



2020

CAMPUS MASTER PLAN UPDATE
MASTER PLAN

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INTRODUCTION

ABOUT UTHSC

STATE CONTEXT

Over 3,000 students are enrolled at the four major University of Tennessee Health Science Center (UTHSC) locations – Memphis (main campus), Knoxville, Chattanooga or Nashville – as well as in a myriad of health care-related facilities across Tennessee. Future programmatic relationships at each of the locations will be considered as opportunities develop that support UTHSC’s statewide mission.

Knoxville: Based at the Knoxville UT Medical Center, this location includes four Colleges, Medicine, Pharmacy, Health Professions, and Dentistry. UTHSC’s Audiology and Speech Pathology (A&SP) Program (within the College of Health Professions) located on the UT Knoxville campus will be relocated and consolidated to its permanent home in the UT Conference Center. Phase I of the project has been approved and design is underway. This phase consolidates functions from Neyland Stadium and construction is planned to begin in early 2020. Phase 2, which will consolidate the remaining A&SP Program functions from the Silverstein Luper Hearing and Speech Center and the Pediatric Language Clinic buildings on the UTK campus, will be submitted in the capital budget request this year. The vacated buildings will be turned over to UTK for future use.

Chattanooga: Based at Erlanger Health System, this location includes College of Medicine clinical rotations, and residency and fellowship programs in Graduate Medical Education program.

Nashville: This location is a core teaching hospital partnership with Saint Thomas Health (Ascension Health Care System). This location includes the Colleges of Medicine, Nursing, Pharmacy, and preliminary discussions are also under way to establish a Nashville presence for the College of Dentistry.

UTHSC COLLEGES

DENTISTRY

GRADUATE
HEALTH
SCIENCES

HEALTH
PROFESSIONS

MEDICINE

NURSING

PHARMACY

UTHSC AT A GLANCE



**More than 3,000 students
in Memphis, Knoxville,
Chattanooga, and Nashville**



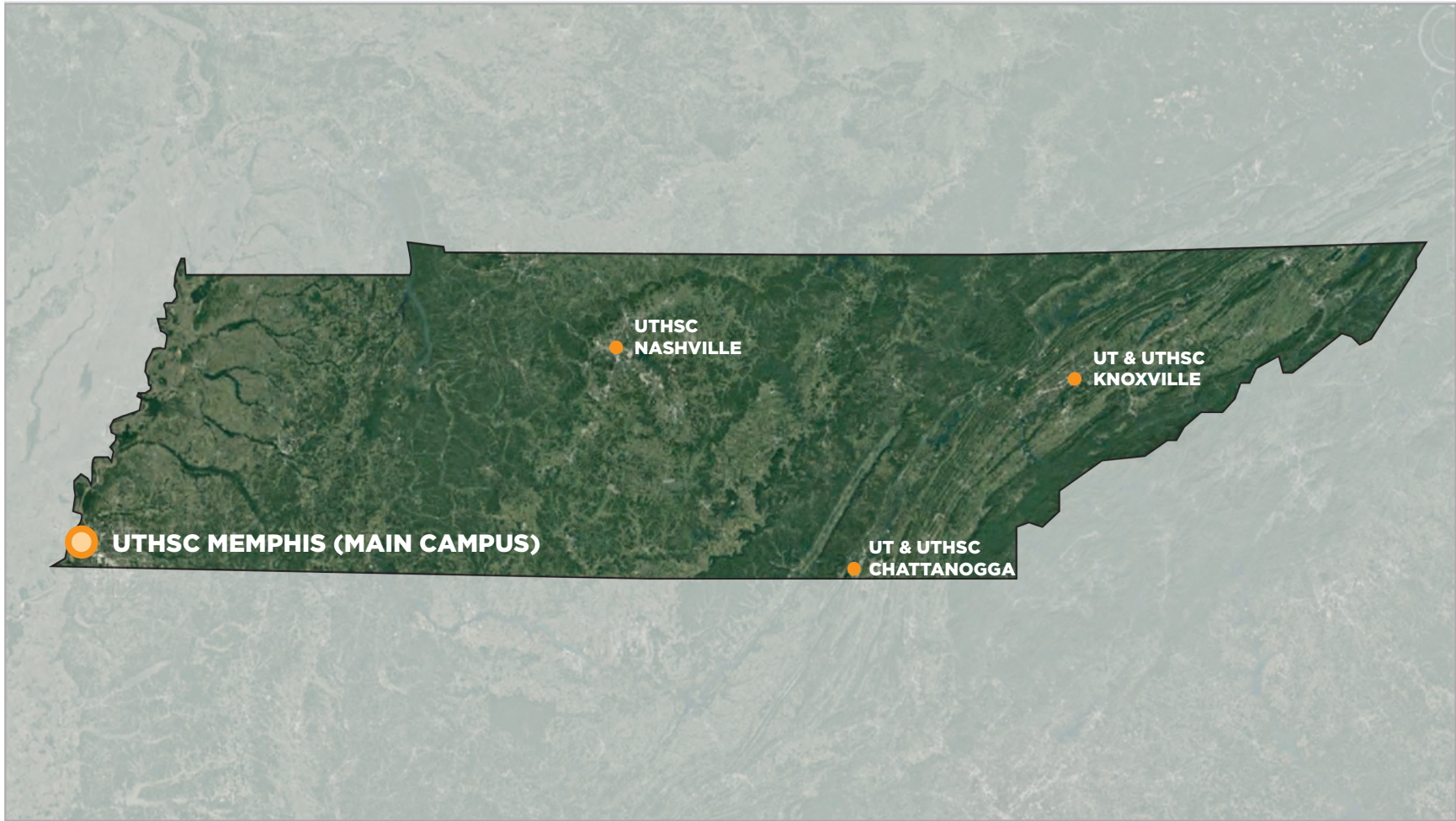
**More than 1,300 residents
and fellows training in
87 ACGME programs**



**Contributes \$4 billion to
the Tennessee economy**



**In 2014, UTHSC faculty
received over \$80 million in
external funding for research**



UTHSC Statewide Presence

UTHSC MAIN CAMPUS

UTHSC's Main Campus is the focus of the 2020 UTHSC Campus Master Plan Update. The UTHSC Memphis campus comprises six colleges – Dentistry, Graduate Health Sciences, Health Professions, Medicine, Nursing and Pharmacy – training the health care scientists and caregivers of tomorrow. UTHSC's Main Campus is tied in to the urban fabric of the city of Memphis, and is surrounded by multiple medical institutions, which together comprise the Memphis Medical District. This unique location, along with the close proximity to existing and potential partners, creates an opportunity to continue to develop UTHSC into a “vibrant medical hub of the South.”

The University has recently completed two new research facilities, the Cancer Research Building and the Translational Research Building. Both are located on the west edge of the Health Sciences Park, the orienting core for the University Health Science Center. The desire of the University to expand its state-of-the-art research facilities has led to a partnership with the Innova Memphis Foundation to develop a new research park at the center of campus.

A major renovation for the historic buildings of Crowe, Mooney and Nash Buildings is currently underway. These outdated buildings will be updated to be used for nursing, research, and some administrative space.

The Baptist Memorial Hospital donated the 910, 920, and 930 Madison buildings to the University in 2005. Although a generous gift, these buildings' mechanical and electrical systems don't meet today's standards. To keep the building functioning for core College of Medicine programs, critical deferred maintenance must be addressed in the short-term until a new College of Medicine can be built.

A new housing development is planned with the Henry Turley Company on the parcel on the corner of Jefferson Avenue and North Manassass Street - on the Northwest corner of campus. This will require the demolition of the Boling Center, Hyde Engineering Building, the Variety Building, and several other smaller facilities. This will provide opportunities for students, faculty, and staff to live in close proximity to campus in high-quality facilities.



Translational Research Building

2020 CAMPUS MASTER PLAN UPDATE

The University of Tennessee Health Science Center Campus Master Plan Update is built on a strong foundation of prior planning and initiatives, including the 2015 Campus Master Plan, UTHSC's strategic plan, growth initiatives in research and academic programs, and recent campus acquisitions and partnerships. The new strategic plan lays out seven key strategic goals that inform the campus physical environment.

This document is the road map for current and future leaders as they look to grow and develop the physical facilities of the campus, improving aging facilities in order to fulfill the desire to "Position UTHSC as a National Leader in Targeted Areas of Excellence Across Missions, Campuses and Colleges."



“The mission of **The University of Tennessee Health Science Center** is to bring the benefits of the health sciences to the achievement and maintenance of human health, with a focus on the citizens of Tennessee and the region, by pursuing an integrated program of education, research, clinical care, and public service.”

UNIVERSITY OF TENNESSEE

A photograph of a stone building with three large Gothic-style arches. The words "UNIVERSITY OF TENNESSEE" are carved in gold letters above the arches. In the foreground, there is a large, dense bush of green shrubs and a field of vibrant orange and yellow tulips. The sky is blue with some light clouds.

MISSION AND VISION

The University of Tennessee Health Science Center pursues this mission through four areas of focus:

- Education
- Research
- Clinical Care
- Public Service

EDUCATION

UTHSC strives to produce caring, competent, and ethical patient-focused healthcare professionals prepared to detect, treat, and prevent human disease and injury, as well as to provide guidance in the achievement and maintenance of human health. The University is made up of six separate Colleges, all having major academic educational space for both classroom and laboratory experience.

The campus location has also allowed the University to develop partnerships with many of the hospitals and healthcare facilities within walking distance, biking distance or shuttle transport distance of the academic core of the campus for student rotations and internships.

RESEARCH

Through research, UTHSC aims to discover and develop concepts, procedures, and products to enable the effective detection, treatment, and prevention of human disease and injury.

The UTHSC campus contains many medical research facilities, including the Cancer Research Center and Translational Research Center, as well as many general research buildings.

CLINICAL CARE

The University seeks to deliver comprehensive health care services, established upon contemporary evidence-based research, to the citizens of Tennessee and the region.

Along with the academic and research facilities on campus, multiple clinical facilities meet the mission to deliver comprehensive care services for dentistry, eye care, and disability development, and other clinical disciplines.

PUBLIC SERVICE

As a resource to other state agencies, policy-makers, and professional health care organizations, UTHSC advances policy, practice, and scientific issues related to the achievement and maintenance of human health. The University also delivers equitable, efficient, and cost-effective health care services and products.

Located in the middle of Memphis between Downtown and Midtown, The University of Tennessee Health Science Center is centrally located to all major health care facilities in the city. The City of Memphis has designated the area in which the University sits as the Memphis Medical District.

UTHSC **STRATEGIC INITIATIVES**

The new strategic plan lays out seven areas of investment that inform and form the physical aspects of the campus plan:

Educate outstanding graduates that meet the needs of the state by:

- Providing state-of-the-art facilities
- Providing partnerships with adjacent hospitals
- Growing the research portfolio, focusing on targeted areas
- Growing cancer research
- Establishing a partnership with Innova Memphis
- Providing GMP facilities

Grow the research portfolio focusing on targeted areas:

- Provide infrastructure for research and scholarship
- Enhance connections between researchers
- Create a collaborative research network across disciplines, colleges, campuses, universities, hospitals, and industry

Create areas of clinical prominence while expanding care and outreach by:

- Growing the dental school and clinic
- Growing the mental health clinic
- Growing the eye care clinic

Increase visibility and recognition of UTHSC contributions by:

- Showcasing academic areas of excellence by creating visual connections
- Enhancing site signage
- Improving gateways to campus

Align system-wide resources with areas of excellence by:

- Addressing prioritized needs and deficits requiring additional resources
- Increasing program collaboration across the UT System
- Allocating space based on need

Expand and strengthen key partnerships by:

- Working with Regional Medical Center and Le Bonheur to build connections to future Women's and Infants' Pavilion
- Improving connections to Baptist School of Nursing
- Improving connections to Southwest Tennessee Community College

Strengthen organizational effectiveness and adaptability through a focus on a culture of excellence across UTHSC including staff, faculty, and administration





MASTER PLAN **GUIDELINES**

The Tennessee Higher Education Commission (THEC) coordinates and supports the efforts of higher education institutions in the State of Tennessee. THEC has established guidelines for campus master planning at the institution level. The guidelines outline the components that should be included within the plan. Overall, campus master plans should address physical needs in the context of student retention and success, as well as statewide higher education goals and policies.

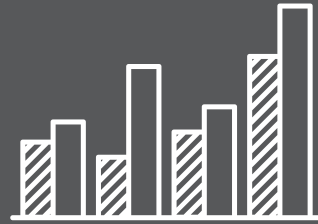
The master plan is a direct link and documentation between the institution's strategic plan, facilities planning and ultimate capital appropriation requests. All capital improvement requests will be reviewed for conformity with the master plan. The master plan is also the reference document for all State Building Commission action for the institution.

UTHSC leadership and the planning team considered the guidelines and components throughout the planning process.



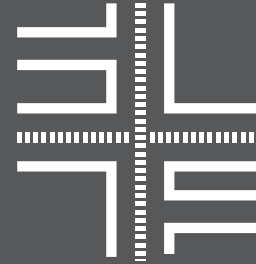
SPACE NEEDS

FULL SPACE INVENTORY AND ANALYSIS TO **IDENTIFY FUTURE NEEDS**



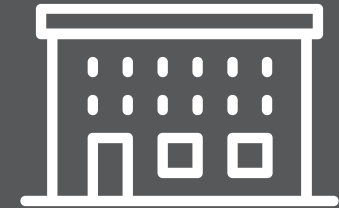
ENROLLMENT

ANALYSIS OF PREVIOUS 10 YEARS AND **5-10 YEAR PROJECTIONS** TO INFORM FUTURE SPACE NEEDS



SITE CONSIDERATIONS

LAND USE; MOBILITY, CIRCULATION AND PARKING; OPEN SPACE; PRECINCTS; COMMUNITY



DESIGN GUIDELINES

DEFINE THE MAJOR **DESIGN OBJECTIVES** FOR FUTURE CAMPUS DEVELOPMENT



LAND ACQUISITION

FULL INVENTORY OF LAND (BY OWNERSHIP) AND IDENTIFY/ PRIORITY **NEEDED LAND ACQUISITIONS OR DISPOSAL**



INFRASTRUCTURE

CATALOG GENERAL CONDITIONS AND **COMPARE CURRENT DEMAND/CAPACITY TO FUTURE NEED**



STUDENT LIFE/ SERVICES

FULL INVENTORY AND DETERMINE **FUTURE QUALITATIVE & QUANTITATIVE NEEDS**



IMPLEMENTATION & CAPITAL PLAN

FULL LIST OF RECOMMENDED **PROJECTS, COST, PRIORITY & TIMELINE**

MASTER PLAN **PROCESS**

A successful plan is only built with critical input from students, faculty, staff, administrators, and community members. Through an extensive engagement strategy, the planning team met with the campus and community throughout the planning process. Between February 2019 and February 2020 on-campus workshops were held for input from the Campus Master Plan Update committees, campus community and also the regional community. The primary goal of the workshops was to receive input, feedback, and direction to drive the planning process. Stakeholders included students, staff, faculty, administrators, partner organizations, and neighbors.

Workshop 01: Kick-off - February/March 2019

The planning team met with the various committees to introduce the project and ask critical questions about the vision for the campus and its programs. Targeted interviews were conducted with colleges, departments, partners, and administrative leadership.

Workshop 02: Analysis and Interviews - April 2019

The planning team met with committees as well as the wider campus and community to review the existing analysis of the campus. Stakeholders offered feedback and identified strengths, weakness, opportunities, and threats for the campus. In addition, targeted interviews were conducted with Memphis Medical District partners.

Workshop 03: Space Needs and Big Ideas - May 2019

The planning team presented draft campus master plan goals, as well as an overview of physical space and parking analysis to the committees. In addition, the committees participated in a Big Ideas activity to plan a future campus environment.

Workshop 04: Urban Design Goals and Concepts - July 2019

The planning team created site planning concepts that each aligned with the in-progress planning of the campus, but also envisioned a future campus that expands research. These diagrammatic concepts in addition to the draft urban design goals were shared with the committees.

Workshop 05: Planning Diagrams and Draft Plan - August/September 2019

The planning team presented to the committees the draft site plan and preliminary phasing, as well as corresponding diagrams to illustrate changes in facility use, open space, and circulation.

Workshop 06: Final Plan - November 2019

The planning team presented the updated goals, space needs analysis, planning diagrams and a final version of the site plan to the committees for final review.

Workshop 07: Open House - February 2020

The planning team conducted open houses for the campus community, and the community-at-large to view the final master plan.

In accordance with the mandated process, the plan was approved by the UT Board of Trustees, as well as THEC and the State Building Commission (SBC).

Final Approvals:

- **UT Board of Trustees Meeting - February 2020**
- **THEC Quarterly Meeting - May 2020**
- **State Building Commission (SBC) - June 2020**

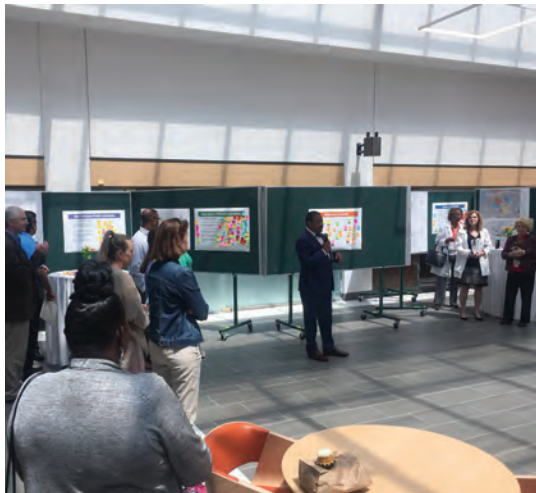
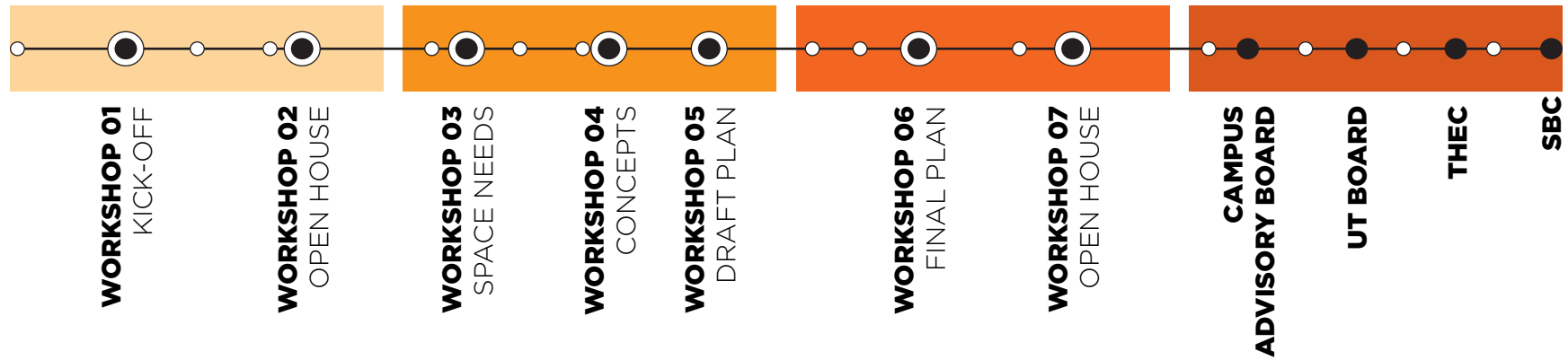
2020 CAMPUS MASTER PLAN PROCESS

PHASE 1:
ANALYSIS & ASSESSMENT

PHASE 2:
BIG IDEAS & CONCEPTS

PHASE 3:
IMPLEMENTATION

PHASE 4:
REPORT & APPROVALS



Dr. Kennard Brown addressing campus stakeholders



Students discussing the current campus at the Student Open House for the Campus Master Plan



Planning team members discussing the campus with community members

CAMPUS MASTER PLAN GOALS

OVERARCHING CAMPUS GOALS

- Provide a safe environment for students, faculty, and staff to work and learn.
- Expand safe and secure pedestrian access between campus facilities.
- Provide adequate and convenient parking.
- Simplify navigation and wayfinding.
- Provide clear points of public entry to campus and buildings.
- Provide a healthy workplace that promotes physical and mental wellness



ACADEMIC GOALS

- Ensure the equal quality of all academic facilities.
- Locate core college facilities in close proximity for cross disciplinary interaction.
- Capitalize on recent renovations and new buildings.
- Re-purpose outdated space through renovations.
- Provide flexible adjacent expansion sites.
- Position shared environments for collaboration.
- Use benchmarks that are based on technology rich and problem-, case-, and team-based learning.
- Improve indoor and outdoor student interaction space.
- Expand College connectivity.





RESEARCH GOALS

- Optimize research space renovation and commercialization capabilities.
- Position research and support space to leverage, recruit, and engage corporate, clinical, and academic partners.
- Use space metrics that accommodate evolving research practices.
- Develop an Innovation District around the campus research core.
- Provide lease space for biotechnology and pharmaceutical start-up opportunities.



CLINICAL GOALS

- Consolidate and expound upon ambulatory services.
- Provide a logical, connected series of clinical services and spaces.
- Establish and identify sites for new in-patient clinical partners and programs.
- Strengthen adjacencies between clinical facilities, research centers, and colleges.
- Support a holistic and healing urban environment.



UTHSC TODAY

PHYSICAL **CAMPUS CONDITIONS**

CAMPUS CONTEXT

UTHSC is surrounded by several other significant healthcare providers, which are part of the Memphis Medical District Collaborative (MMDC). Within this collaborative, the partners work together to strengthen the surrounding community. Partners within the MMDC include: Baptist College of Health Sciences, Methodist Le Bonheur Children's Hospital, Regional One Health, Southern College of Optometry, St Jude Children's Research Hospital, and the Southwest Tennessee Community College.

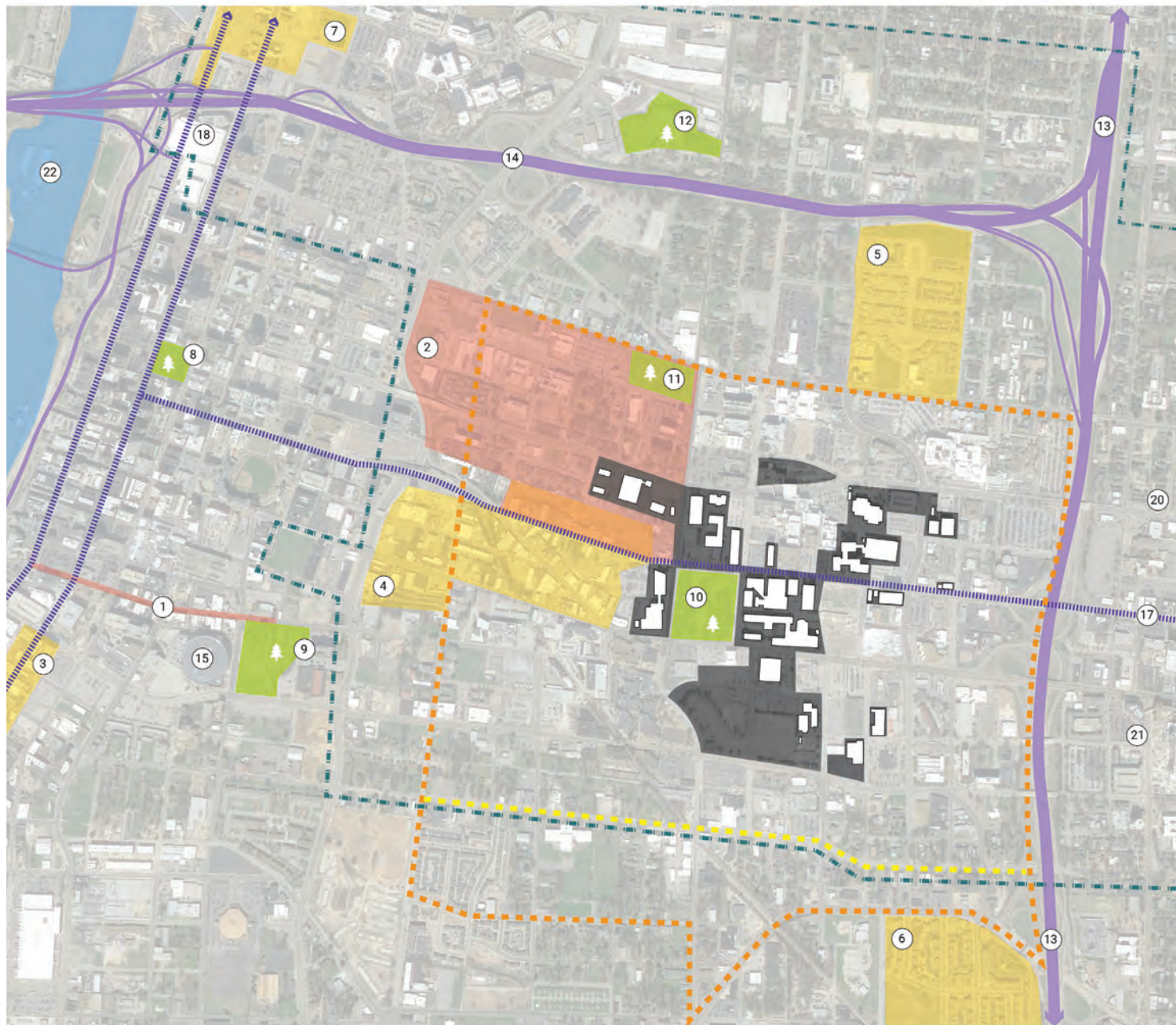
Located on the east side of the campus is Innova Memphis, under development by the Innova Memphis Foundation, the Research Park is a growing major bioscience research complex. To date, the park has developed the new vivarium facility and operates an existing office building as well as a large parking structure for users throughout the Memphis Medical District.

