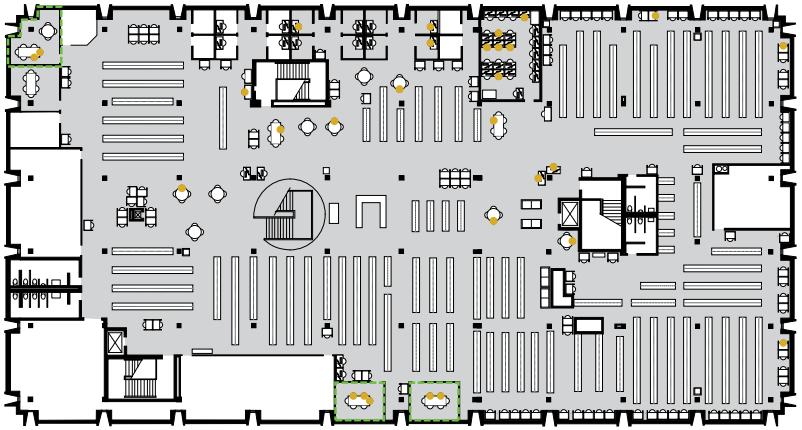


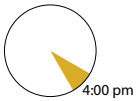


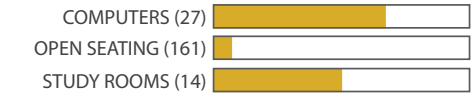
Third Floor Summary Graphic



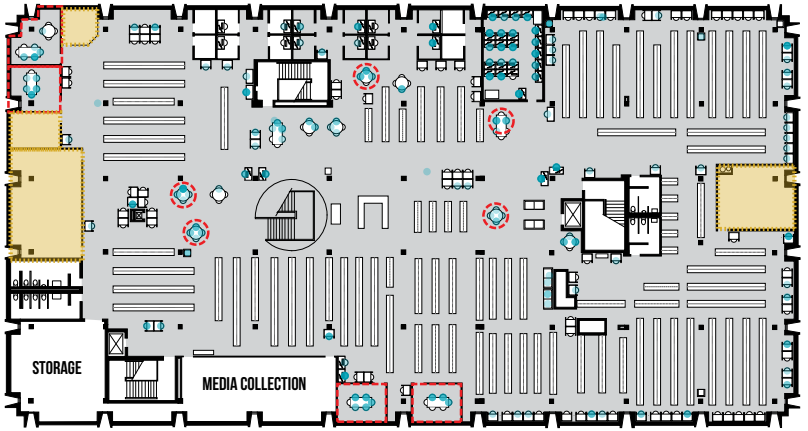


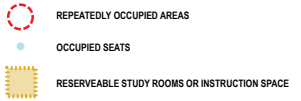






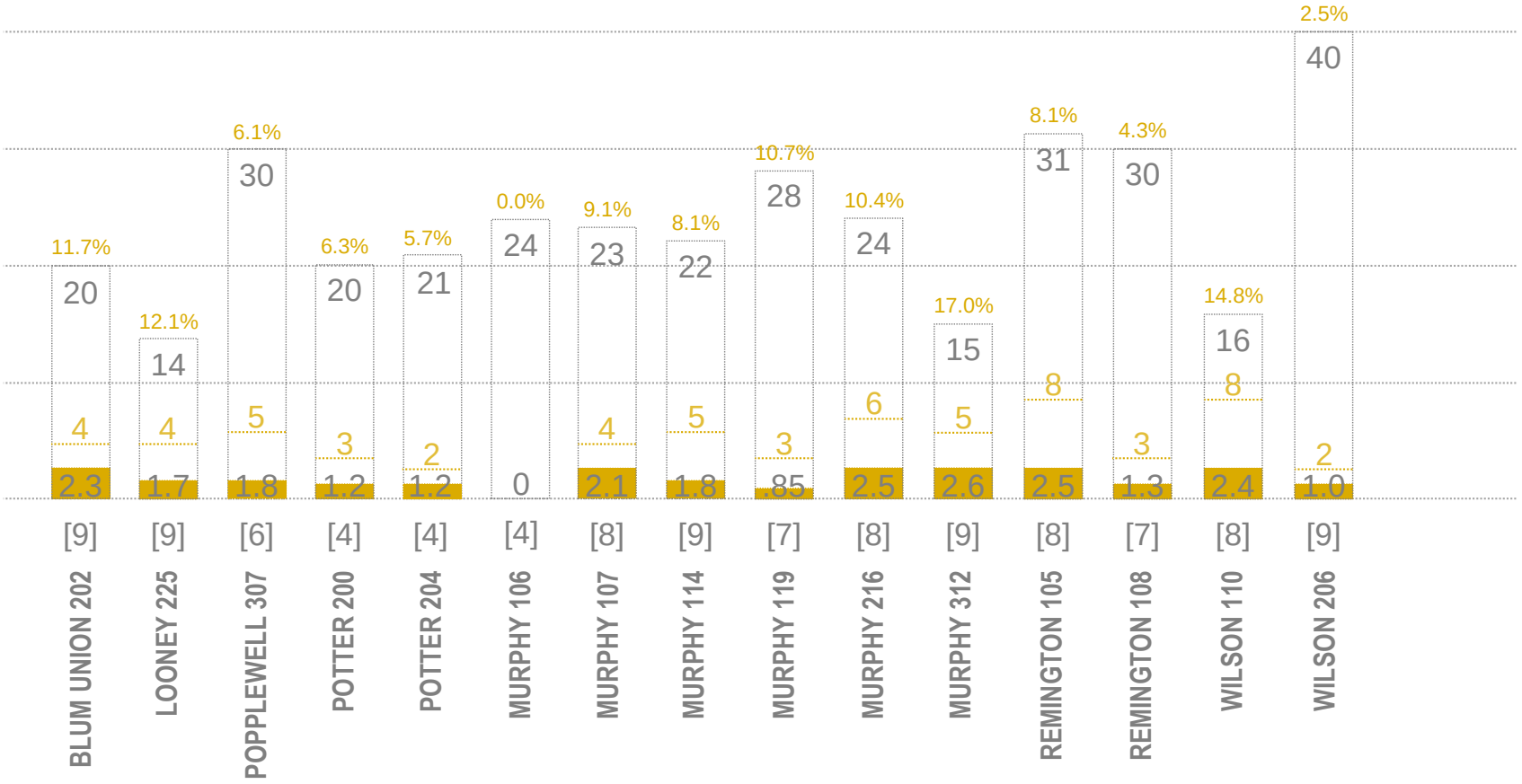
Second Floor - 4 PM





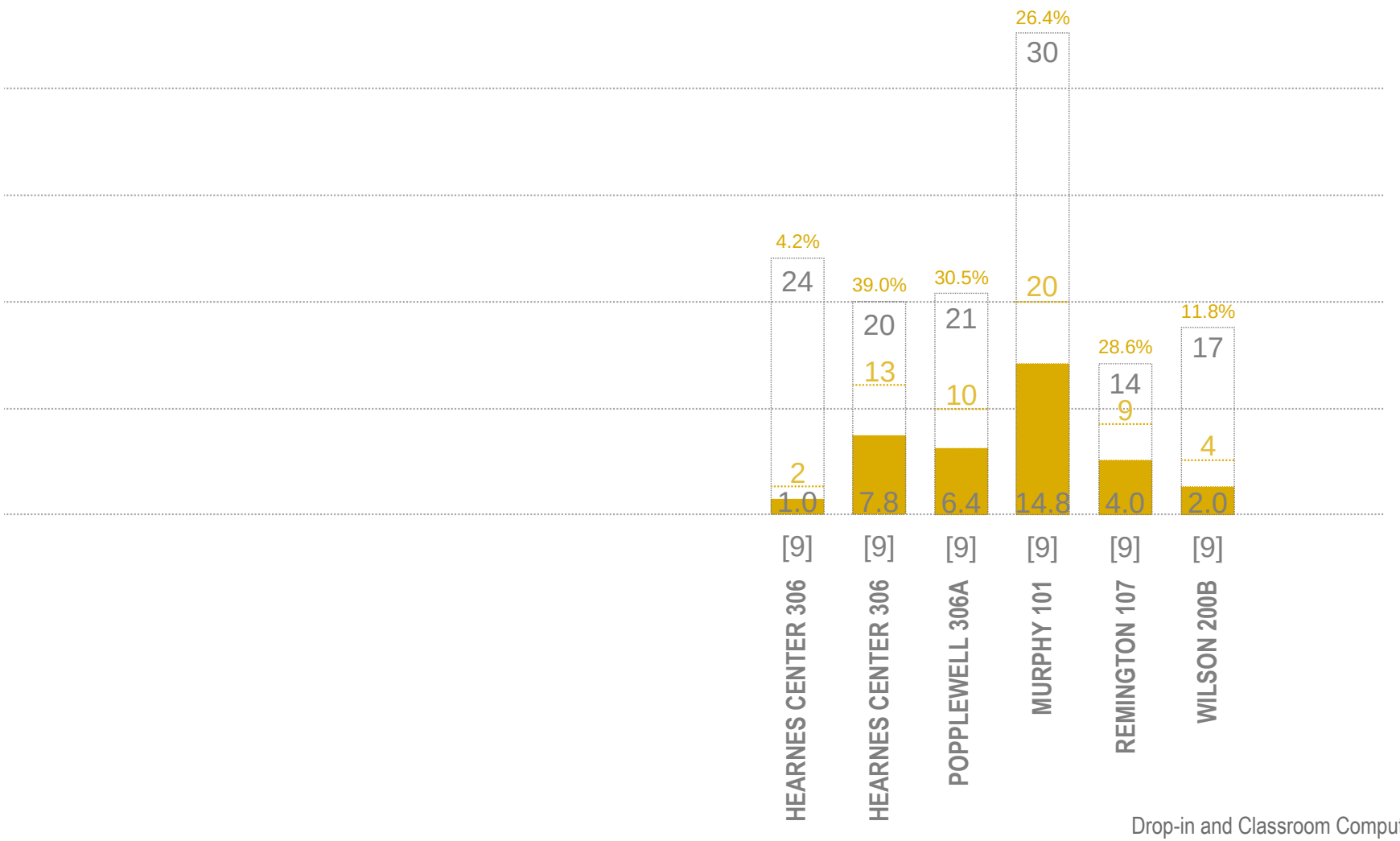
Second Floor Summary Graphic

*LABS WHILE OCCUPIED WITH CLASSES WERE NOT INCLUDED IN THE AVERAGES
"[1]" REPRESENTS THE NUMBER OF HOURS AVAILABLE FOR DROP IN
NUMBERS SHOWN IN YELLOW ARE PEAK OCCUPANCY
NUMBERS SHOWN IN GRAY BARS ARE TOTAL NUMBER OF SEATS AVAILABLE



Drop-in Computer Labs
Wednesday 8:00AM - 5:00PM

*LABS WHILE OCCUPIED WITH CLASSES WERE NOT INCLUDED IN THE AVERAGES
"[1]" REPRESENTS THE NUMBER OF HOURS AVAILABLE FOR DROP IN
NUMBERS SHOWN IN YELLOW ARE PEAK OCCUPANCY
NUMBERS SHOWN IN GRAY BARS ARE TOTAL NUMBER OF SEATS AVAILABLE



Drop-in and Classroom Computer Labs
Average Occupancy - Wednesday 8:00AM - 5:00PM

STUDENT ETHNOGRAPHY

Through collaboration with student government and the master planning team, a group of students mapped their daily route across campus to inform and clarify the impressions of university stakeholders as to how pedestrian and vehicular circulation occurs on campus.

Student Ethnography