Southwest Tennessee Community College is a technical college at the southwest corner of the Health Sciences Park. In 2014, the College opened a new Nursing Building, on the west side of the campus. The Community College also serves as the eastern edge of the adjacent Edge neighborhood.

There are several residential neighborhoods adjacent to the campus, including the Edge, Victorian Village, and Legends Park. The Edge neighborhood is located to the southwest of the campus. The area is a mix of industrial and retail from the early 20th century, residential units of poor quality, and a significant amount of vacant parcels.

This area has been identified by the Urban Land Institute (ULI) panel as a key opportunity for redevelopment. The Victorian Village is located to the northeast of the campus. The Village is a small but impressive collection of Victorian-era homes with some newer infill. The community has a non-profit operation focusing on restoration and public outreach. Legends Park is a former public housing redevelopment fronting Poplar Avenue two blocks north of the campus. The project includes housing, retail, medical office and the Fed-Ex Family House. This facility is a home for out-of-town families with children receiving treatment at Le Bonheur Children's Hospital.

Surrounded by the UTHSC campus is the Health Sciences Park, providing a passive space at the center of campus. The park was recently sold by the city to a private entity. Other parks nearby include Court Square, Robert R. Church Park, Morris Park, and Winchester Park. Morris Park is located relatively close-by, at the intersection of Poplar Avenue and N. Dunlap St. The park provides recreational and passive spaces, and was highlighted by community stakeholders as an amenity for the Memphis Medical District that would benefit from further investment.



- - - 2015 MP PLANNING BOUNDARY
- - - UPDATED UTHSC MP PLANNING BOUNDARY
- - - MEMPHIS MEDICAL DISTRICT
- █ UTHSC PROPERTY
- █ HISTORIC DISTRICT
 - 1- BEALE STREET
 - 2- VICTORIAN VILLAGE
- █ PRIVATE REDEVELOPMENT AREA
 - 3- SOUTH MAIN
 - 4- EDGE DISTRICT
 - 5- LEGENDS PARK
 - 6- UNIVERSITY PLACE
 - 7- PINCH DISTRICT
- █ PARK
 - 8- COURT SQUARE
 - 9- ROBERT R. CHURCH PARK
 - 10- HEALTH SCIENCES PARK
 - 11- MORRIS PARK
 - 12- WINCHESTER PARK
- ⋯ TROLLEY LINE
- ROAD
 - 13- HIGHWAY 240
 - 14- HIGHWAY 40
- ## KEY FEATURES
 - 15- FEDEX FORUM
 - 16- MUD ISLAND
 - 17- MADISON AVE
 - 18- CONVENTION CENTER
 - 19- DOWNTOWN MEMPHIS
 - 20- MIDTOWN
 - 21- CROSS TOWN
 - 22- MISSISSIPPI RIVER

LAND OWNERSHIP

The University of Tennessee Health Science Center currently owns over 40-acres within the heart of the Memphis Medical District, east of Downtown Memphis and adjacent to the rapidly redeveloping Edge District. Like any urban campus, the University parcels are spread across multiple blocks and are not consolidated within a campus core. In addition to this complicated land use pattern, the University leases land, buildings, and parking areas to numerous partners within the Memphis Medical Center. Properties north and west of Court Avenue are leased to Memphis Mental Health Institute. A parcel of land west of the Translational Science Research Center is leased to Sun Studios for visitor parking. Nearby, land is leased to Hope Lodge, an American Cancer Society temporary housing facility for cancer patients receiving treatment in Memphis. On the east edge of campus on Madison Avenue, Cirquest leases two buildings and another lease is in negotiation. Research partners and entrepreneurs lease facility space within the Van Vleet Building. Most significantly, the Henry Turley Company has recently negotiated a long-term lease for an 11-acre parcel of land west of Manassas Street to develop market-rate housing and retail amenities to support UTHSC and MMD staff and students.

UTHSC also benefits from the opportunity to lease land, parking and facility space to provide important program adjacencies. The contractual relationships include leased space with the Innova Memphis Vivarium and a large parcel of land from Baptist College of Health Sciences south of Union Avenue for student, staff, and faculty parking.

To be strategically prepared to acquire land and facilities from willing sellers in the dynamic Memphis real estate market, UTHSC has established a Planning Boundary. Since 2015 this vehicle has been instrumental in clearly communicating which land has been recognized to have impact on UTHSC operations, is of value for knowledge and share MMD planning initiatives and may be critical for expanding programs and services. The proposed boundary used in this study encompasses property to Vance Avenue and Peabody Avenue to the south, Poplar Avenue to the north, South Lauderdale Street to the west side, and Interstate 240 to the east.



EXISTING LAND OWNERSHIP

- UTHSC PROPERTY
- UTHSC LESSOR
- UTHSC LESSEE
- NON-UTHSC PROPERTY
- UTHSC PLANNING BOUNDARY

- A. PARKING LEASED FROM BAPTIST COLLEGE OF HEALTH SCIENCES
- B. LEASED TO MEMPHIS MENTAL HEALTH INSTITUTE
- C. PARKING LEASED TO HOPE LODGE & SUN STUDIO
- D. LEASED TO REGIONAL ONE HEALTH
- E. LEASED TO CIRQUEST
- F. LEASE IN NEGOTIATION
- G. LEASED TO HENRY TURLEY FOR DEVELOPMENT
- H. PARKING LEASED TO BAPTIST COLLEGE OF HEALTH SCIENCES
- I. PARKING LEASED FROM INNOVA MEMPHIS



EXISTING FACILITY USE

One of the major challenges facing UTHSC is its aging building stock, which can be a source of growing pains along with the constrained urban campus. However, UTHSC has commissioned some important building projects over past 5 years. The new Cancer Research Center, Translational Research Building, Center for Healthcare Improvement and Patient Simulation, and College of Pharmacy are the most notable of these projects.

The Crowe, Mooney, Nash, and Nash Annex are currently undergoing a renovation to accommodate the School of Nursing, administrative offices, and updates to laboratories. The Dunn Dental building has planned renovations and expansion in the near future.

Older buildings in need of more immediate upgrades include the Van Vleet Cancer Center, Molecular Science, and the Coleman Building. Other buildings in potential critical state of repair include the 910/920 Madison and Madison Plaza buildings, the Doctor's Office buildings, and the East Street facilities storage building. The Baptist Memorial Hospital donated the 910, 920, and 930 Madison buildings to the University in 2005. Although a generous gift, these buildings' mechanical and electrical systems don't meet today's standards. To keep the building functioning for core College of Medicine programs, critical deferred maintenance must be addressed in the short-term until a new College of Medicine can be built.

The General Education Building, although aging, functions well as the hub of classroom and class lab activity. The Student Alumni Center works well as a meeting center, though recreation services should be improved and updated to meet today's standards. There is a need to expand the services provided at the Student Alumni Center and Recreation Center. The Alexander Building (Library) is in need of updated study spaces, additional security, along with other upgrades to accommodate students.

Additional concerns that have been revealed in the campus assessment process include:

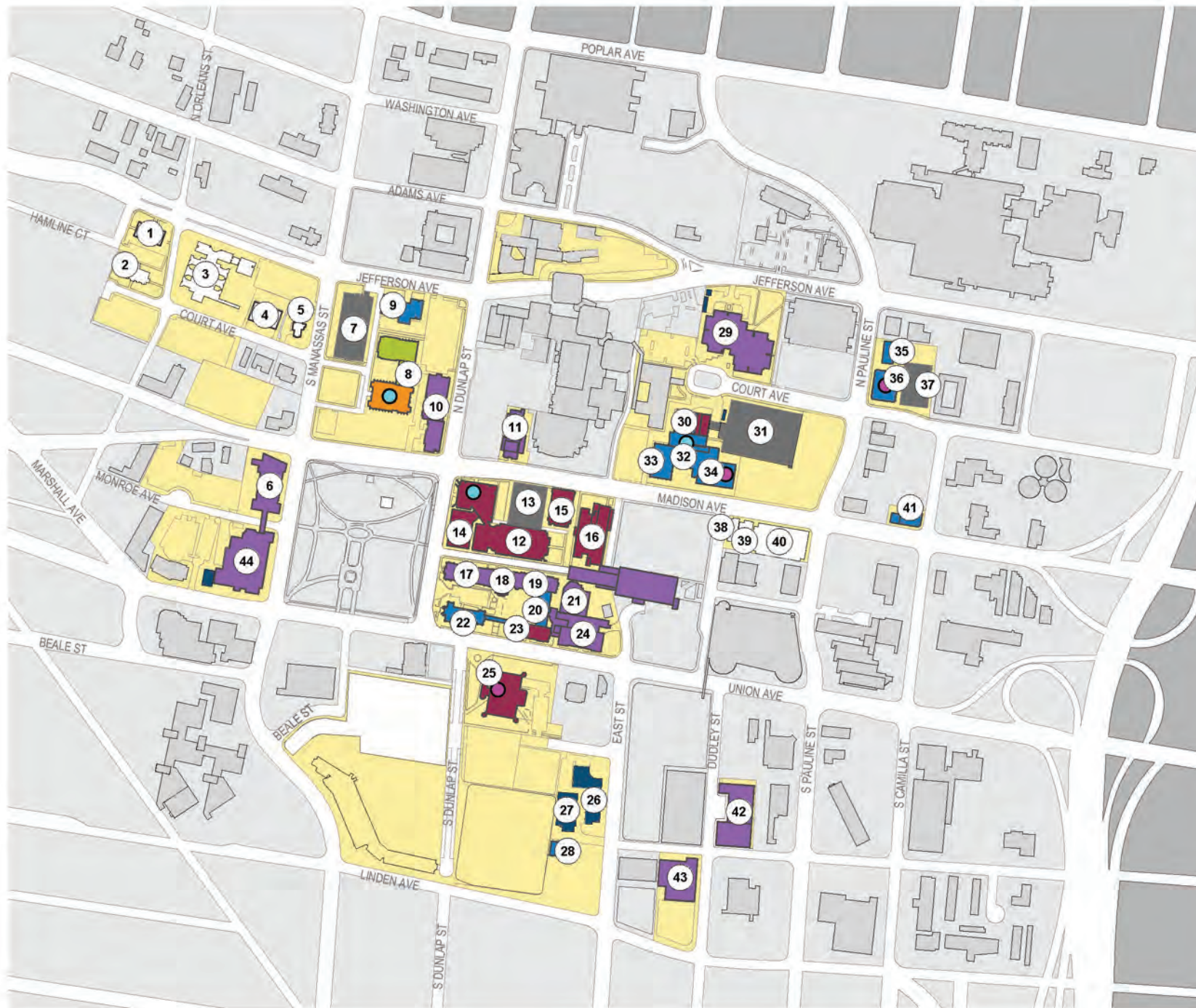
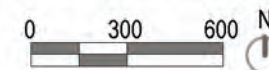
- Lack of unified space for College of Health Professions Programs
- Lack of academic office space, particularly for the College of Medicine
- Need for additional clinical space, particularly in College of Dentistry and University Health Services
- Need for additional student support offices, recreation, and dining facilities
- Need for updated housing for students, faculty, and staff
- Need for additional flexible study space and student life areas
- Need for accessible access into all buildings

EXISTING FACILITY USE

- ACADEMIC
- RESEARCH
- STUDENT LIFE
- RECREATION + FITNESS
- ADMINISTRATIVE
- FACILITY SUPPORT
- PARKING
- DINING LOCATIONS
- CLINICAL LOCATIONS
- UTHSC PROPERTY

FACILITY NAMES

1. PHI CHI FRATERNITY HOUSE
2. HYDE ENGINEERING BUILDING
3. BOLING CENTER FOR DEVELOPMENTAL DISABILITIES
4. 740 COURT BUILDING
5. JUST VARIETY BUILDING
6. CANCER RESEARCH BUILDING
7. STUDENT CENTER GARAGE
8. STUDENT-ALUMNI CENTER
9. SAFETY AND SECURITY BUILDING
10. VAN VLEET CANCER CENTER
11. MOLECULAR SCIENCES BUILDING
12. GENERAL EDUCATION BUILDING
13. GEB GARAGE
14. CHIPS BUILDING
15. LAMAR ALEXANDER BUILDING
16. COLLEGE OF PHARMACY BUILDING
17. JOHNSON BUILDING
18. LINK BUILDING
19. WITTENBORG ANATOMY BUILDING
20. MOONEY BUILDING
21. NASH ANNEX
22. O.W. HYMAN ADMINISTRATION BUILDING
23. CROWE BUILDING
24. NASH BUILDING
25. DUNN DENTAL BUILDING
26. FACILITIES AND PHYSICAL PLANT BUILDING
27. PHYSICAL PLANT SHOPS
28. DOCS FIELD PAVILION
29. COLEMAN COLLEGE OF MEDICINE BUILDING
30. 920 MADISON BUILDING
31. MADISON GARAGE
32. MADISON PLAZA BUILDING
33. 910 MADISON BUILDING
34. 930 MADISON BUILDING
35. PAULINE ANNEX
36. DOCTORS OFFICE BUILDING
37. DOCTORS OFFICE BUILDING GARAGE
38. MEMPHIS BIOWORKS 1
39. MEMPHIS BIOWORKS 2
40. MEMPHIS BIOWORKS 3
41. 1018 + 1022 MADISON
42. PLOUGH CENTER
43. MID-SOUTH FOOD BANK
44. TRANSLATIONAL SCIENCES RESEARCH BUILDING



EXISTING BUILDING / FACILITY ASSESSMENT

An update of the facility physical assessment for UTHSC buildings was completed in 2019. Buildings were evaluated on conditions of 1.) Exterior envelope, 2.) Building systems and 3.) Interior spaces. Assessments of exterior envelope considered elements such as exterior wall integrity, fenestration and roof; building systems included updates from UTHSC Facilities staff on mechanical systems, lighting, and data infrastructure; interior spaces assessment looked at conditions of labs, classrooms, clinical and administrative spaces. The matrix in the appendix of this document summarizes the results of this assessment. Exterior envelope and building systems were given a “poor”, “good” or “best” rating. Interior spaces were graded on an A to F scale.

Buildings proposed for demolition in the 2015 Master Plan and are still being proposed for demolition were not re-evaluated as their condition and suitability for repurposing had not changed. These include the Boling Center, Phi Chi Fraternity House, 910 Madison, 920 Madison, Doctor’s Building, Doctor’s Building Parking Deck, Pauline Annex, Adams Pavilion and Shops Building. With the housing development taking place west of the campus, Hyde Engineering, 740 Court and Just Variety Building have been added to the list of building for demolition. Due to the poor condition of the south portion of the Van Vleet Center, it was added to the list of buildings proposed for demolition in the latter phase of the 2020 master plan. Other than the newer buildings on campus, all other buildings will require renovation and/or repurposing over the life of the master plan. The Molecular Sciences Building, scheduled for demolition in the 2015 master plan, has been re-evaluated for renovation and repurposing to house the College of Health Professionals.

Since the completion of the 2015 Master plan, several of its recommendations have been implemented. The historical core buildings of Crowe, Mooney and Nash are currently undergoing major renovations. The expansion to the Dunn Dentistry Building is under design. The Center of Healthcare Improvement and Patient Simulation (CHIPS) and Phase I of the Good Manufacturing Process (GMP) at the Plough Center have been opened.

It should be noted that on-going repairs to building envelopes, building systems and interior upgrades keep the older buildings in operation and will continue to be required until replacement facilities are available.

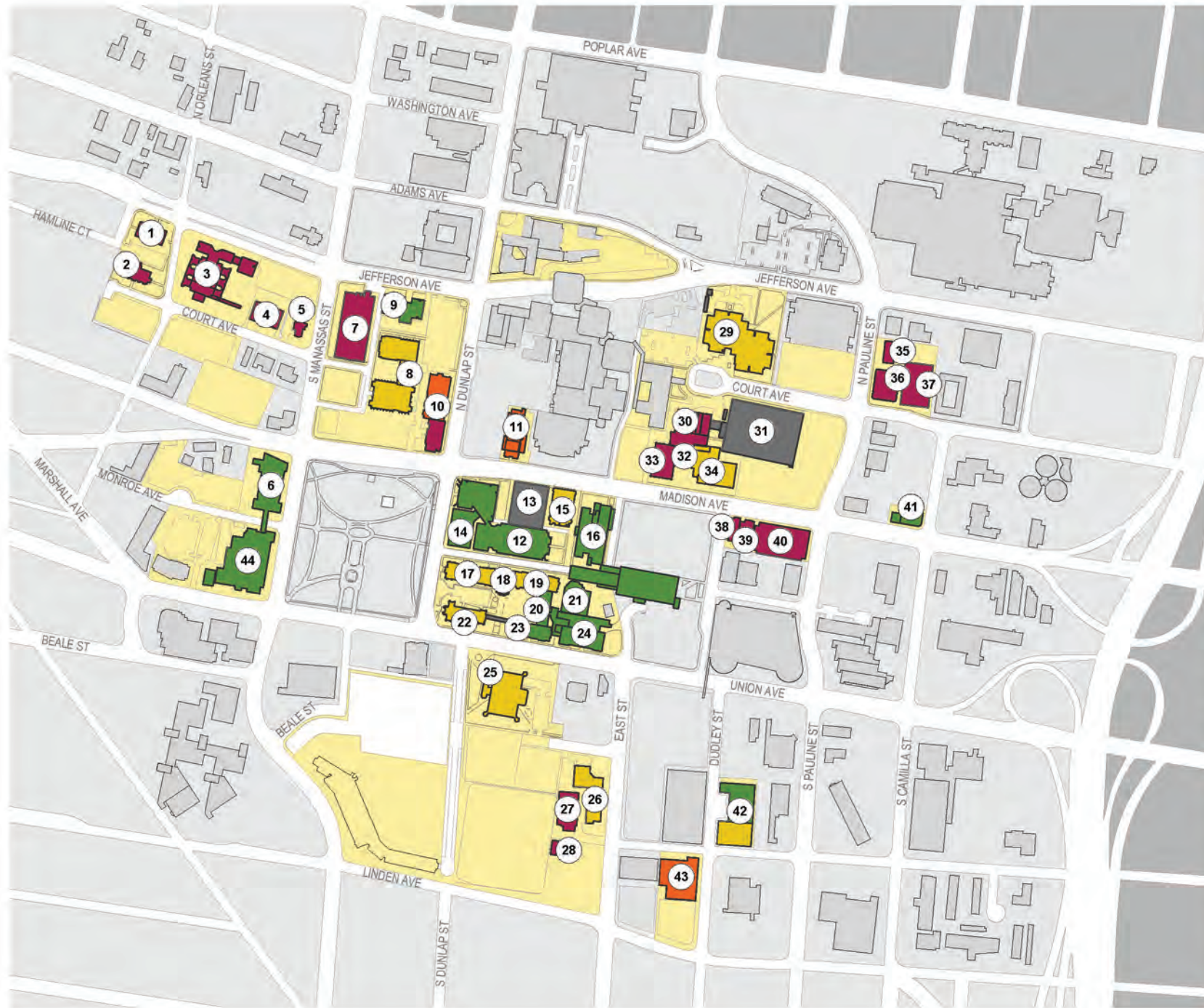
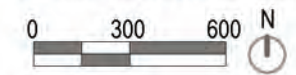
The diagram on the following page illustrates a holistic conditions assessment which combines both function and physical condition. Through this analysis the following facilities have been recommended for demolition or major renovation and repurposing of use over time.

EXISTING FACILITY CONDITIONS

- NEW / SATISFACTORY / IMPROVEMENTS UNDERWAY
- REQUIRES UPGRADES
- CRITICAL IMPROVEMENTS
- PLANNED FOR DEMOLITION
- UNRATED
- UTHSC PROPERTY

FACILITY NAMES

1. PHI CHI FRATERNITY HOUSE
2. HYDE ENGINEERING BUILDING
3. BOLING CENTER FOR DEVELOPMENTAL DISABILITIES
4. 740 COURT BUILDING
5. JUST VARIETY BUILDING
6. CANCER RESEARCH BUILDING
7. STUDENT CENTER GARAGE
8. STUDENT-ALUMNI CENTER
9. SAFETY AND SECURITY BUILDING
10. VAN VLEET CANCER CENTER
11. MOLECULAR SCIENCES BUILDING
12. GENERAL EDUCATION BUILDING
13. GEB GARAGE
14. CHIPS BUILDING
15. LAMAR ALEXANDER BUILDING
16. COLLEGE OF PHARMACY BUILDING
17. JOHNSON BUILDING
18. LINK BUILDING
19. WITTENBORG ANATOMY BUILDING
20. MOONEY BUILDING
21. NASH ANNEX
22. O.W. HYMAN ADMINISTRATION BUILDING
23. CROWE BUILDING
24. NASH BUILDING
25. DUNN DENTAL BUILDING
26. FACILITIES AND PHYSICAL PLANT BUILDING
27. PHYSICAL PLANT SHOPS
28. DOCS FIELD PAVILION
29. COLEMAN COLLEGE OF MEDICINE BUILDING
30. 920 MADISON BUILDING
31. MADISON GARAGE
32. MADISON PLAZA BUILDING
33. 910 MADISON BUILDING
34. 930 MADISON BUILDING
35. PAULINE ANNEX
36. DOCTORS OFFICE BUILDING
37. DOCTORS OFFICE BUILDING GARAGE
38. MEMPHIS BIOWORKS 1
39. MEMPHIS BIOWORKS 2
40. MEMPHIS BIOWORKS 3
41. 1018 + 1022 MADISON
42. PLOUGH CENTER
43. MID-SOUTH FOOD BANK
44. TRANSLATIONAL SCIENCES RESEARCH BUILDING

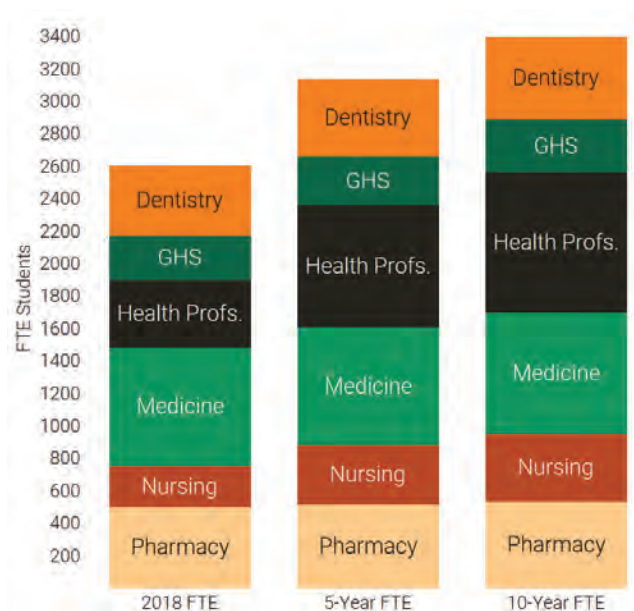


ACADEMIC, RESEARCH, AND PRACTICE COMMUNITIES

Currently the largest college on campus is the College of Medicine with 728 full time equivalent (FTE) students, followed by the College of Pharmacy with 502 FTE students and the College of Dentistry and College of Health Professions with 436 FTE and 417 FTE respectively. Although smaller in size, the Colleges of Nursing (249 FTE) and Graduate Health Sciences (273 FTE) are significant for their growing enrollment, potential for cross-disciplinary and translational programs, and strategic planning for distinction within the region. For future space planning efforts, it is critical to determine how each College will grow and what physical resources will need to be provided on campus in order to service this growth. Based on space utilization and space gap analysis that considers enrollment growth, research growth, current facility improvements, and recommended facility reallocation/demolition, lab and office space for instruction and research will become a large-scale need in the next decade.

It is important to note that research on campus continues to be more cross-disciplinary. With the new Translational and Cancer Research Centers on the western end of campus, the renovations and reconstructions of the Crowe, Nash and Nash Annex facilities, and the success of the Plough Center, integration of a bench-to-bedside model is even more important to encourage collaboration between clinicians and scientists across institutes and disciplines. Significant existing space in the Madison Plaza Complex and the Doctors Building cannot foster this evolution due to the physical layout, MEP systems, and floor-to-floor heights of the buildings. Similarly, the Molecular Sciences and Coleman Buildings require significant renovation and reconstruction to meet peer standards.

Clinical Education is crucial to the development of competent medical caregivers. The University mission to provide high-quality health science professionals to the State of Tennessee means student clinical experiences must encompass a variety of rotations with committed partners. These critically, important partnerships are described below. Maintaining such partnerships, fostering easy connectivity across the campus and Memphis Medical District, and growing existing on-campus clinic sites is of utmost importance to UTHSC.



FTE by College



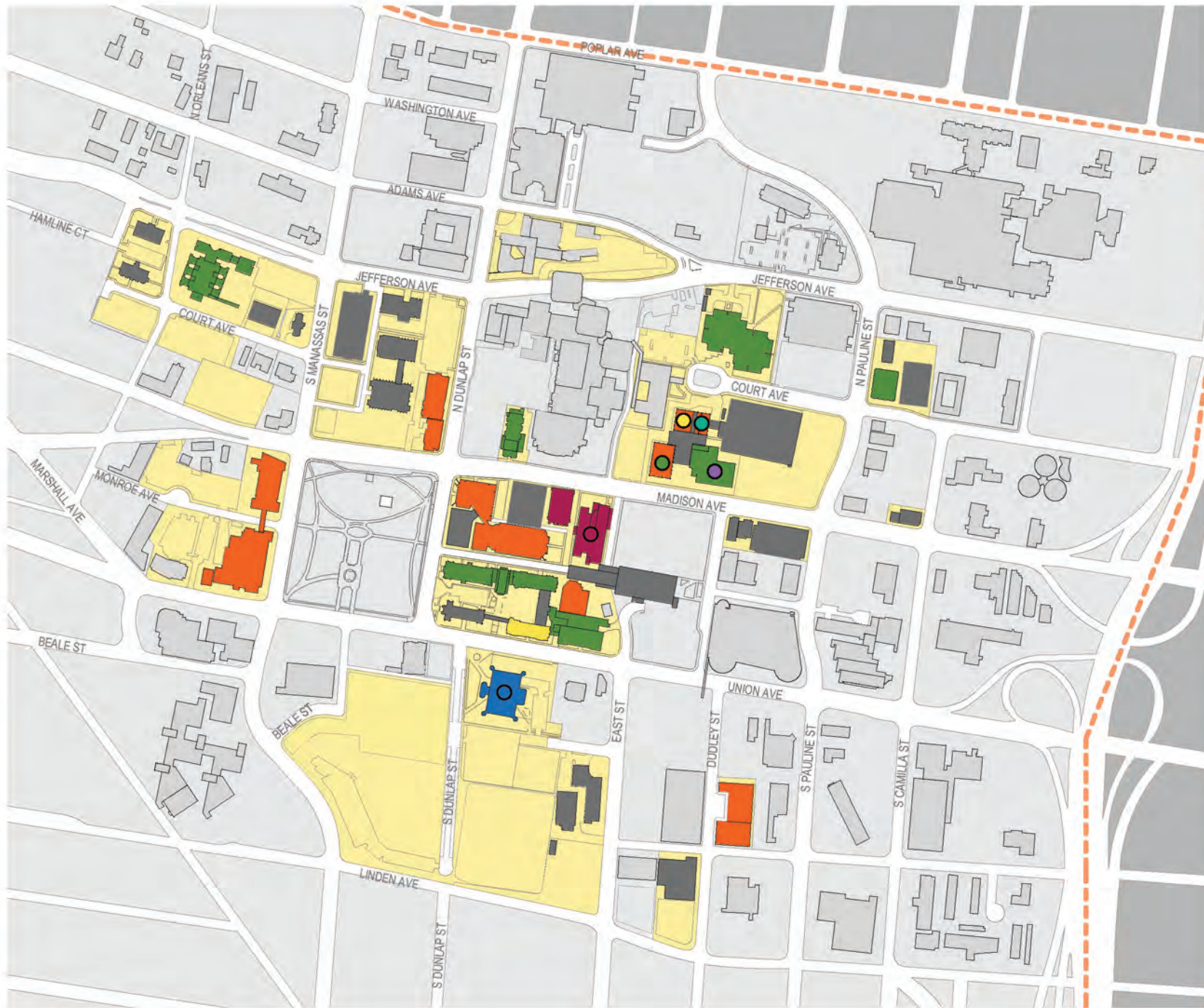
The Center for Healthcare Improvement and Patient Simulation (CHIPS) is a 45,000 square foot stand-alone building for healthcare simulation and interprofessional education.

EXISTING COLLEGE PRESENCE ON-CAMPUS

Projecting out 10 years, the College with the largest growth is anticipated to be Health Professions. Their projected growth over 100% equates to an increase of students to nearly 865 students in the decade ahead. Given the existing scattered distribution of the College programs and personnel, it is critical to provide a direction for improved, flexible adjacencies. The demand for space will be addressed by consolidating the College into one larger facility, ideally within the renovated Molecular Sciences Building. To meet local, regional, and national professional needs, the College of Nursing also projects significant growth, adding more than 160 new FTE in 10 years. The resulting space needs will be initially addressed through the Crowe Building renovation, but additional space will be needed in the future. Due to enrollment caps, the College of Medicine does not project significant enrollment, but it experiences a daily unmet need for dedicated, modern and consolidated space that can foster academic collegiality and research creativity. Creating a central “home base,” a hub for the medical professions, near the other colleges, is a high priority for the University.

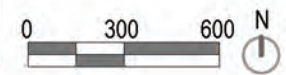
Other cross-college academic space priorities include:

- Ensure college proximity and mix of spaces support shared and integrated health science instruction
- Guide new facilities to foster collaboration and incubate new sciences
- Guide renovations to encourage and provide incentives for cross-disciplinary teams
- Consolidate and link locations for academic activities to ease student and staff mobility
- Provide a visible point of pride and central hub for each college



COLLEGE PRESENCE ON CAMPUS

- DENTISTRY
- GRADUATE HEALTH SCIENCES
- HEALTH PROFESSIONS
- MEDICINE
- NURSING
- PHARMACY
- SHARED ACADEMIC / RESEARCH
- GENERAL CAMPUS
- COLLEGE DEAN LOCATION
- UTHSC PROPERTY
- UTHSC PLANNING BOUNDARY



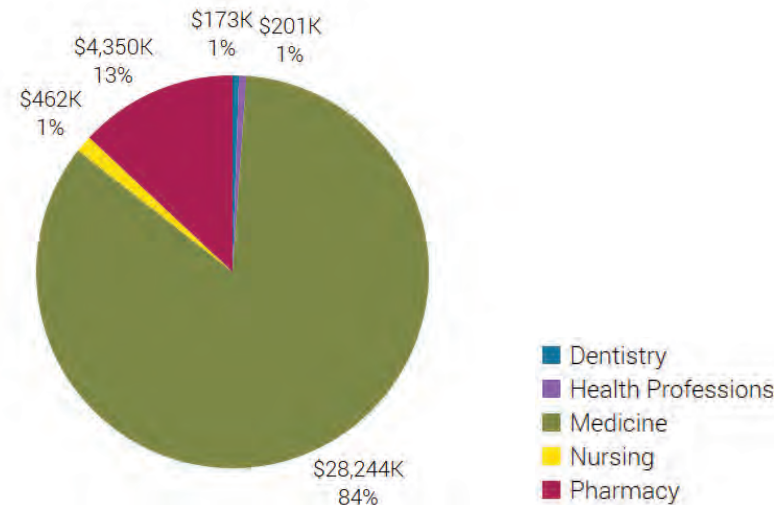
RESEARCH RESOURCES

Vivaria are distributed across campus and would benefit from consolidation, more centralized access, improved layout and updated conditions. Flexible expansion is also difficult. Because of these constraints, completion of the Nash/Nash Annex renovations and acquisition of the Innova Memphis Vivarium east of the College of Pharmacy is strategically important. However, it's critical to note that the additional space resulting from these two initiatives will only help meet short term needs. In the decade ahead, if enrollment and research objectives are met, additional vivarium space will need to be developed. A cross-disciplinary research center, near a new College of Medicine and the existing College of Pharmacy, is an important planning driver.

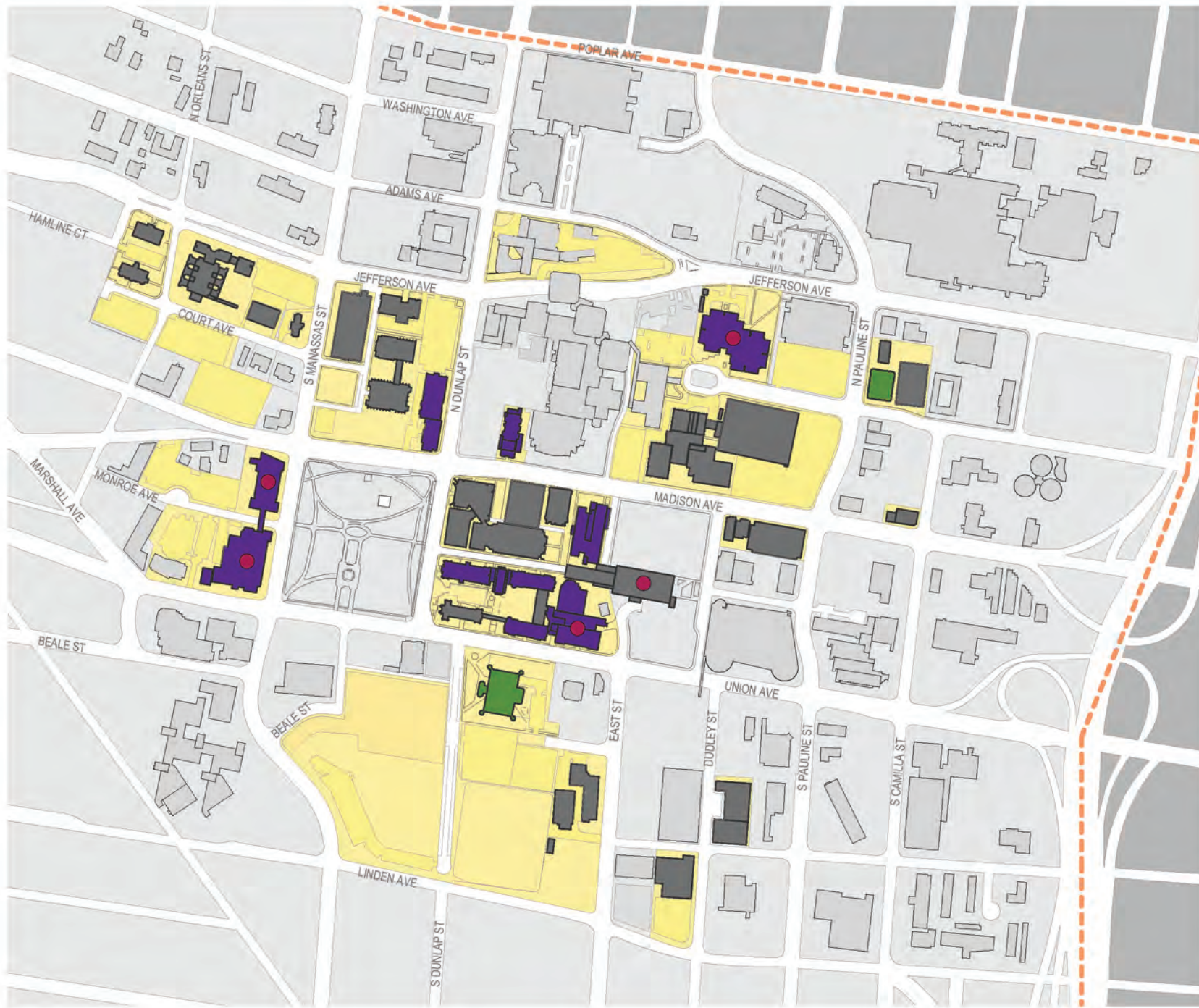
Secure, safe and convenient pedestrian connections to clinical programs should be considered when locating new research amenities, support space, and programs. A large, central clinical trials facility would be advantageous given the proximity to hospitals. 930 Madison, home of the Hamilton Eye Institute, already supports clinical programs in a central location and could be a base for expanding other clinical trial activities.

RESEARCH FUNDING

The College of Medicine accounts for most of UTHSC's external grants and research expenditures. UTHSC requires both flexible and prominent research space to meet its strategic planning for COM research growth as well as position opportunities to attract, retain, and increase research staff and funding for other colleges. Existing research centers such as the Nash/Nash Annex, Cancer Research Center, Translational Research Center, and VanVleet are "land locked." Other than the incremental redevelopment of campus parking lots, strategic land acquisition is required to develop flexible facilities for joint ventures with private industry that can lead to the productive scientific and investment synergies of a Health Science Innovation District.

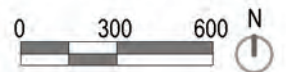


Research Funding by College



RESEARCH LOCATIONS

- BASIC RESEARCH
- CLINICAL RESEARCH
- VIVARIUM LOCATION
- UTHSC PROPERTY



CLINICAL RESOURCES

Clinical care on the UTHSC campus, as well as in the Memphis Medical District (MMD), is largely concentrated north of Madison Avenue. While located close to instructional and research facilities, there is no clear patient “zone” or support center for clinical visitors. However, some clinical services have developed in separate campus zones, depending on college location or available space. For example, the dental clinics are located within the Dunn Dental Building, south of Union Avenue, and are distant from other UTHSC outpatient programs and research. This distributed pattern of UTHSC-owned and operated clinical services does not allow for sharing resources, developing program synergies, leveraging patient education, or providing shared amenities.

Given the past need to incrementally accommodate programs within available space as it became available rather than intentionally position patient care in a central location, identification of clinical destinations is not clear. The assignment of multiple programs within older facilities is confusing, especially given the number and variety of campus buildings and entrances. For example, the strong signage and branded identity of the Hamilton Eye Institute in 930 Madison is beneficial for their patients, while in the same complex, University Therapists’ patients have difficulty locating the clinic.

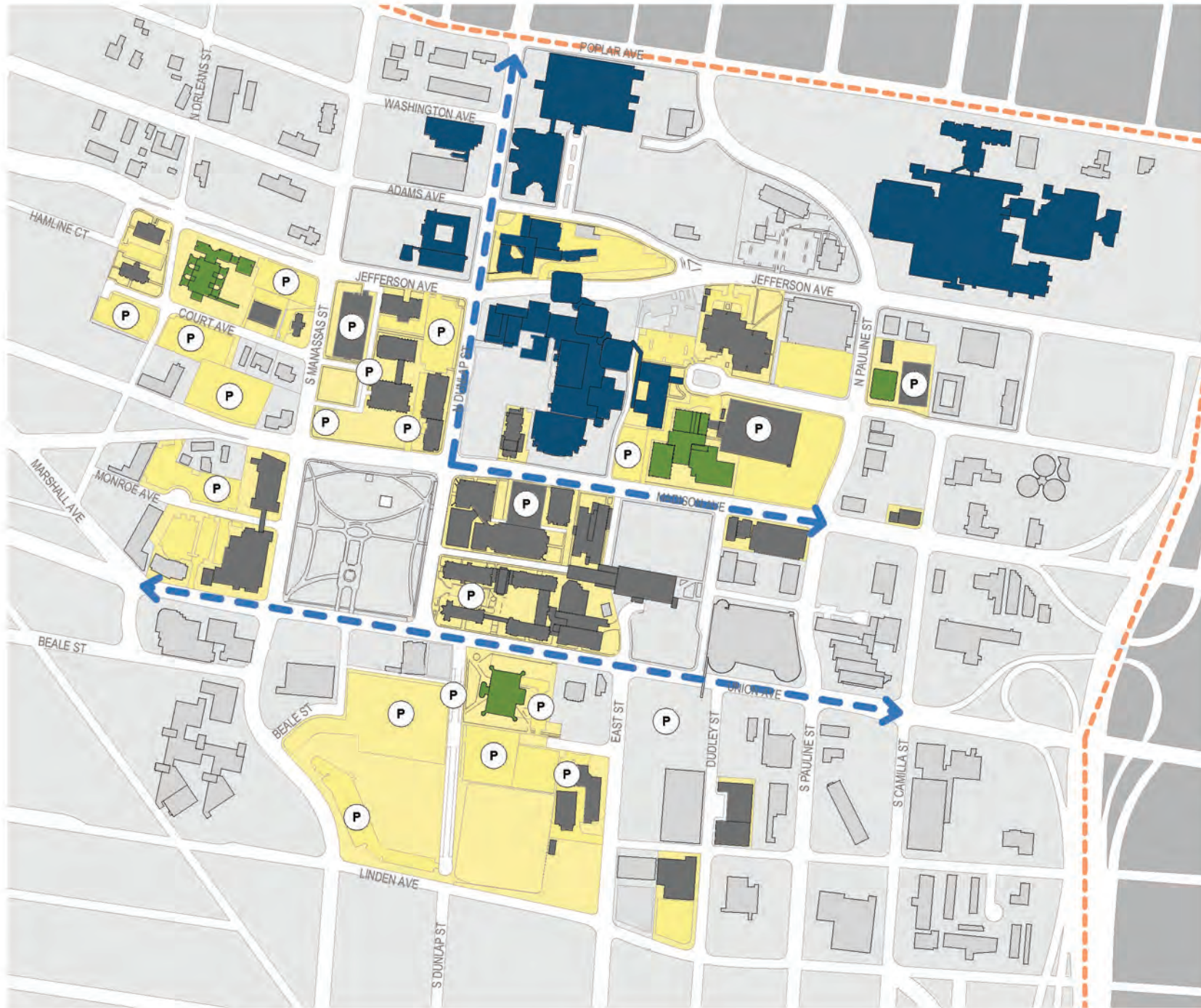
Most important, several older UTHSC buildings are not comparable to the best settings for clinical care within the MMD or with UTHSC peers. The Boling Center, the 910/920 Madison Plaza Complex, the Doctors Office Complex and the Pauline Annex do not warrant continued investment and have been recommended for future demolition as their space is replaced elsewhere on campus. This presents an opportunity to redevelop campus clinical resources in a more centralized, patient-friendly, and modern facility.



Hamilton Eye Institute

CLINICAL RESOURCES

- CLINICAL: UTHSC
- CLINICAL: NON-UTHSC
- PRIMARY CLINICAL ACCESS
- PARKING
- UTHSC PROPERTY



CLINICAL PARTNERS

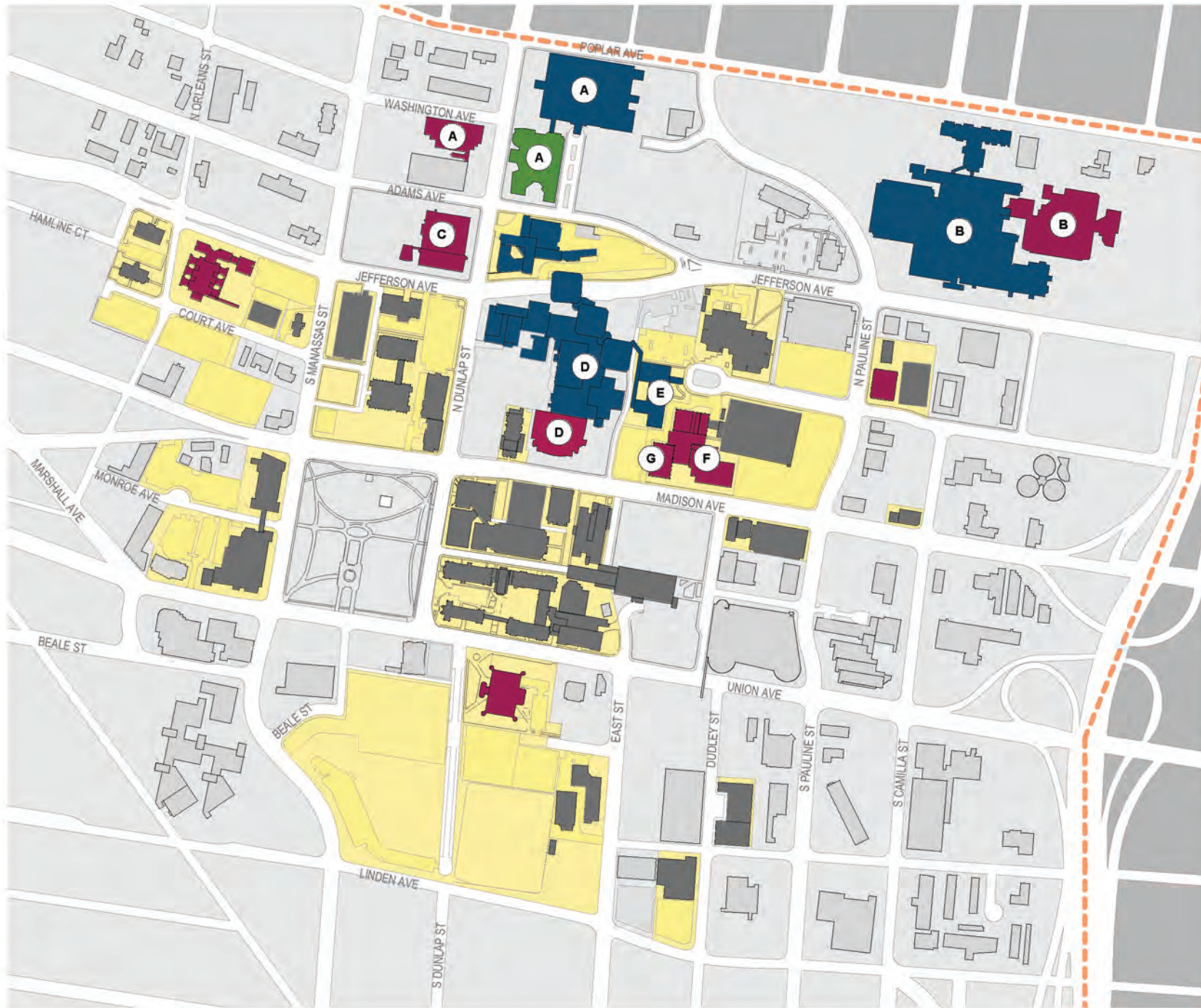
Most of the clinical rotations and patient experience for UTHSC students is provided at Memphis Medical District partner institutions adjacent to or near campus. Students and faculty spend the great part of their time at these institutions.

Opportunities for collaboration between clinicians, researchers and faculty are enhanced by the close geography. However, the degree to which students and staff move between institutions is generally tied to specific programs. Each partner is generally self-contained with no shared facilities, no significant opportunity for serendipitous meetings, and no natural gathering points. In addition, pathways between institutions are not inviting and do not encourage voluntary movement.

Note: St. Jude Medical Center and Methodist Hospital are significant partners which are located nearby, but not within the immediate vicinity. Because they require travel by car or shuttle, staff and students are limited in their ability to easily connect to the main campus.



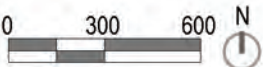
LeBonheur Childrens Hospital



CLINICAL PARTNERS

- INPATIENT
- OUTPATIENT
- RESEARCH
- UTHSC PROPERTY

- A. LE BONHEUR CHILDRENS' HOSPITAL
- B. VETERANS ADMINISTRATION
- C. SHELBY COUNTY/ MEMPHIS HEALTH DEPARTMENT
- D. REGIONAL ONE HEALTH
- E. MEMPHIS MENTAL HEALTH INSTITUTE
- F. HAMILTON EYE INSTITUTE
- G. UNIVERSITY CLINICAL HEALTH



CLINICAL VOLUMES

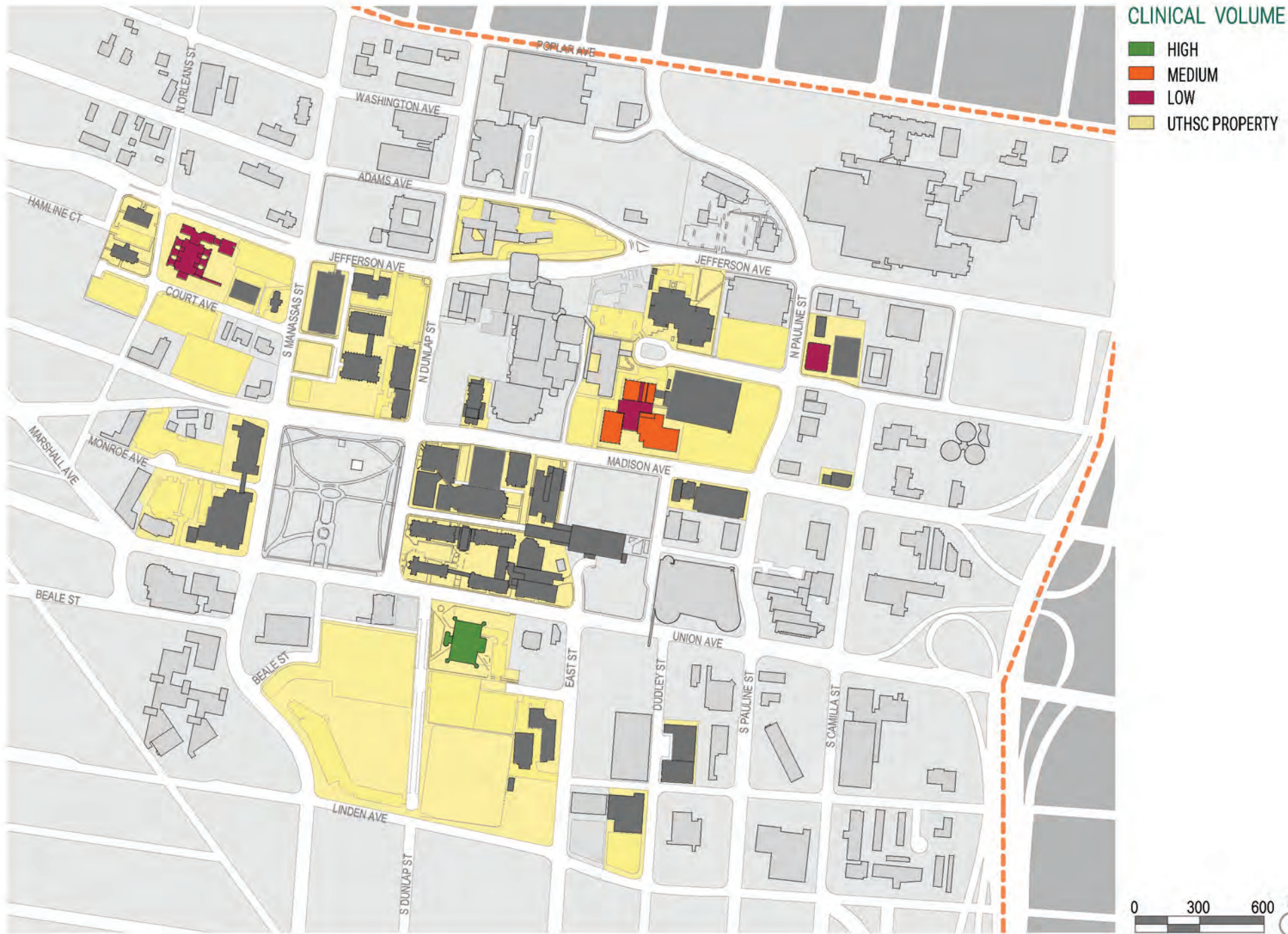
Patient activity varies across UTHSC clinical locations. The College of Dentistry is the busiest, currently seeing more than 65,000 patient visits per year; planned improvements and expansion of the Dunn Dental Building facilities will increase this activity in the future. On the other end of the spectrum, University Health Services and the Center for Developmental Disabilities have the fewest patient visits, accounting for less than 4,000 each. Regardless of volume, the ease with which patients can park and access each facility directly impacts the patient experience and the management of the clinical services. Patients and their attending staff in the College of Health Professions are most challenged by their separation by major streets from convenient parking and clinical care spaces.

Clinical volumes at the Veterans Administration, Regional One Health and Le Bonheur are far greater than those at any of the UTHSC clinics. Patients, staff and students moving to and from these partners further compound traffic, parking, and pedestrian issues.

In reviewing typical Clinical benchmarking, it is worth noting that Clinic Room utilization in Academic Medical Centers (AMC) is typically lower than private practice or community settings. At 60% utilization and current turn around assumptions, UTHSC clinics would need to accommodate between 6 and 10 visits per room per day to match peer benchmarks.



UTHSC Dentistry Clinic



CAMPUS OPEN SPACE

Streets and open space together impact the impression and general appeal of the campus. A variety of open space types exist on the 41-acre campus near downtown Memphis. The spaces vary in size and significance. While adequately maintained, many of the exterior spaces do not give a memorable impression. In this urban context, a significant amount of pedestrian circulation and social interaction occurs along public streets that knit open spaces together to form the pedestrian realm of the campus.

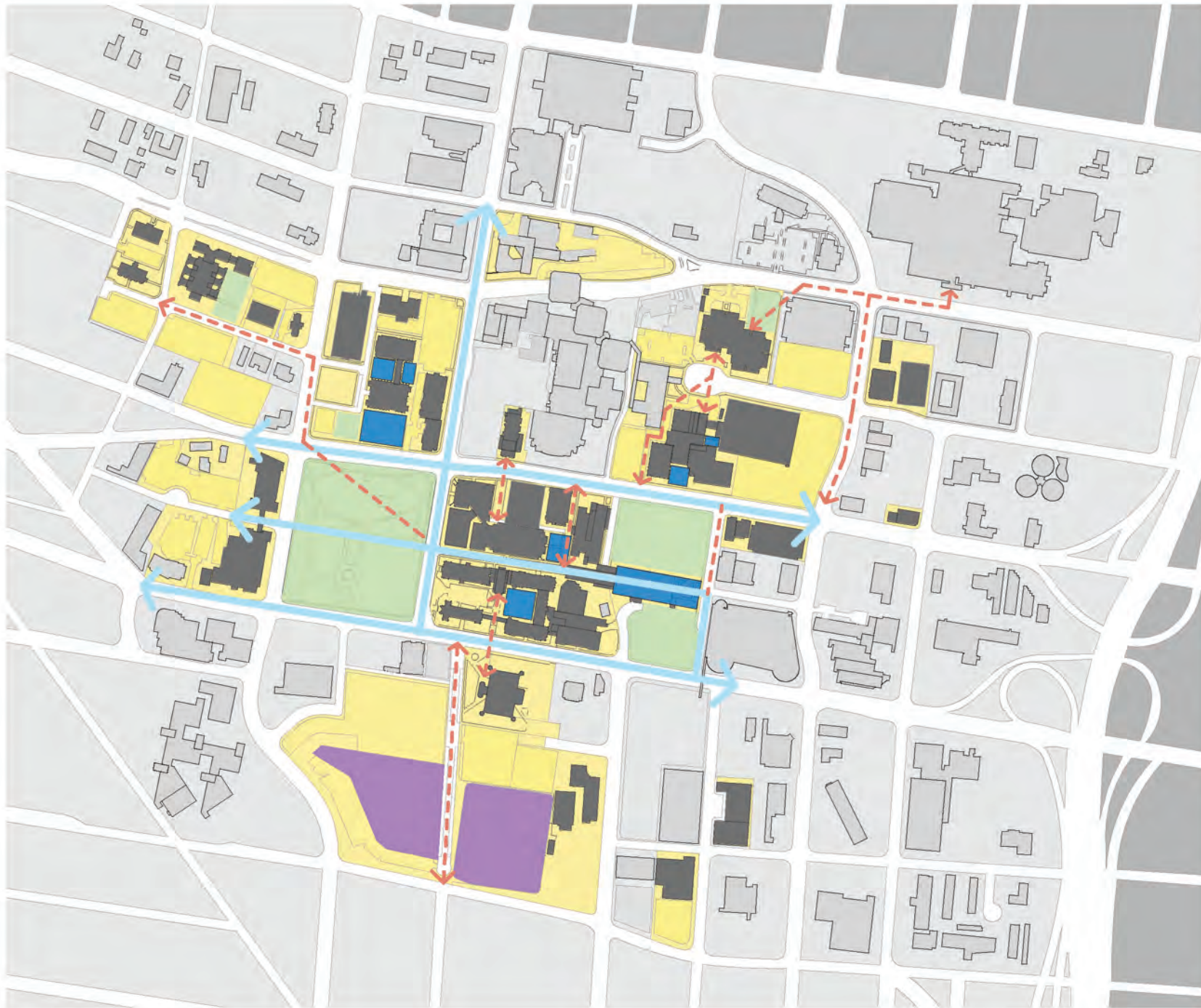
PRIMARY OPEN SPACES

Health Sciences Park is the largest campus open space adjacent to the University. University buildings front the park on the northern, eastern, and western sides, as such, this park potentially takes on a more significant role as the ceremonial center of campus. The existing tree cover consists of large deciduous shade trees, providing good shade coverage on a majority of the park. Understory plantings are minimal and generally insignificant. The internal walkways are in various conditions, some concrete and others asphalt. A new pavilion is located in the northeast corner of the park. It is important to note that the park is currently owned and managed by Memphis Greenspace, a non-profit corporation, however, the open space is designated as a near-term acquisition for UTHSC.

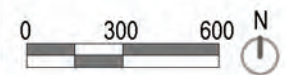
A historic central quad by the Crowe/Mooney/Nash buildings is framed by some of the most remarkable buildings on campus. As the historic center of the campus, and the first open space that future students, faculty and staff encounter, the space is critical to experience of the campus. Currently under design and construction, a newly renovated quad will feature new hardscape, seating areas, landscape plantings, water features, and site furniture.



Health Sciences Park



- OPEN SPACE USE**
- ACTIVE RECREATION
 - PARK / OPEN GREEN SPACE
 - PLAZA / GATHERING
 - PRIMARY PEDESTRIAN CIRCULATION
 - SECONDARY PEDESTRIAN CIRCULATION
 - UTHSC FACILITIES
 - UTHSC PROPERTY



The rooftop garden at the eastern end of Monroe Avenue is above an existing vivarium. The exterior space functions as a space for small gatherings, as well as a circulation corridor. Limited shade and seating areas are provided in the corridor. In the future, the space will be extended, and provide a vital connection between the central core of the campus and development along the eastern edge.

A small sunken plaza adjacent to the 910 Madison Ave building provides an interesting space that is heavily landscaped with a water feature. The space is accessible only from the basement level of the Madison Avenue buildings, but is primarily for visual interest and cannot be accessed from the street.

The space immediately south of the Student Alumni Center is directly tied to the period of the adjacent buildings. The space provides opportunities for gatherings, although in close proximity to Madison Avenue. Trees provide adequate shade coverage. The existing hardscape, site furnishings, and canopy show signs of aging. The trees and under-plantings along Madison Avenue create a soft landscape edge fronting the street. The interior courtyard north of the Student Alumni Center is a sunken plaza that is primarily hardscape with raised planters at each of the four corners. The space provides opportunities for large gatherings. Minimal shade and vegetation is provided along with aging furniture, creating an unpleasant environment.

The two recreational spaces front Dr. M. L. King Jr Avenue and are in fair condition and fairly utilized.



Pedestrian Extension at Monroe Avenue



Rooftop Garden above Innova Memphis facility



Interior Courtyard at Student Alumni Center



Sunken Plaza at 910 Madison Avenue

STREET HIERARCHY

The campus and surrounding Memphis Medical District is located in a tight urban fabric. The existing street grid provides an ordered framework for a diverse and interesting environment that has grown organically over many years. Union Avenue and Madison Avenue are the major streets that traverse the Memphis Medical District from east to west. A trolley was previously operated by the city along Madison Avenue, but is no longer in service. Its systems and infrastructure are still present along the center of the street. Union Avenue is the major vehicular route between I-240 to the east and Downtown to the west. There is an emerging node of activity between Downtown and the campus along Madison Avenue, known as the edge district, which includes several restaurants, residential properties, an office space. The existing fabric of this area offers an opportunity to provide more retail and restaurant destinations for the campus.

The existing streetscape condition is typical of many urban environments. While several streets are heavily used by students, faculty, and staff to traverse the campus, the spaces are not pedestrian-friendly. Sidewalks are typically narrow with little tree cover and no separation from the adjacent traffic lanes, creating an unwelcoming and potentially dangerous pedestrian condition. Though Madison Avenue and North Dunlap Street are two significant streets within the campus, they are particularly unwelcoming. Union Avenue is primarily a vehicular corridor with little pedestrian traffic, though it serves as the ceremonial front door to the campus.

These open spaces and streetscapes should be capitalized on to help create campus gateways, enhanced pedestrian circulation, and improve connections and linkages throughout the campus and beyond to its partners and the city fabric.



Recent streetscape improvements to Manassas



Madison Avenue: Sidewalks are narrow with little tree cover and no separation from the adjacent traffic lanes

CAMPUS CIRCULATION

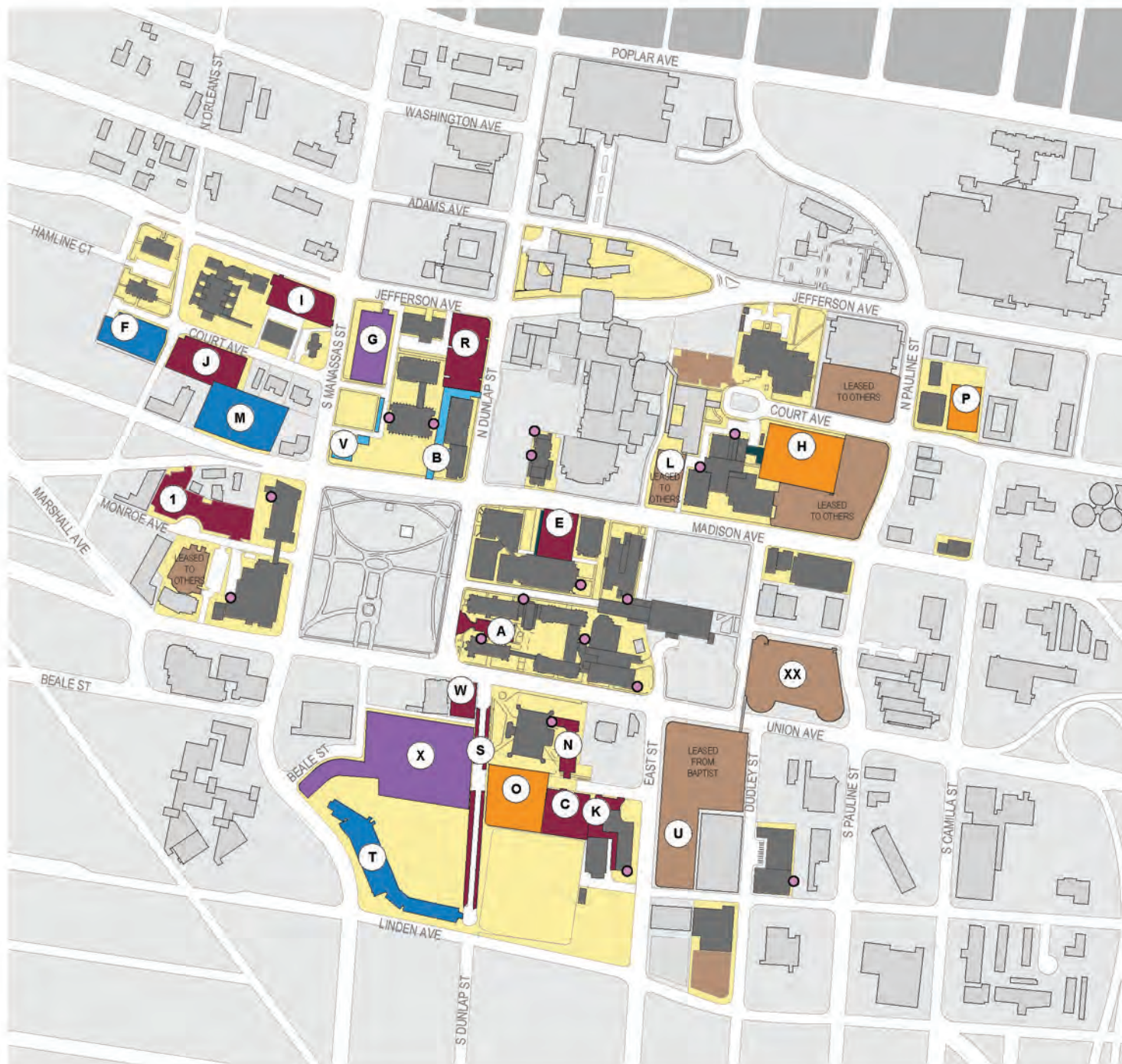
EXISTING PARKING ON CAMPUS

An analysis of the existing parking was performed for the UTHSC campus, which included a total existing parking count analysis. This parking count included all spaces provided for students, faculty, and administrative personnel. The parking data provided includes twenty-five areas, lots or garages, although the University owns an additional lot, which is leased to the Regional Medical Center. The total parking count provided was 4,684 parking spaces, including 141 handicap parking spaces. Four existing parking structures were included in the parking data and are available for general parking, including the General Education Building garage, Student Center garage, Pauline garage and the Madison garage. A fifth parking garage, the Regional Medical Center Parking garage, is near the campus and can be utilized by students. The rest of the parking comes from lots and small amounts of street parking throughout campus.

The allowable parking was compared to current requirements of the Uniform Development Code. Although some lots alone may not provide the necessary parking space for an adjacent building, additional lots in close proximity can be used to offset deficiencies. Existing parking counts as provided are sufficient to provide the parking spaces required for the campus as a whole. However, the sufficiency of the parking spaces according to different users is somewhat hard to quantify since many of the spaces used in the totals are in one of the four parking garages which are shared between students, faculty and the general public.

EXISTING PARKING

- EMPLOYEE
- STUDENT
- COMMERCIAL
- EMPLOYEE + STUDENT
- EMPLOYEE + STUDENT + COMMERCIAL
- METERED
- LEASED PARKING
- LOADING DOCKS
- UTHSC PROPERTY



Mark	Comments	Actual Spaces
1 LOT	Employee	92
A LOT	Employee	31
B LOT	Metered	11
C LOT	Employee	144
E GARAGE	GEB Parking Garage	260
F LOT	Student	80
G LOT	SAC Parking Garage	519
H GARAGE	Plaza Parking Garage	970
i LOT	Employee	97
J LOT	Employee	148
K LOT	Employee	10
M LOT	Student	159
N LOT	Employee	32
O LOT	Commercial	129
P LOT	Pauline Garage	552
R LOT	Employee	156
S LOT	Employee	30
SAC	Metered	12
T LOT	Student	209
U LOT	Student	432
V LOT	Metered	20
X LOT	Employee + Student	470
Y LOT	Employee	37
		4600

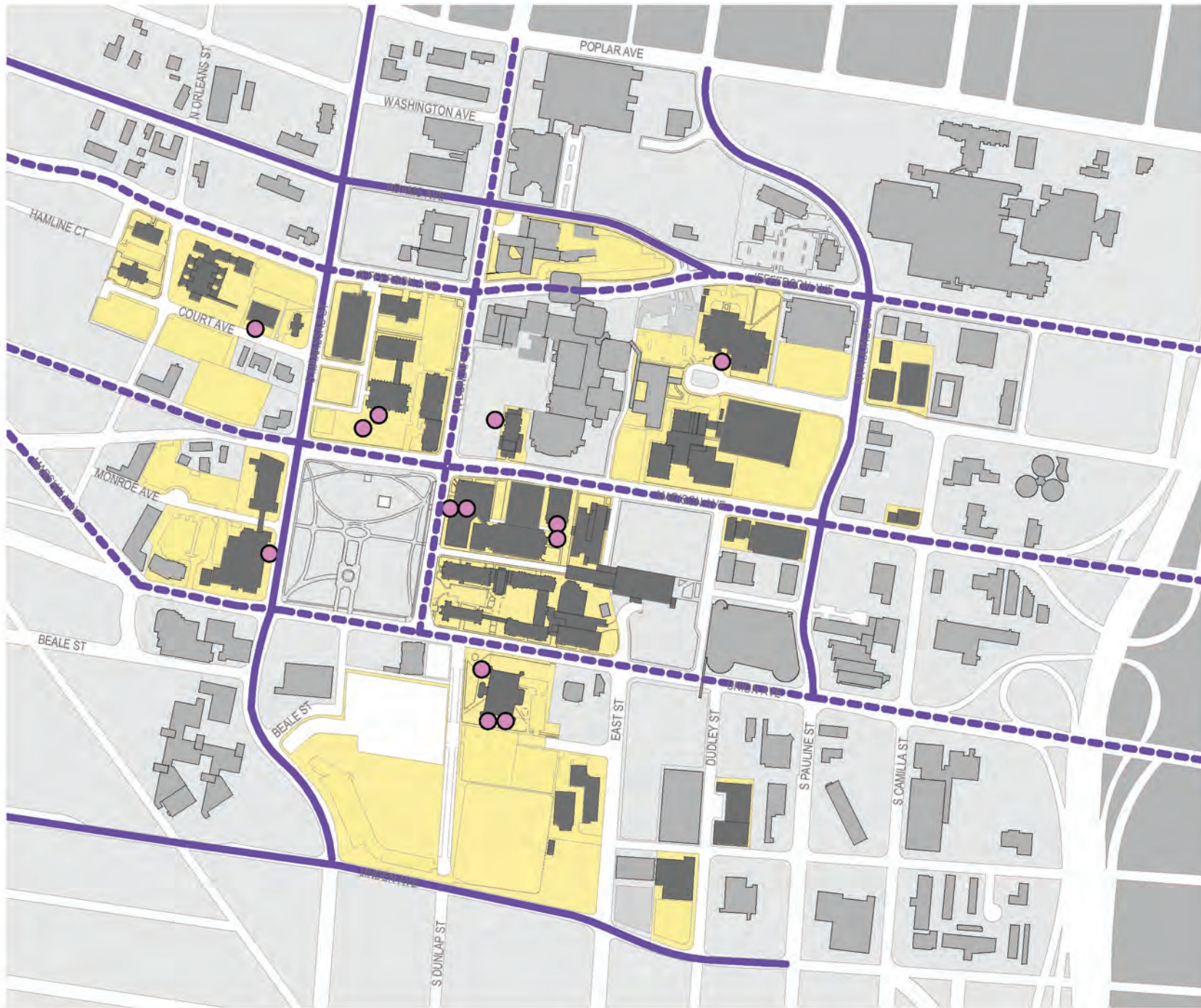
EXISTING BIKE INFRASTRUCTURE

While there are numerous projects planned by the City of Memphis to improve bicycle facilities and infrastructure, there is currently one shared use lane in the campus vicinity on Adams Avenue and two roads, Manassas Street and Dr. M.L. King Avenue, with separate bike lanes.

Due to the volume of vehicular traffic and lack of facilities, accessing and traversing the campus on a bicycle is challenging and inconvenient except along these three streets. Provision of bike racks at building entrances is inconsistent.



Recently improved bike lanes along Manassas Street



BIKE FACILITIES

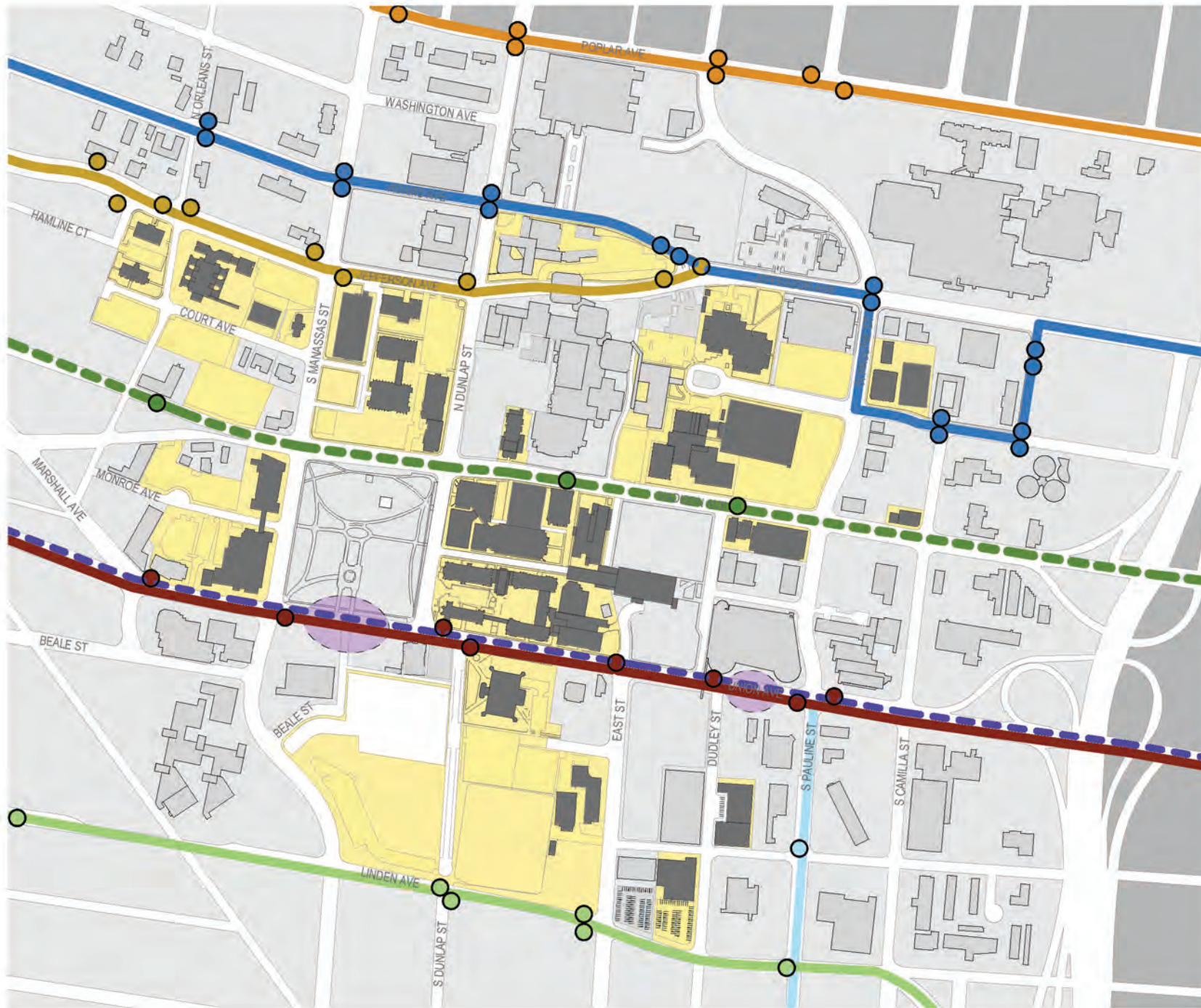
- EXISTING BIKE RACKS
- EXISTING BIKE LANE
- PROPOSED BIKE LANE
- UTHSC FACILITIES
- UTHSC PROPERTY



EXISTING TRANSPORTATION

The UTHSC campus has access to both the Memphis Area Transit Authority (MATA) bus system and the trolley system. The MATA system provides numerous bus stops in and around the campus and Memphis Medical District. These stops offer access to numerous bus routes throughout the Memphis metro area. In addition to the bus routes, there are three stops in the vicinity of the campus to access the trolley line located on Madison Avenue.

There is not currently an internal shuttle system connecting the core of the UTHSC campus to outlying parking areas and other campus facilities, nor are there Memphis Medical District routes connecting to Methodist UT Hospital, St. Jude, and other destinations affiliated with the campus and their programs. Older public modes of transportation, personal cars, or bikes are the only methods of transport between facilities at this time within the Memphis Medical District.



TRANSPORTATION

- BUS LINE 2
- BUS LINE 5
- BUS LINES 24,34,36, & 56
- BUS LINE 40
- BUS LINE 50
- BUS LINE 36
- - - TROLLEY
- - - PROPOSED BUS RAPID TRANSIT ROUTE
- STOPS
- PROPOSED BRT STOP
- UTHSC PARKING
- UTHSC FACILITIES
- UTHSC PROPERTY



CAMPUS **INFRASTRUCTURE AND UTILITIES**

Due to the urban setting of the campus, public utilities exist and are accessible on all the major streets that run through the campus. Ample capacity exists or can be provided for any future needs the University might have. All of this infrastructure is within a short distance of any point on campus.

EXISTING STORMWATER INFRASTRUCTURE

Storm drainage trunk lines and structures are located on all major streets and serve the entire campus. The major trunk lines and inlet structures are located in the public right of way or public drainage easements. This system is owned and maintained by the City of Memphis. Secondary drainage systems are located on and around campus as well as in private drainage easements. These secondary systems are maintained by the owner of the easements. All secondary systems, which connect to the drainage infrastructure are owned and maintained by the City of Memphis. Since the campus is developed, no major extensions or modifications of the existing system are anticipated.

EXISTING SANITARY SEWER INFRASTRUCTURE

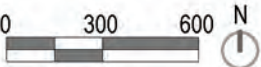
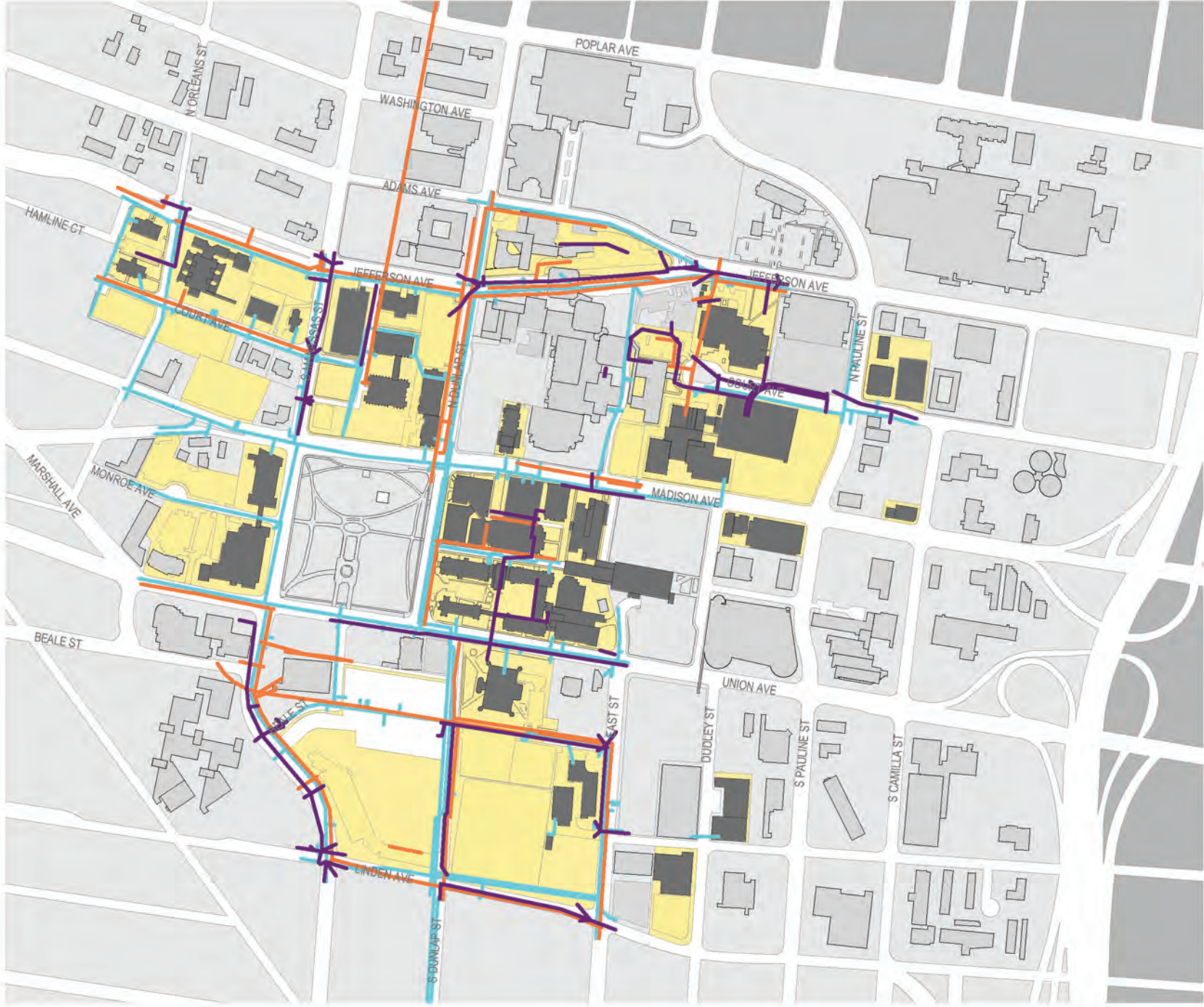
Sanitary sewer interceptor lines and structures are located on all major streets and serve the entire campus. The major trunk lines and inlet structures are located in the public right of way or public utility easements. This system is owned and maintained by the City of Memphis. Secondary private sewer lines and structures are located on and around campus to provide service to the current campus facilities. These systems are owned and maintained by UTHSC. All secondary systems connect to the main sewer infrastructure owned and maintained by Memphis. Since the campus is developed, no major extensions or modifications of the existing system are anticipated.

EXISTING POTABLE WATER INFRASTRUCTURE

Water mains are located on all major streets and serve the entire campus. The major lines are located in the public right of way or public utility easements. This system is owned and maintained by Memphis Light, Gas and Water (MLGW). Secondary private service connections are located on and around campus to provide service to the current campus facilities. These systems are owned and maintained by UTHSC. All service connections are fed by the main water infrastructure and are owned and maintained by UTHSC. Since the campus is developed, no major extensions or modifications of the existing system are anticipated.

**EXISTING
WATER, SEWER,
AND STORMWATER
INFRASTRUCTURE**

- WATER LINES
- SEWER LINES
- STORMWATER LINES
- UTHSC PROPERTY



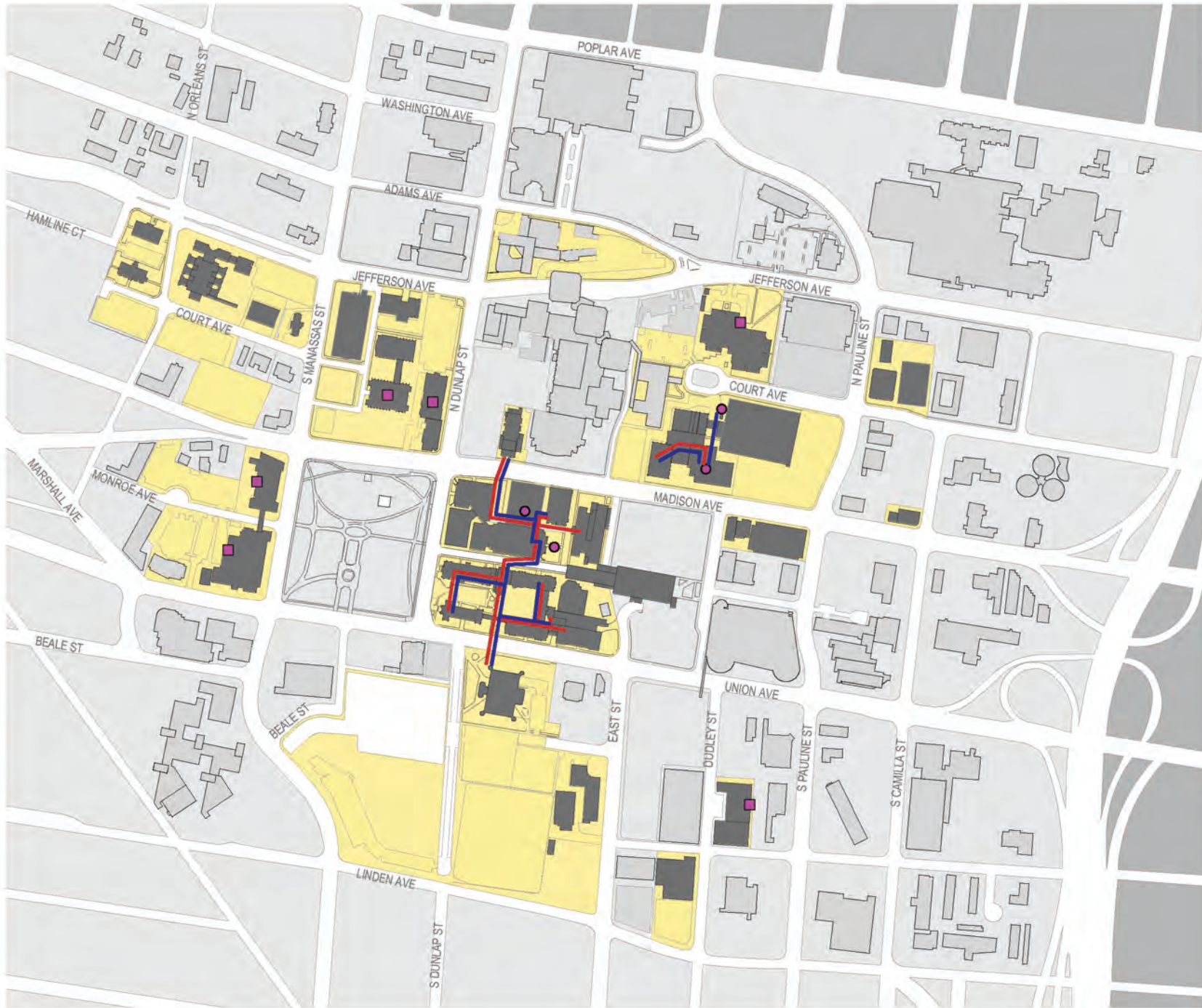
The existing hot water/steam/chilled water campus infrastructure consists of two central plant locations serving multiple buildings and several stand-alone systems serving individual buildings. The central plant locations are 1.) the Core Central Plant, located in the lower level of the east end of the General Education Building and 2.) the Madison Central Plant located in the 930 buildings and the adjacent Madison Avenue Parking Garage.

CORE CENTRAL PLANT

The Core Central Plant provides steam and chilled water to the core campus buildings and to the existing Dunn Dental Building. The Plant consists of 3 gas/oil-fired steam boilers and associated support equipment. The 25-year-old boiler is 1,000 Horse Power. Two boilers of 600 Horse Power were installed in 2015. The major boiler support equipment was installed in 2013. Steam and condensate piping is conveyed through buildings and in underground tunnels. Additional capacity is very limited and there is no available space for additional boilers or chillers within the existing footprint.

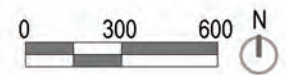
MADISON CENTRAL PLANT

The Madison Central Plant provides steam and chilled water to the 910, 920 and 930 buildings. The Plant consists of 3 centrifugal chillers, pumps, and cooling towers. The Plant is roughly 4,000 tons. Chilled water piping is conveyed through buildings and in underground tunnels. There is no available space for additional boilers or chillers within the existing footprint.



**EXISTING
STEAM AND CHILLED
WATER**

- STEAM LINES
- CHILLED WATER LINES
- STEAM AND OUTBOUND CHILLED WATER PLANT
- STAND ALONE BOILER AND CHILLER PLANT
- UTHSC PROPERTY



EXISTING ELECTRICAL INFRASTRUCTURE

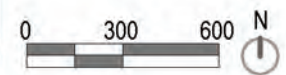
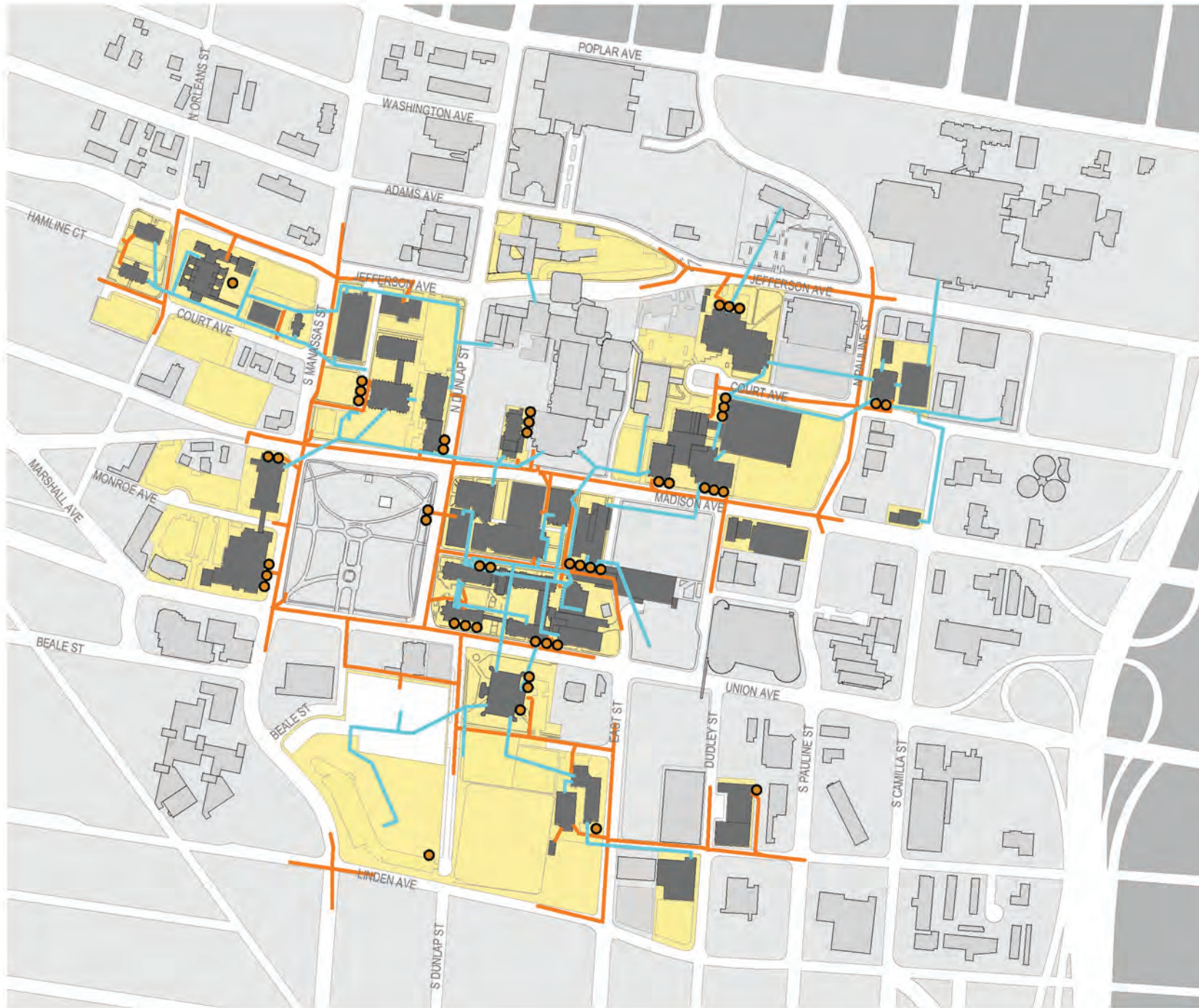
The existing campus buildings are powered by MLGW (Memphis Light, Gas & Water). The utility also provides building transformers. The transformers are either pad-mounted or located in a vault.

EXISTING FIBER INFRASTRUCTURE

The existing campus buildings are served by fiber that has been installed by UTHSC.

EXISTING
TRANSFORMER
LOCATIONS, FIBER AND
ELECTRICAL
INFRASTRUCTURE

- TRANSFORMERS
- ELECTRICAL LINES
- FIBER LINES
- UTHSC PROPERTY



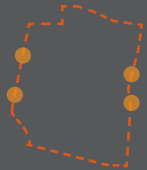


MASTER PLAN FRAMEWORK



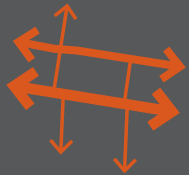
IMPROVE CAMPUS CORRIDORS AND EMBRACE THE URBAN CONTEXT

FOSTER EASY CONNECTIONS WITH CLINICAL PARTNERS AND EDUCATIONAL PROVIDERS



DEFINE LIMITS OF THE UTHSC CAMPUS ENVIRONMENT

DESIGNATE A BRANDED CAMPUS PERIMETER WITH LANDMARKS



DEFINE PEDESTRIAN CORRIDORS TO CREATE SAFE CONNECTIONS THROUGHOUT CAMPUS

ENHANCE INDOOR AND OUTDOOR CAMPUS CIRCULATION



CREATE A NETWORK OF CAMPUS GREEN SPACES

CONNECT CROSS-DISCIPLINARY CENTERS WITH BEAUTIFUL, COMFORTABLE, AND USABLE OPEN SPACE



SHOWCASE AND CONNECT CENTERS OF EXCELLENCE

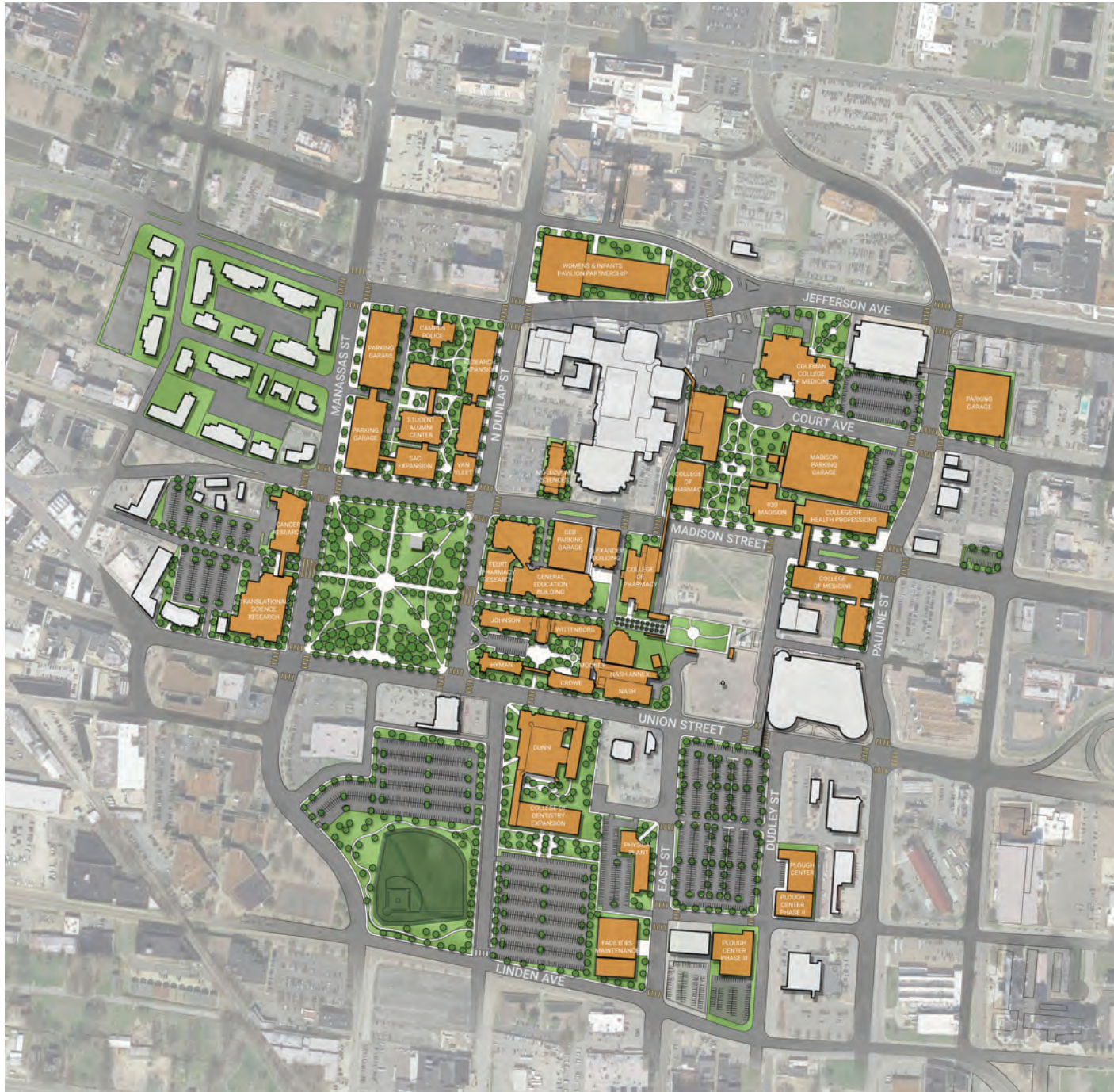
LOCATE ALONG MAJOR STREET CORRIDORS AND LINK TO A RESEARCH SPINE

A FRAMEWORK FOR FUTURE DEVELOPMENT

The 2020 UTHSC Campus Master Plan Update is a framework for transformational change. Together with strategic planning documents, the master plan identifies common goals and provides a shared vision for development to guide the physical campus environment.

A framework plan is designed to anticipate change. Grounded by five guiding principles, the plan provides the flexibility to grow the University's academic, clinical, specifically its research portfolio as UTHSC meets its ambition for national distinction.

As UTHSC is able to expand its property ownership and/or partnerships, the master plan makes recommendations for investments and acquisitions that will allow the University to grow its physical footprint to support its mission and vision to be a top-tier health science research institution.



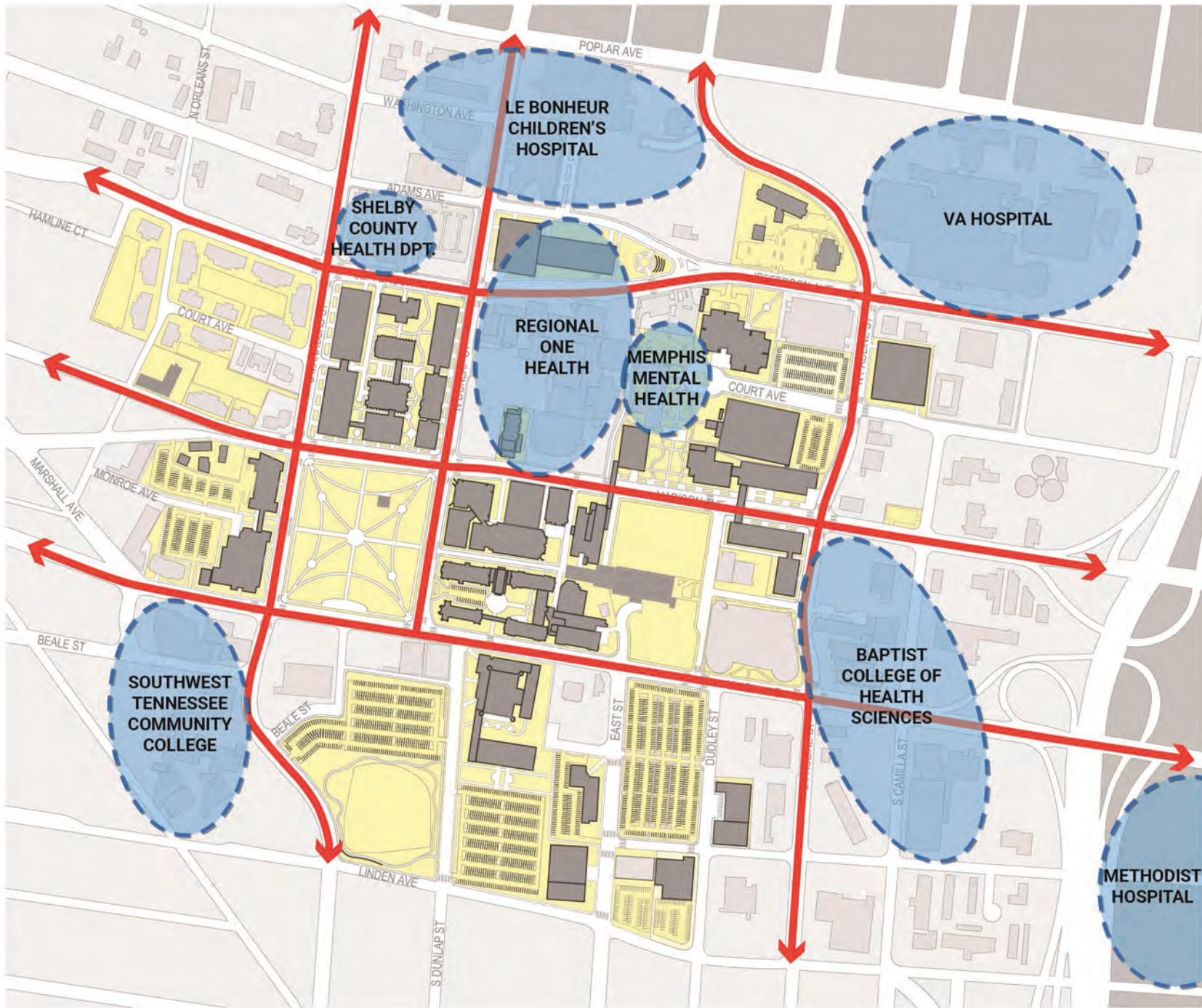
CAMPUS LAND USE AND URBAN DESIGN GUIDING PRINCIPALS

IMPROVE CAMPUS CORRIDORS AND EMBRACE THE URBAN CONTEXT - FOSTER EASY CONNECTIONS WITH CLINICAL PARTNERS AND EDUCATIONAL PROVIDERS

Memphis city streets comprise the major campus corridors that knit the Memphis Medical District and UTHSC together. The UTHSC Campus Master Plan facility, open space, and infrastructure improvements should position pedestrian- and bicycle-friendly streets, promote bike lanes and safe walkways, and ensure universally accessible paths of travels. Streets improvements for the major campus thoroughfares should enable safe access to and from programs, amenities and transportation hubs for all users, including pedestrians, bicyclists, motorists and transit riders.

The UTHSC campus facilities, open space and infrastructure improvements should optimize the University's close proximity to MMD partners, including Le Bonheur Children's Hospital, Shelby County Health Department, Regional One Health, Memphis Mental Health, VA Hospital, Baptist College of Health Sciences, and Southwest Tennessee Community College. The primary corridors between the campus and these important partner locations should be clearly marked and easy to travel for all modes of transportation.





GOAL 1
 IMPROVE CAMPUS CORRIDORS + EMBRACE THE URBAN CONTEXT TO FOSTER EASY CONNECTIONS WITH CLINICAL PARTNERS AND EDUCATIONAL PROVIDERS

LEGEND

- UTHSC PROPERTY
- LOCAL PARTNERS
- MAJOR CAMPUS CORRIDORS

DEFINE LIMITS OF THE UTHSC CAMPUS ENVIRONMENT - DESIGNATE A BRANDED CAMPUS PERIMETER WITH LANDMARKS

The extents of the UTHSC campus should be clear to pedestrians and vehicles passing through the campus core; UTHSC facility, open space, and infrastructure improvements should strengthen the campus identity. Campus landmarks should be highly visible, continuous and connected. The development of site and architectural guidelines should define a branded campus environment that can be implemented throughout the campus proper and in particular within the campus core.

Primary Gateway Landmarks should be positioned on the edge of campus along the two major thoroughfares: Madison Avenue and Union Avenue. A branded experience at these locations should denote entry into the campus and set the stage for a cohesive hierarchy of landmarks.

Secondary Perimeter Landmarks should be positioned at strategic locations on the edge of campus. Site improvements at these locations should include decorative paving, beautiful plantings, and prominent directional signage.

GOAL 2

DEFINE LIMITS OF THE UTHSC CAMPUS ENVIRONMENT - DESIGNATED BY CAMPUS LANDMARKS



LEGEND

- UTHSC PROPERTY
- BRANDED CAMPUS ENVIRONMENT
- PRIMARY GATEWAY LANDMARK
- SECONDARY PERIMETER LANDMARK

DEFINE PEDESTRIAN CORRIDORS TO CREATE SAFE CONNECTIONS THROUGHOUT CAMPUS - ENHANCE INDOOR AND OUTDOOR CAMPUS CIRCULATION

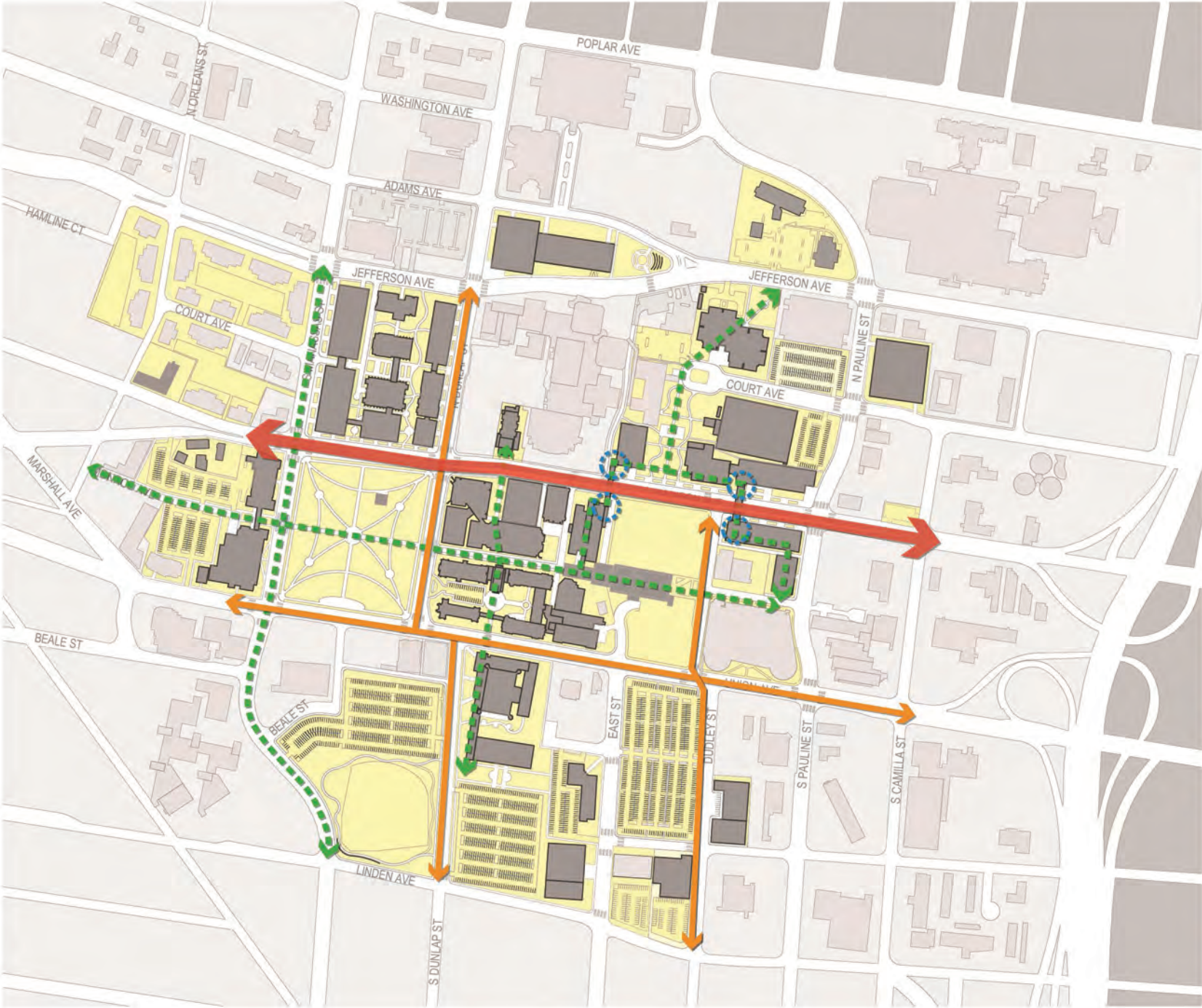
Madison Avenue is the major campus pedestrian spine which students and staff use to reach classrooms, labs and amenities. Campus streetscape improvements should calm traffic and reduce vehicular speeds to create a safe pedestrian environment. Open space improvements should incorporate tree lined sidewalks, planting buffers, pedestrian-scale lighting, welcoming building entrances, new courtyards and quads, and pocket parks.

Additional significant pedestrian corridors are located on Monroe Street, Union Street, Dunlap Street, and Dudley Street. Similar improvements as listed above should be used to create a cohesive pedestrian experience throughout campus.

Secondary pedestrian corridors along Manassas and Court Street should connect through indoor and outdoor amenities. New skyways along Madison Avenue should provide secure, all-weather connections for pedestrians to both cross the busy street and pause in conversation and collaboration space. Existing campus tunnels should be improved and utilized as another means of safe pedestrian travel that can provide accessible, branded social space.

GOAL 3

DEFINE PEDESTRIAN CORRIDORS TO CREATE SAFE CONNECTIONS THROUGHOUT CAMPUS + ENHANCE INDOOR / OUTDOOR CAMPUS CIRCULATION



LEGEND

- UTHSC PROPERTY
- CAMPUS SPINE
- MAJOR PEDESTRIAN CORRIDORS
- SECONDARY PEDESTRIAN CORRIDORS
- SKYWAY CONNECTIONS

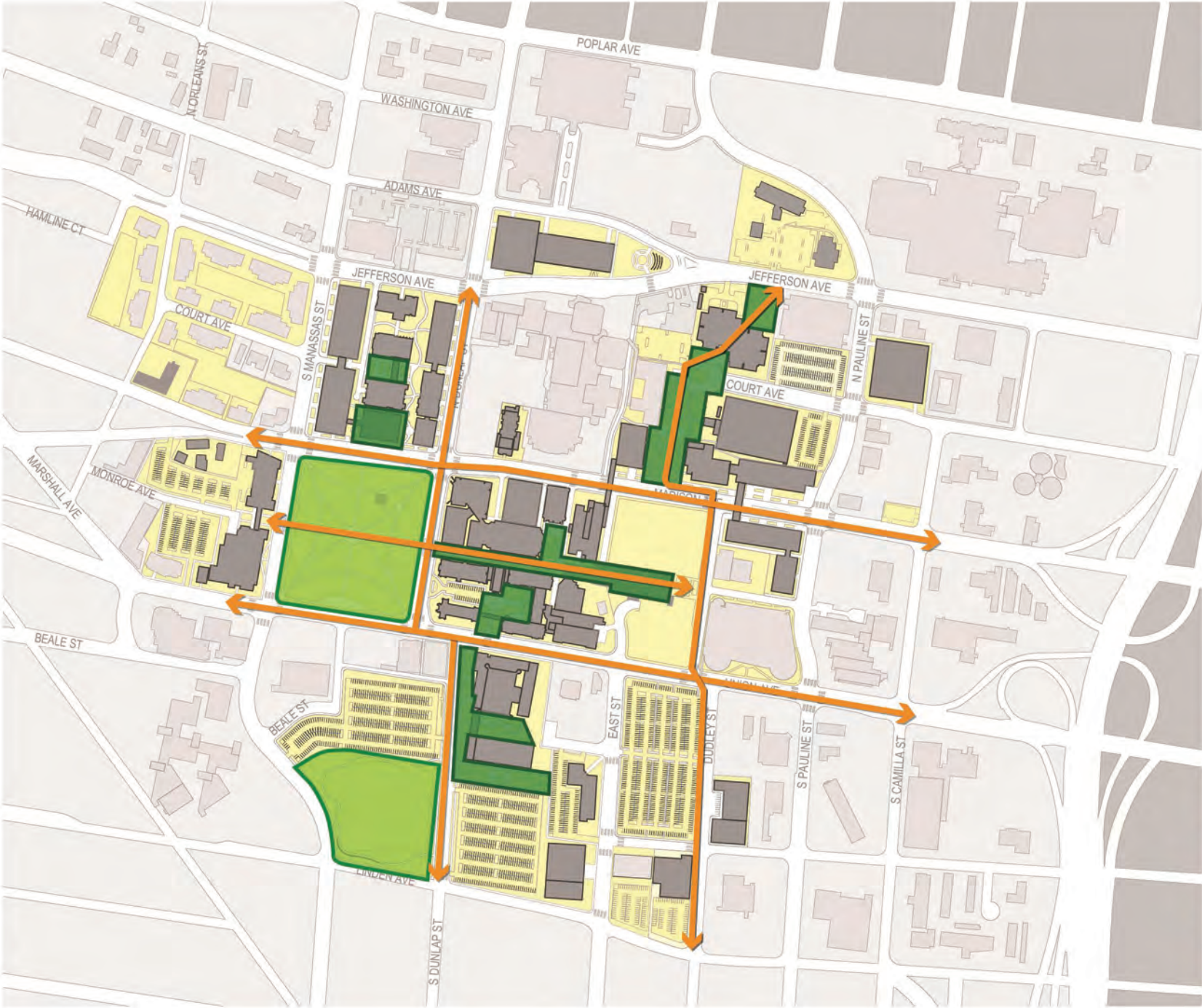
CREATE A NETWORK OF CAMPUS GREEN SPACES - CONNECT CROSS-DISCIPLINARY CENTERS WITH BEAUTIFUL, COMFORTABLE, AND USEABLE OPEN SPACE

Existing open space should be enhanced according to site design guidelines to create pleasant, useful, and energetic outdoor spaces for students, staff, and visitors. Along Madison Avenue, Health Sciences Park and a new quad to replace the Madison Plaza Complex should be programmed and furnished for social events and passive recreations. On the southern edge of campus, a new Doctors Field and Park should be improved for informal recreational sports, jogging, walking and fitness stations. Areas for food trucks, play areas and special events should be considered.





Secondary green spaces should be located along signature pedestrian corridors to enhance campus connectivity and promote outdoor meetings, respite and study. These numerous, small-scale “outdoor rooms” should have a consistent and branded appearance, provide a variety of user experiences (such as large and small gathering spaces, quiet areas for reading and contemplation, medicinal plant and healthy food demonstrations areas, and outdoor classrooms). Rooftop gardens should be considered. Outdoor spaces should be comfortable and functional for various types of activities, including provisions for shade, charging, lighting, dining and entertainment.

GOAL 4

CREATE A NETWORK OF CAMPUS GREEN SPACES TO CONNECT CROSS-DISCIPLINARY CENTERS



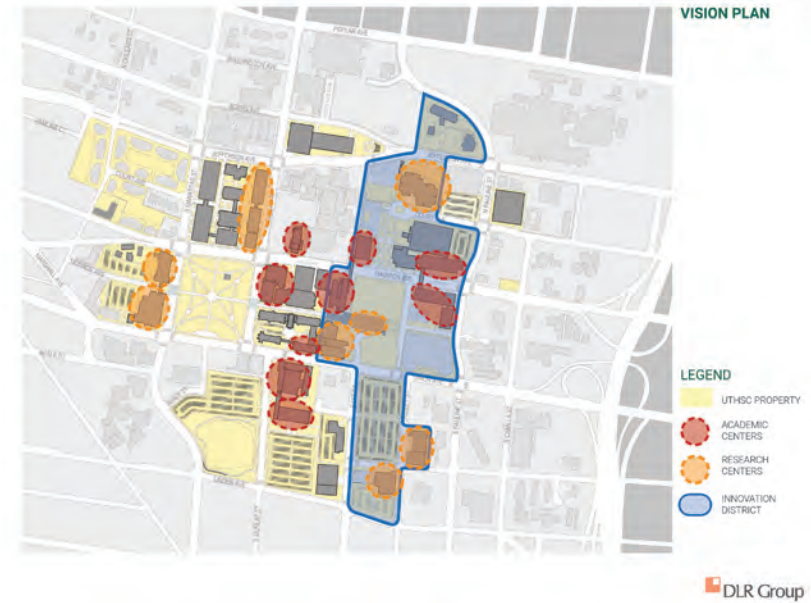
LEGEND

-  UTHSC PROPERTY
-  MAJOR GREEN SPACE
-  SECONDARY GREEN SPACE
-  SIGNATURE PEDESTRIAN CORRIDORS

SHOWCASE AND CONNECT CENTERS OF EXCELLENCE - LOCATE ALONG MAJOR STREET CORRIDORS AND LINK TO A RESEARCH SPINE

UTHSC has Centers of Excellence in Academics and Instruction, Cross-Disciplinary Research, and Clinical Care. As facilities are renovated, repurposed or newly constructed they should make these programs highly visible within the MMD street network to students, staff, visitors, patients and partners. New facilities in particular should be located on major campus corridors and prominent corners. These evolving centers should be highly visible on vehicular and pedestrian routes through campus to further enhance the UTHSC campus sense of pride, user experience, and ease of wayfinding.

As UTHSC is able to expand its property ownership and/or partnerships between Dunlap and Pauline Streets and from Jefferson to Martin Luther King Avenues, programmatic centers of excellence should also link internally to each other. As UTHSC meets its mission and vision to be a top tier health science research institution, its centers of excellence should have easy connectivity to a central research and innovation district, ideally extending from the Innova Memphis Vivarium.



GOAL 5

SHOWCASE & CONNECT CENTERS OF EXCELLENCE BY LOCATING ON MAJOR CORRIDORS



LEGEND

- UTHSC PROPERTY
- ACADEMIC CENTERS
- CROSS-DISCIPLINARY RESEARCH CENTERS
- CLINICAL CENTERS
- MAJOR CAMPUS CORRIDORS



PROGRAM AND RECOMMENDATIONS

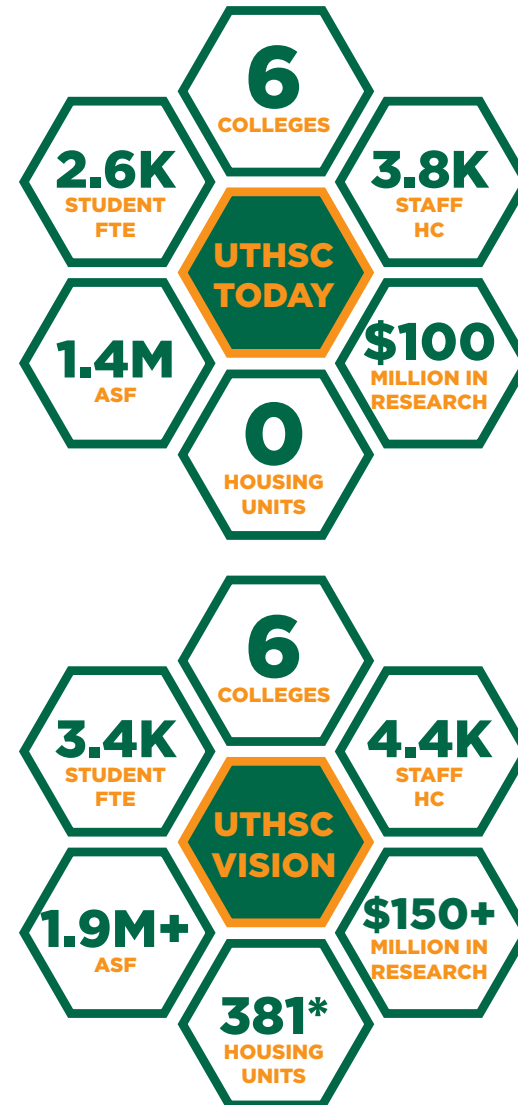
SPACE NEEDS AND PROGRAM ALIGNMENT

The space needs analysis explores demand and demonstrates the need for planned facilities projects in the UTHSC Campus Master Plan, with the goal of becoming a top-tier academic health science center. At the Memphis campus, the student enrollment today (2018) is approximately 2,600 student Full Time Equivalent (FTE). UTHSC is expected to maintain stable enrollment with a slight increase annually. The analysis investigates the projected space requirements for a five-year target enrollment of 3,137 student FTE and a ten-year target enrollment of 3,396 student FTE. The analysis also takes into account spaces on campus in sub-par condition. To deliver the highest level of education to its students, and provide the top facilities to its researchers, there is a need to modernize many spaces that are on the campus today.

UTHSC is planning to grow its research portfolio, with a stated goal to increase research grant awards and expenditures, and entrepreneurial activity. This expanded research portfolio will require a substantial amount of additional space. In the campus vision plan, there are additional parcels dedicated to innovation and research.

To increase its prominence and expand outreach to the community, UTHSC is planning to create clinical centers of excellence. These will expand the scope and quality of integrated clinical practice at UTHSC. The plan analyzes clinical space from a healthcare planning perspective using typical modules to plan for flexible and complete spaces in the future.

To achieve the expansion of enrollment, research, and clinical care, the number of faculty and staff will be increased over the next decade.



* Student Housing will be provided by development partner on UTHSC property

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BENCHMARKS AND GUIDELINES

The space needs analysis and resultant Space Model were based on the following data and criteria:

- Federal Index Classification Manual (FICM) (space taxonomy)
- Existing Space Inventory (provided by UTHSC)
- Student enrollment projections (provided by UTHSC)
- Faculty and staff projections (provided by UTHSC)
- Research expenditures and projections (provided by UTHSC)
- Class schedule per THEC requirements (provided by UTHSC)
- State of Tennessee higher education space standards (THEC)
- Council for Educational Facility Planners International (CEFPI) (general guidelines)

DLR Group square footage benchmark data from campuses and clinical facilities throughout the United States Space utilization analysis and space needs projections were performed based on Tennessee's Higher Education Commission document, "THEC Space Allocation Guidelines User's Manual." Where no Tennessee standard existed, Council of Educational Facility Planners International (CEFPI) guidelines or DLR Group benchmark data were utilized.

Classroom Metrics:

- 67% Room Utilization or 30 scheduled hours per week based on a 45 hour week
- 60% Seat Utilization
- Range of 14-26 ASF per seat. DLR Group used 30 ASF per seat to account for active learning and the prevalence of team-based learning in medical education

Class Laboratory Metrics:

- 33% Room Utilization or 15 scheduled hours per week based on a 45 hour week
- 75% Seat Utilization
- 75 ASF per seat

Open Laboratory Metrics:

- 5 ASF per FTE Student

Office Metrics:

- Office ASF assigned per FTE Employee based on job function ranging from 350 ASF for the Chancellor to 40 ASF for Student Assistants
- 30% additional for service and conference space. DLR Group assigned 20 ASF for service and 25 ASF for conference per FTE Employee for consistency with other higher education institutions

Library and Study Metrics:

- Study Stations to accommodate 25% of the on-campus student body. DLR Group increased this to 35% to account for higher demand on study spaces.
- 25 ASF per standard study station, 35 ASF for enhanced and group study stations. DLR Group used 35 ASF for all study stations to align with national best practices.
- 0.1 ASF per physical volume for the first 150,000, then 0.09 ASF for the next 150,000. 0.03 ASF per physical volume in compact shelving.

Physical Education and Recreation Metrics:

- Total of 40,800 ASF for institutions under 4,000 FTE. This metric is focused on institutions that have Varsity Sports, which is not applicable for UTHSC.
- DLR Group instead used a NIRSA metric which provides 12 ASF per FTE student and 15% of non-student employees.

Research Metrics –Expenditures Method (Zero -10 years):

- Research Expenditures are broken into four categories: highly space-intensive, -moderately space-intensive, and office-based. Each of these categories is then assigned an ASF factor for every \$1 Million in Expenditures.
- Using this method, and classifying all existing UTHSC research as highly space-intensive, results in an overall need of 170,756 ASF for Fall 2018 in Research Labs and 34,151 ASF in Vivaria.
- In the 10-Year Projection, i.e. the number used in the Mid-term Scenario, this generates an overall need of 401,110 ASF in Research Labs and 80,222 ASF in Vivaria.

Research Metrics –Personnel Method (10 years+):

- Research Personnel are similarly broken down into the same four categories. Personnel are then assigned an ASF factor based on job function –e.g. Faculty in highly-space intensive research receive 600 ASF while a Post-Doc in office-based research receives 50 ASF.
- Using a modified version of this method (PI's were known but all research personnel was not), UTHSC generates an overall need of 337,860 ASF for Fall 2018 in Research Labs and 67,572 in Vivaria. This method was not used for Fall 2018.
- Using the same method for the 10-Year projection, i.e. the number

used in the Long-term Scenario, this generates an overall need of 466,600 ASF in Research Labs and 93,320 in Vivaria.

Clinical Care Metrics

- Not a one size fits all approach –metrics vary based upon the usage type, patient volume, practice goals, and activities.
- General clinic modules are based on a 9,000 ASF baseline amount of space, which accommodates 12-15 patient encounter spaces.
- More specialized spaces, such as Dental Patient Services, require specialized metrics. In this case, we applied 390 ASF per chair required –one for each 3rd/4thyear Dental student and Graduate students.

Accounting for clinical spaces for:

- Dental Patient Services
- Hamilton Eye Institute
- Developmental Disabilities
- University Clinical Health
- University Health Services
- University Therapists

ASSUMPTION AND FOUNDATION

EXISTING SPACE INVENTORY

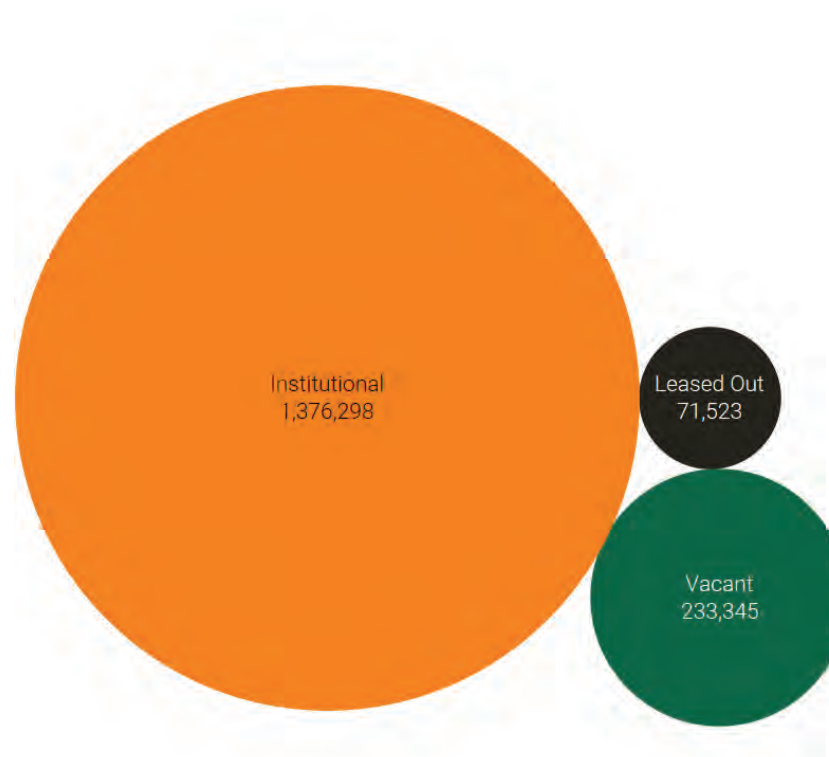
General context for UTHSC's existing space inventory:

- Nearly 72,000 asf (4%) of UTHSC space is leased or shared out to tenants
- Over 233,000 asf (14%) of UTHSC space is vacant
- UTHSC's inventory includes space that does not meet current higher education space standards for quality, technology and condition
- UTHSC's space is difficult to schedule and utilize effectively

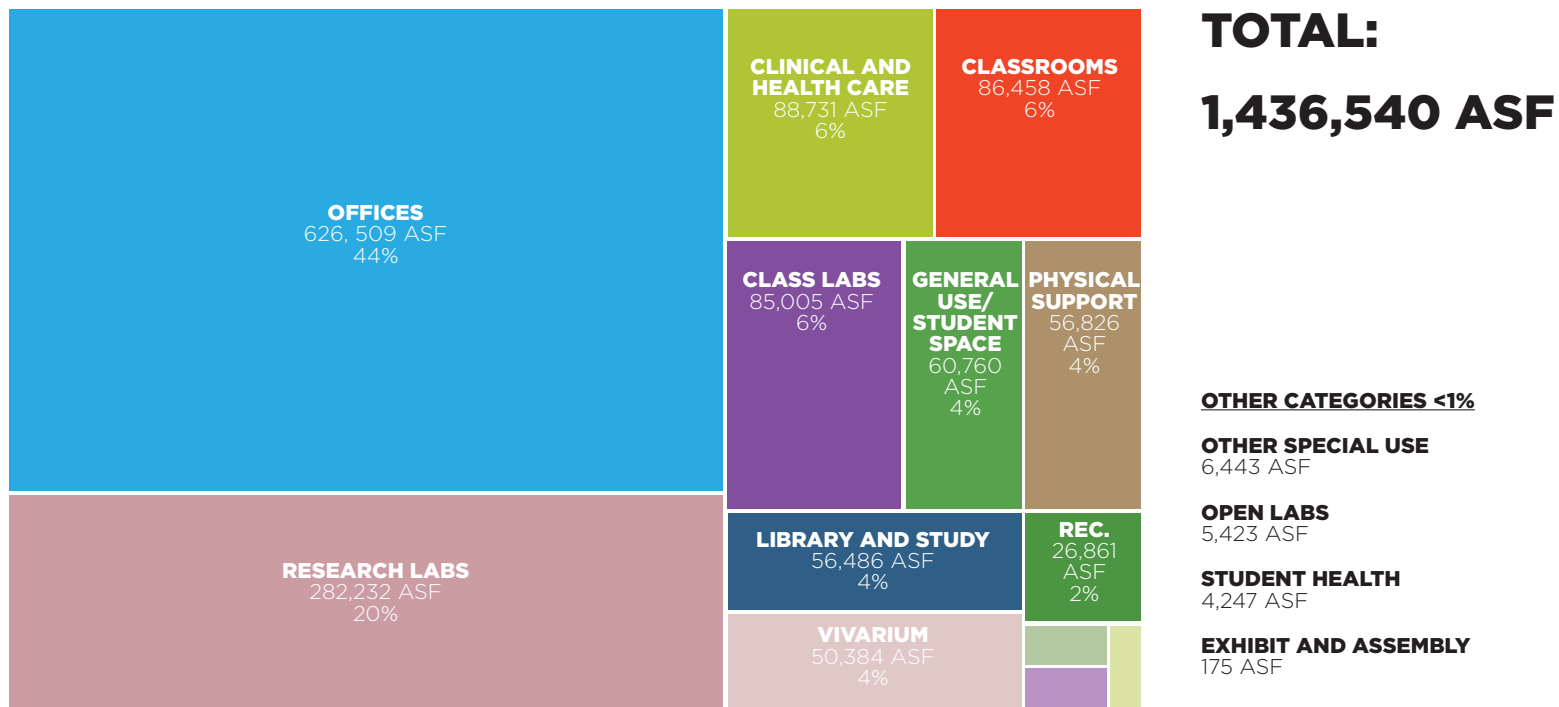
The Crowe Research, Mooney, Nash, and Nash Annex Buildings are all currently under renovation and the proposed programs are accounted for. A planned addition to Dunn Dental Building is also taken into account. Demolition of space and renovation of existing spaces to their new uses were accounted for in the space model.

Facilities targeted for demolition, including the Boling Center and other facilities on that parcel, were removed from the existing space inventory. 910 and 920 Madison, Madison Plaza, the Doctors Office Building, the southern portion of Van Vleet, and Innova Memphis II (the vacant hotel) were all considered "Proposed Demolition Projects" in the Space Needs Model and were removed in the "Future Existing Space" category.

Facilities planned and moving forward were factored into the Space Model and include the renovations to Crowe, Mooney, Nash, and Nash Annex and the addition to Dunn Dental. This information was pulled from the latest programming documents available.



Assignable Square Footage by Usage Type



The University maintains a detailed Space Inventory of all buildings on the campus. The 2018 Space Inventory Report was used as the basis for the analysis of space.

The largest category overall is Offices at 44%. Offices are typically among the largest space categories as most institutions of a similar size and scope.

Research Labs constitute about 20% of the existing space on campus. Currently there is a surplus of research lab space. However, over 10% of existing research space is currently vacant due to outdated and uninhabitable conditions.

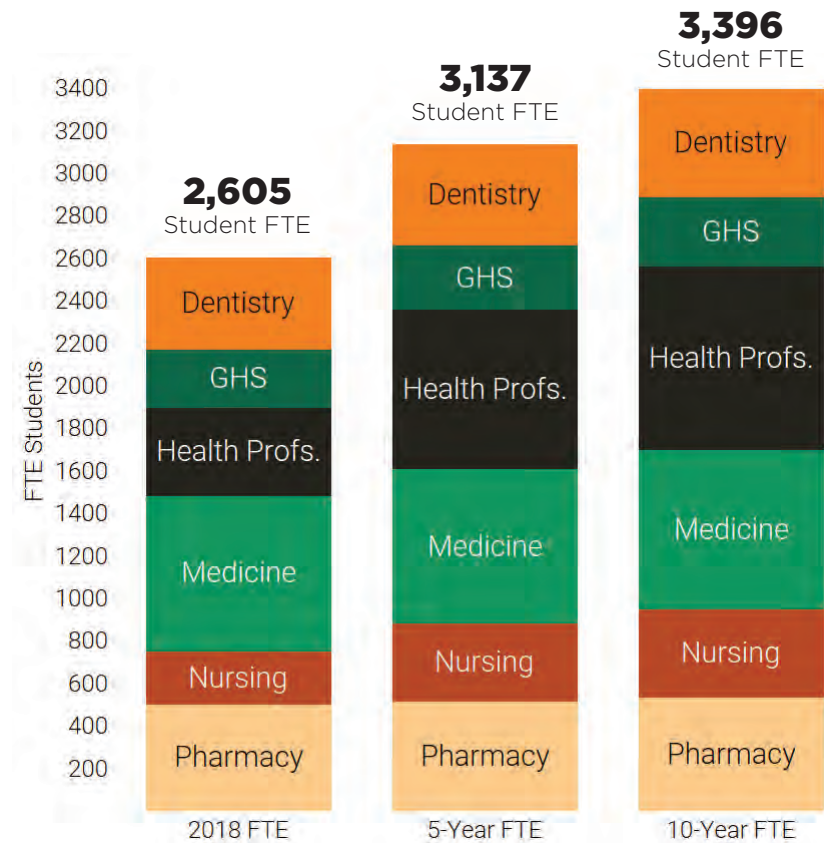
The Instructional space categories, specifically classrooms and class labs are well below what is typical for similar institutions. Many existing academic spaces on the campus do not support active learning instruction and many classroom labs are outdated, retrofitted, and/or substandard.

Exhibit and Assembly are well below their expected share. This category includes spaces for large gathering and meetings. Stakeholders have confirmed this anecdotally, commenting that it is difficult to find spaces for large groups of students to meet within the academic core of the campus.

STUDENT ENROLLMENT PROJECTIONS

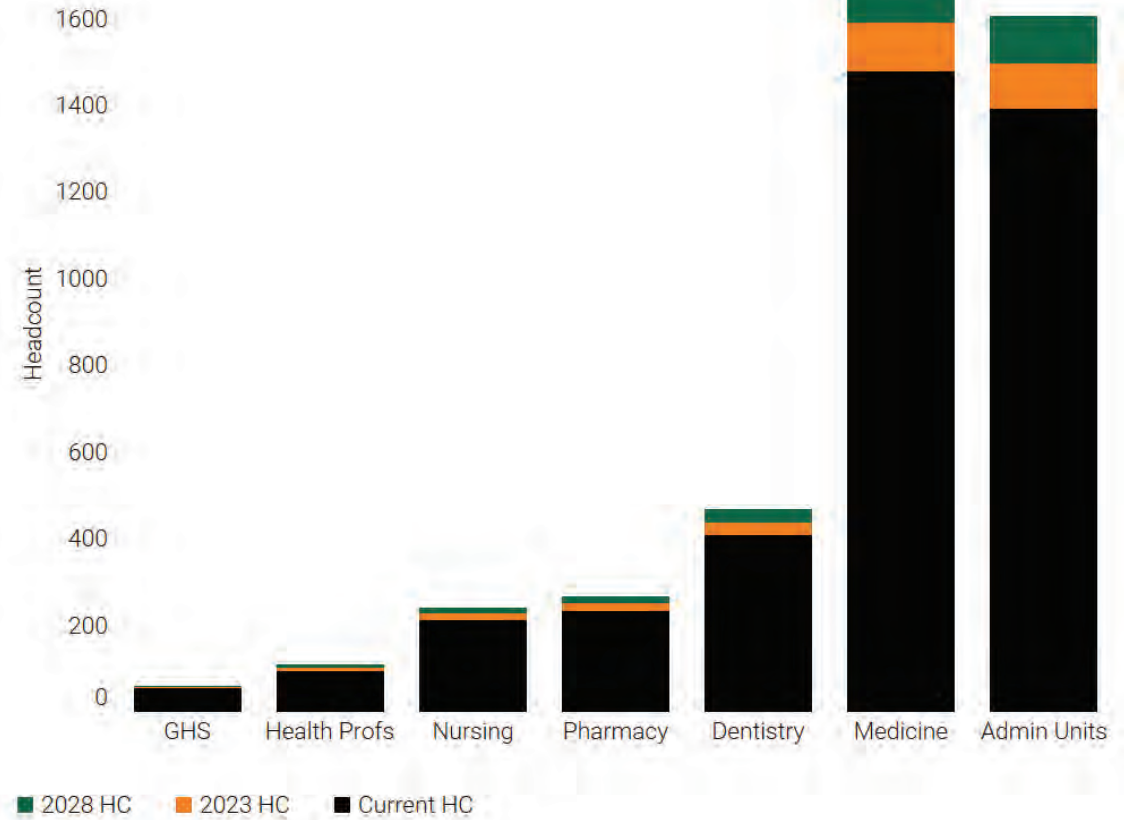
UTHSC is expected to maintain stable enrollment with a slight increase of 2% annually. The analysis investigates the projected space requirements for the five-year target enrollment of 3,137 student Full Time Equivalent (FTE) and the ten-year target enrollment of 3,396 student FTE.

College	2018 FTE	2023 FTE	2028 FTE
DENTISTRY	435.7	474.3	510.8
GRAD. HEALTH SCIENCES	273.6	305.0	324.3
HEALTH PROFESSIONS	417.0	748.0	865.0
MEDICINE	728.0	729.1	749.2
NURSING	249.0	365.3	412.3
PHARMACY	502.1	515.3	534.7



Enrollment Projections by College

STAFFING ENROLLMENT PROJECTIONS



Staffing Projections

FUTURE SPACE NEEDS (OVERALL)

SPACE NEEDS OVERALL

- The campus as a whole is in relative balance quantitatively in 2018, with a small surplus of space (approximately 66,000 asf) however, by analyzing space needs by category reveals that there are space categories with large deficits, and others with large surpluses that balance out the total amount of space, but reflect an imbalance in the correct type of space on the campus.
- The target of doubling research has a considerable impact on space needs for the Long Term Scenario taking into consideration the combination of Research Laboratory and Vivarium needs.
- Best practices in space use can aid in controlling space needs. As shepherds for one of the largest University assets (facilities), it is important for top-level campus leaders to communicate the need for continued diligence in good space utilization. UTHSC should continue good scheduling practices, including common start and end times, scheduling full days across all days of the week, and enforcing scheduling policies. Spaces should be managed with the entire institution's needs in mind.
- Facilities Condition, aligned with the results stated in the Facilities Conditions Assessment, accounts for space that is in poor condition. This increases the need for space across essentially all categories.

As illustrated in the chart on the facing page, the series of information outlines the overall space surplus today, as well as future space needs by phase. The chart also takes into account the ongoing renovations, and planned demolitions. The following descriptions provide insight into what is included in each column:

Existing ASF: Square footage assigned to the unit today within existing buildings that were accounted for in the UTHSC Space Database. This excludes buildings immediately slated for demolition on the housing development parcel.

Guideline ASF: Square footage generated based on benchmarking and standard metrics used for Fall 2018 enrollment.

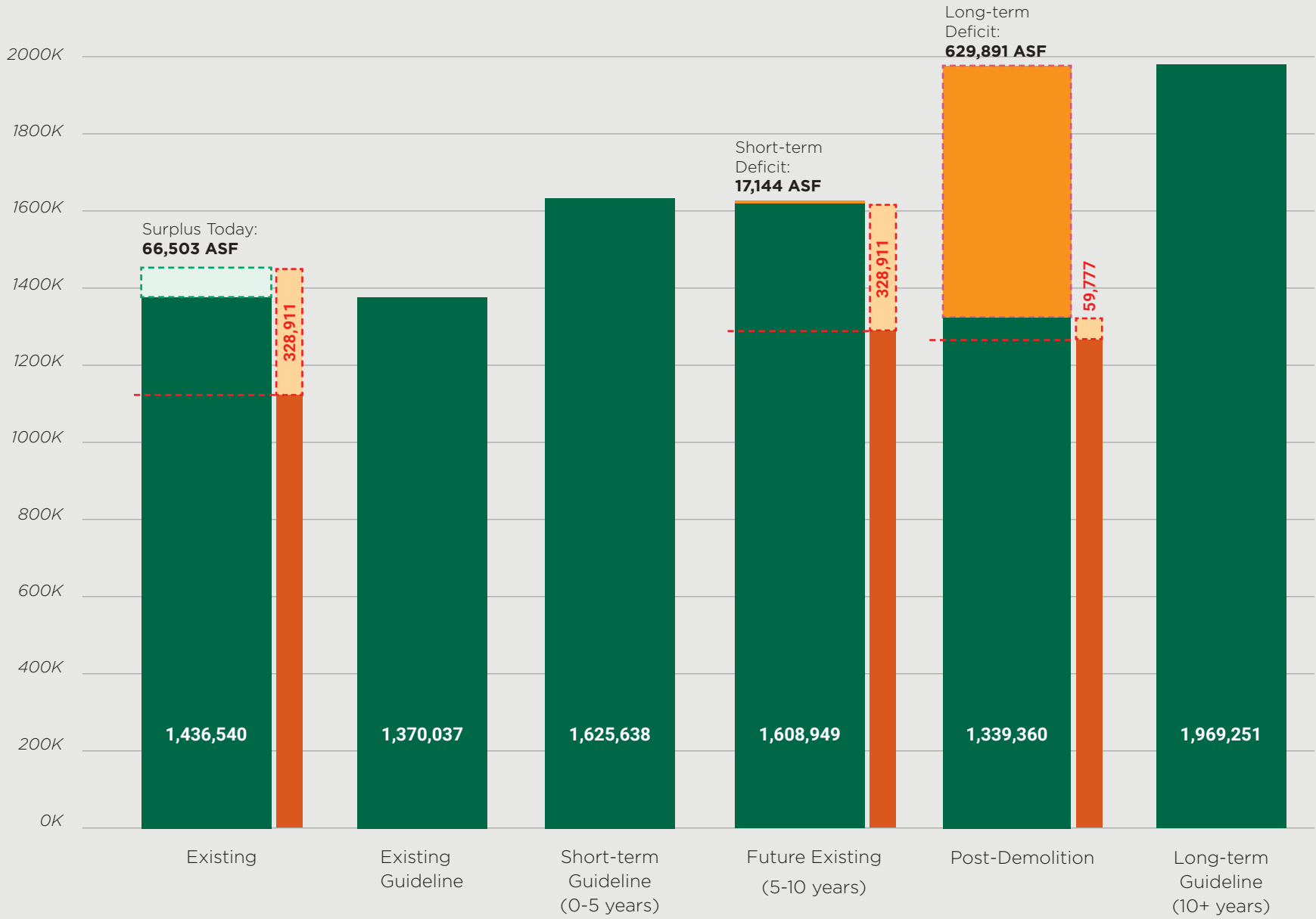
Future Existing ASF: Square footage assigned to units today within existing buildings and planned projects in Crow, Mooney, Nash, Nash Annex, and Dunn Dentistry Addition.

Short-term ASF: Square footage generated based on the metrics used for 5-year enrollment growth and research projections by dollars

Post-Demo ASF: Square footage assigned to units today within existing buildings, accounting for both planned projects from Future Existing and future demolitions of 910 Madison, 920 Madison, Coleman, South Van Vleet, Doctor's Office Building, and Innova Memphis.

Long-term ASF: Square footage generated based on the metrics used for 10-year enrollment growth and research projections by Principal Investigator (PI).

OVERALL SPACE NEEDS



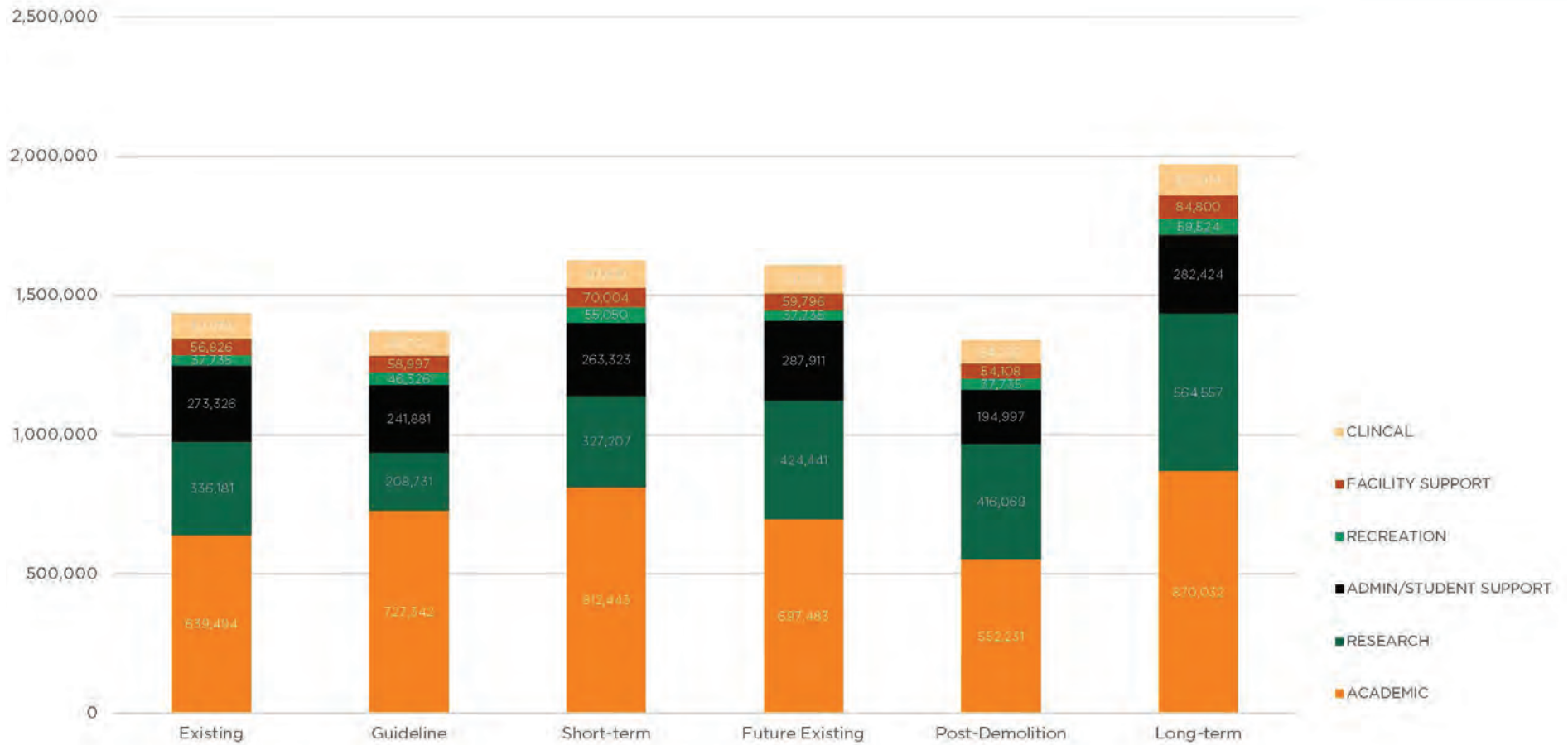
■ Space in good condition
 ■ Indicates Impact of space in critical condition and proposed demolition

SPACE CATEGORY CODES AND SUMMARIES

The following space category codes are based on the FICM taxonomy. The space codes are a national standard and can be used as a basis for comparison among most higher education institutions. Space use classification categories contain multiple space type categories and are rolled up into the following categories:

- Academic
- Research
- Administrative/ Student Support
- Recreation
- Facility Support
- Clinical

The following sections outline each of these categories in further detail.



Overall Space Needs by Space Categories

ACADEMIC SPACE NEEDS

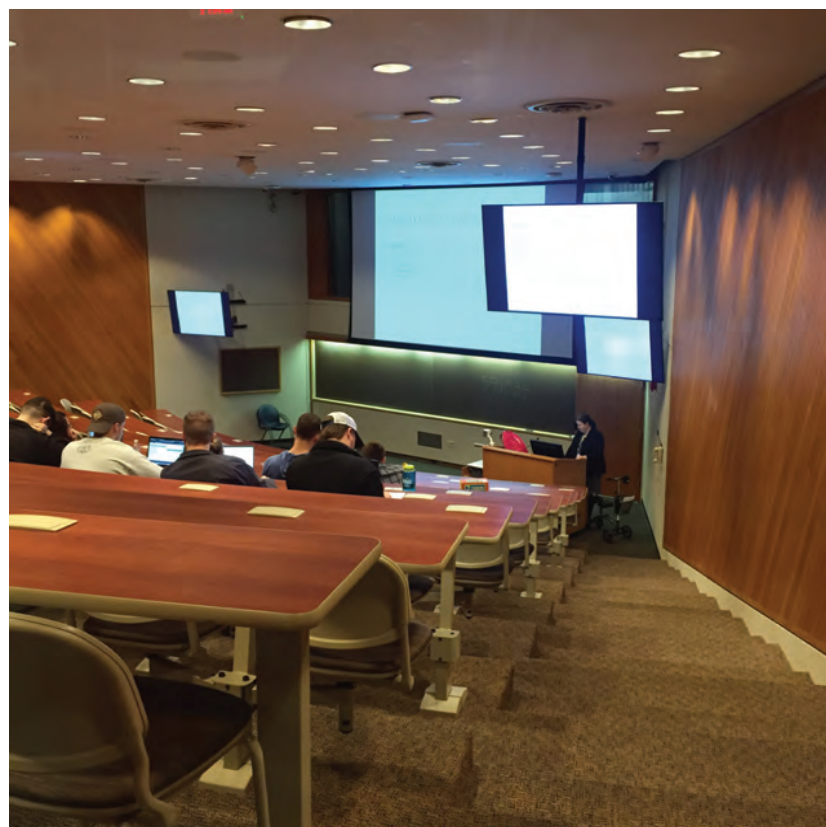
The academic space category includes spaces such as general classrooms (including large assembly and smaller meeting spaces), specialized classrooms, class laboratories, open laboratories, academic offices, study/library space, media production, and e-learning support.

There is a current deficit of academic space of over 87,000 ASF, with the majority need in the specialty classroom/class laboratory category. This need grows significantly to over 300,000 ASF by the 10 year window, driven by growth of enrollment, faculty and staff, and is considerably affected by the removal and demolition of buildings on potential redevelopment sites.

The General Education Building (GEB) and Pharmacy Building are sufficient for class load and current scheduling, however the GEB has limited capacity for new active learning instruction. Existing classroom facilities that do not meet current teaching standards are located in the Student-Alumni Center, Doctors Office Building, Boling Center, and the Madison buildings.

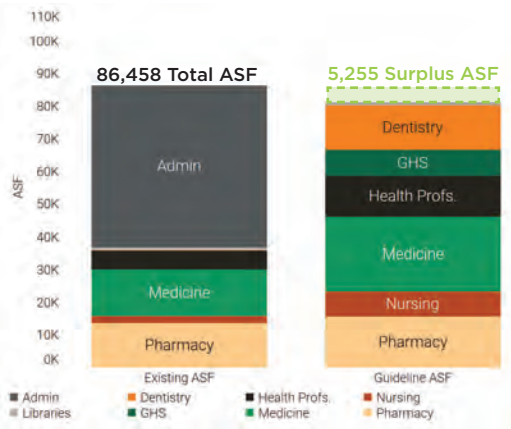
Teaching lab space is currently located in the GEB. These labs function well for Dentistry, Pharmacy and General Science. The classroom labs that are specifically assigned to the College of Health Professions are substandard. They are retrofitted office space in the Madison buildings, retrofitted wet labs in the GEB, or outdated space in the Boling Center. Currently medical class labs are split across campus in the Madison, Coleman and Wittenborg buildings. Class lab space in the Madison buildings and in Boling should receive priority for relocation - reinforced by the fact that these buildings are all slotted for eventual demolition. This includes specialized class lab space for the College of Health Professions, College of Medicine, Nursing, and General Science.

Academic office space is distributed across campus, however 930 Madison houses the majority, primarily for the College of Medicine and College of Health Professions. Nearly 50% of academic office space is located in buildings designated in critical condition or requiring significant upgrades.

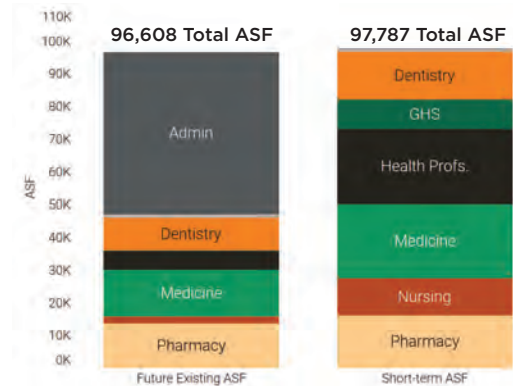


General Education Building (GEB) Lecture Hall

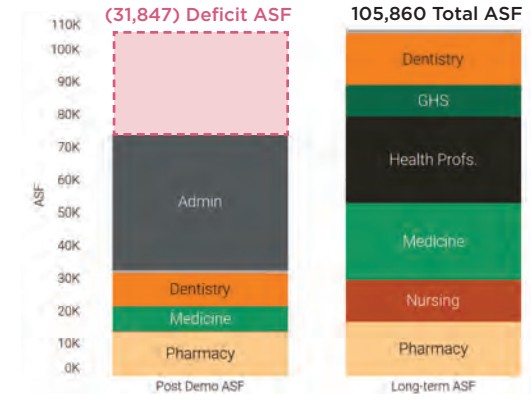
Classrooms Analysis



Classrooms 2018 Analysis

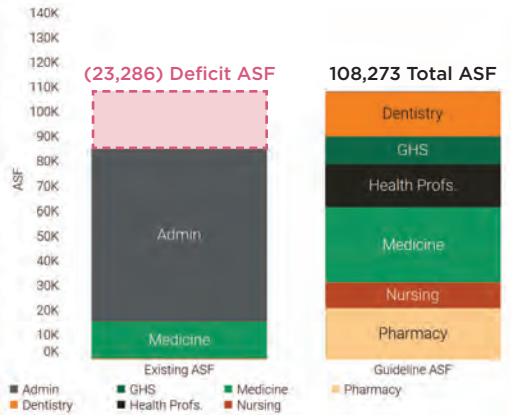


Classrooms Short-term Analysis

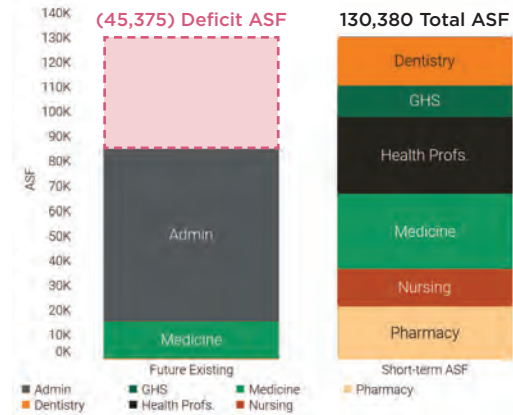


Classrooms Long-term Analysis

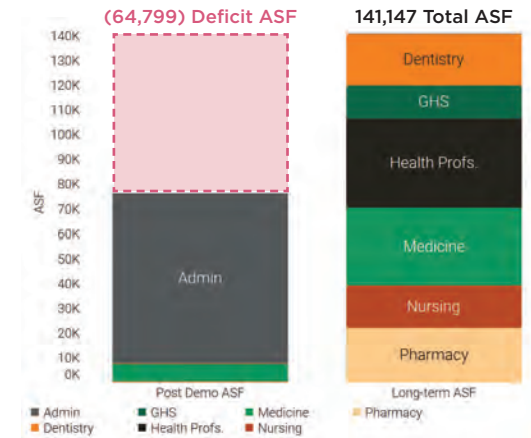
Class Lab Analysis



Class Labs 2018 Analysis



Class Labs Short-term Analysis



Class Labs Long-term Analysis

RESEARCH SPACE NEEDS

The research space category includes research laboratory spaces, animal facilities, and specialty lab spaces.

Currently there is no numerical deficit of research lab space, with a surplus of nearly 127,000 ASF. However, over 10% of existing research space is currently vacant due to outdated and uninhabitable conditions.

Vacant research space that does not meet current standards is located primarily in the Molecular Sciences Building and Van Vleet Cancer Center. Van Vleet is primarily leased out to tenants.

For the Short-term and Mid-term scenarios, Research Space need is projected based on THEC's research expenditure method, calculating needs based on a square-foot multiplier per \$1 million of expenditures for the following categories: highly space intensive, space intensive, moderately space intensive or office-based.

In the Long Term scenario, however, the space need is instead based upon THEC's personnel method whereby each PI is allotted an amount of research space based upon space intensity.

Long term, the research surplus flips to a deficit of nearly 175,000 ASF when lab space located at future redevelopment sites is taken offline and the methodology for generating space need switches to personnel rather than expenditures.

LONG-TERM VISION FOR RESEARCH AT UTHSC

Within the Research Operational Strategic Plan, the Chancellor has stated the robust goal of doubling research over a 10-year period which will require 8% compounded growth. The metrics and dashboards outlined in that document (listed below) map the progress towards UTHSC's research goals to measure achievements in reaching short and long-term objectives.

- Increase our UTHSC research grant awards by 8% annually
- Increase UTHSC Entrepreneurial Activity by 8% annually
- Develop research partnerships in the region, state, nation and globally which will lead to \$10 million of new research funding over 5 years
- Hire 50 new UTHSC faculty within the 6 Areas of Excellence, Key Focus Areas, and Cross-cutting Platforms.
- Increase the research laboratory and office space to accommodate these new researchers, and the targeted 8% annual increase in research expenditures.
- Over five years move 10 spots higher on the ranking of Academic Health Centers based on Total NIH dollars awarded annually.

As the institution strives to continue this upward trend in research activity, it will be critical to align with the Research Strategic Plan and meet its growth targets. For example, should UTHSC meet its research goals, the enrollment of the College of Graduate Health Sciences will likely increase to become the largest college, with many new PHD-level researchers utilizing the campus' facilities. This could increase the need for research space, both wet and dry, by over 160% to nearly 2-million assignable square feet.

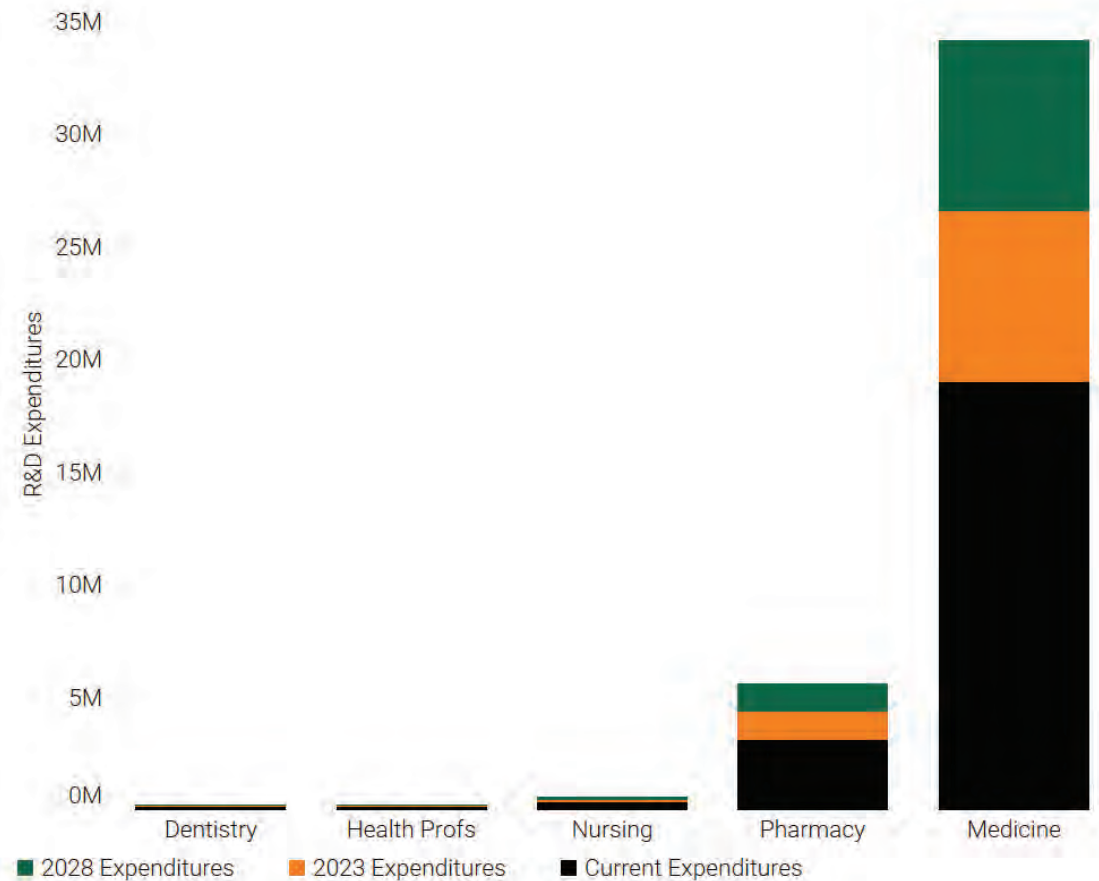
RESEARCH EXPENDITURES

Research expenditures totaled \$22.7 million in 2017-2018, with UTHSC projections of \$31.8 million in 5 years and \$40.9 million in 10 years. The College of Medicine comprises 83% of total research. The College of Pharmacy is the next highest contributor at nearly 14%.

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To align with the long-term vision for research, an additional projection is needed. Per the Research Operational Strategic Plan, UTHSC is working to increase their ranking of Academic Health Centers based on Total National Institute of Health (NIH) dollars awarded annually and gain national prominence as a top-ten research institution.

NIH 2019 data revealed that UTHSC totaled \$42M in NIH awards. Using University of North Carolina as a peer benchmark (due to the program offerings and its role as a state-serving institution), UTHSC will need to increase from \$42M to over \$400M to breach the top-ten over the next several decades.



Existing and Projected Research Expenditures by College

CLINICAL SPACE NEEDS

The following section outlines existing and projected sizing for UTHSC clinical care and clinical research spaces. The following principles were considered when benchmarking clinical space.

- No one size fits all
- Variation in activity, operational models, patient type and practice goals will result in dramatically different clinical spaces
- Physical clinic modules are generally 9,000 sf and include 12-15 patient encounter spaces
- Clinic neighborhoods which are grouped and located near key diagnostics are more efficient than individual clinics
- Highly specialized clinics that require unique equipment (dental, ophthalmology) do not follow the same guidelines

Considerations

- Collocating greater volume of visits and types of clinics often reduces overall space required.
- The degree to which clinics can be developed on a universal module is directly related to flexibility that can be achieved.
- Separating administrative and faculty spaces from clinics increases flexibility and improves throughput.

Clinical Spaces Included:

- Ophthalmology
- Dermatology
- University Health Services
- Dental Clinic
- Boling Center (only spaces currently in use)



UTHSC Dentistry Clinic



Hamilton Eye Institute

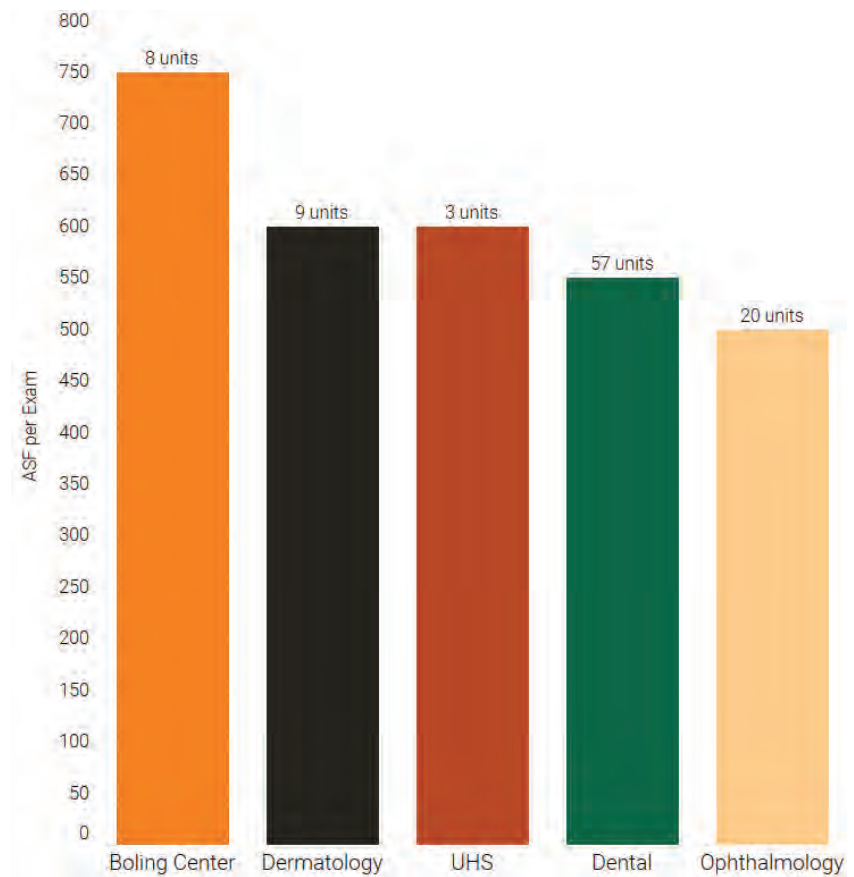
Space metrics ranged from 500 to 750 ASF per Clinical Unit – this includes space for clinical areas, limited outpatient office treatment modalities, shared office and support space for clinical activities, departmental waiting and reception, and modest dedicated teaching space.

Clinical Planning Modules at 9,000 ASF refer to 10 30x30 structural bays, typically used in healthcare architecture. This metric was derived from DLR Group’s expertise in healthcare planning.

Contemporary planning easily allows 15 patient encounter spaces, with some private offices. Current and aggressive planning allows 20+ patient encounter and light procedure spaces, with no private offices.

The application of the metrics above show that Clinical Space on the UTHSC campus is within these metrics in the baseline year. This indicates that this space type is in relative balance. Looking forward to the future scenarios - as planned projects add additional clinical space, this remains within metrics in the Short-term scenario. However, looking towards the Mid-term and Long-term scenarios, a deficit appears in clinical space. This deficit is the result of additional student and faculty demand on clinical spaces as the institution looks to meet its strategic growth targets.

It is critical to understand that the “balance” of space shown here is purely quantitative. One should also consider the quality of some of the current clinical spaces. Facilities such as Boling and the 900 Madison buildings contain significant clinical space but are not in adequate condition to provide a clinical experience that reflects the quality of UTHSC overall. Planned facilities such as the Dunn Dental expansion will begin to address this issue over time.



Number of Clinical Units

ADMINISTRATIVE/STUDENT SUPPORT SPACE NEEDS

The Administrative/ Student Support space category includes administrative offices, exhibition space, dining and food service spaces, day-care, lounge, and retail spaces.

Currently there is a surplus of 31,445 ASF for administrative/ student support space with the majority of the excess in office space. This surplus of space likely supplements a deficit of academic office space. When considering growth of students, faculty, and staff and removal of space due to demolition on future redevelopment sites over the long term, this surplus becomes a deficit of nearly 88,000 ASF.

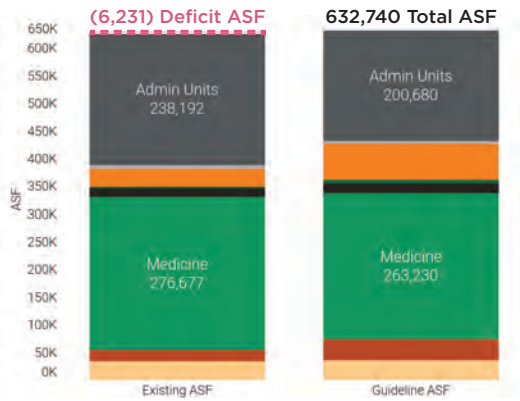


UTHSC recently renovated the food court and bookstore in the 930 Madison Building

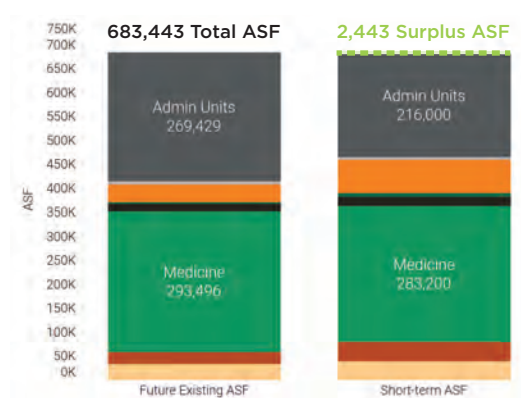


UTHSC's One-Stop also located in 910 Madison Building creates is hub for student services such as admissions, financial aid, registrar, and student life

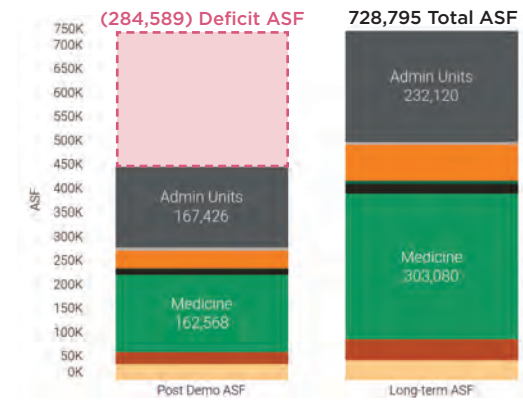
Office Analysis



Office 2018 Analysis



Office Short-term Analysis



Office Long-term Analysis

RECREATION SPACE NEEDS

The recreation space category includes spaces such as gymnasiums, indoor courts, pools, exercise rooms, billiards and game rooms, tv and music listening rooms. Using a NIRSA metric specifically for Recreation space, there is a deficit of roughly 8,500 ASF in the baseline year. In the long-term, with growth in students, faculty, and staff, this deficit grows to nearly 22,000 ASF.



A game room located in the Student Alumni Center



The Student Alumni Center fitness room was recently renovated.

FACILITY SUPPORT SPACE NEEDS

The facility support space category includes spaces such as central computer, physical plant shops and storage, central service, hazardous material, waste, and general storage. There is a current small-scale deficit in facility support space of about 2,000 ASF on campus. As this is within the +/- 10% threshold, we would consider this within metrics. However, this need grows substantially in the long term to a deficit of 30,692 ASF.

FUTURE FACILITIES PRIORITIES BASED ON SPACE NEEDS

The space needs analysis is the basis for the future facilities priorities outlined in the following pages.

Net Assignable Square Footage established within this study was escalated to Gross Square Footage by nationally recognized factors for the specific type of space. For example, Libraries are more efficient at 70% than Classrooms, which may be at 60-65%.

Though the Campus Master Plan defines the primary use of each building in the building use diagram, each of the facilities in the UTHSC Campus Master Plan is comprised of multiple space categories. For example, instructional buildings may contain a mix of classroom spaces, office space, study space, and student lounge space.

LAND USE, REAL ESTATE, AND ACQUISITION PLAN

UTHSC is planning future development to take place on either University-owned property or that of a University partner. Within the next decade, the campus master plan update provides a framework for the University to reinvest in its own facilities and redevelop its own land to meet space needs, as well as address long-term needs through land purchases, land swaps, and facility-sharing opportunities with partners.

As a reflection of recent Strategic Planning, Accreditation, and coordination with UTHSC leadership, Campus Master Plan land use and property goals have been established as follows:

Maintain an academic instructional and research core between Madison and Union.

- Move the College of Health Professions and other academic programs currently spread throughout the Memphis Medical District back to the campus core between Madison and Union.
- Brand Madison Avenue as the campus pedestrian spine and “Main Street.” Locate major College expansions along this corridor.

Showcase and expand UTHSC’s research excellence.

- Develop a north/south research spine and Health Science Innovation District that connects to every UTHSC College.
- As new research and academic buildings are developed, they should be located along prominent Memphis Medical District streets and intersections.
- Take advantage of strategic acquisitions or partnerships with Innova Memphis to expand research in the campus core.

Consolidate clinical programs.

- Create easier, all-season access for patients, students, and staff.
- Position a UTHSC clinical destination that provides a place of outreach to the community.
- Maintain patient care zones to the north of Madison, including the Hamilton Eye Clinic,
- Improve pedestrian connectivity to Memphis Mental Health Institute, Regional One Medical Center, the Le Bonheur campus, and the Veteran’s Administration campus.
- Respect and support the traditional location of dental clinics that are integrated within the Dunn Dental Building. Ensure that patient access is convenient, parking is ample, and visibility is good along Union Avenue.

Coordinate Student Support spaces on the ground floor of new facilities and on the perimeter of campus.

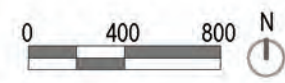
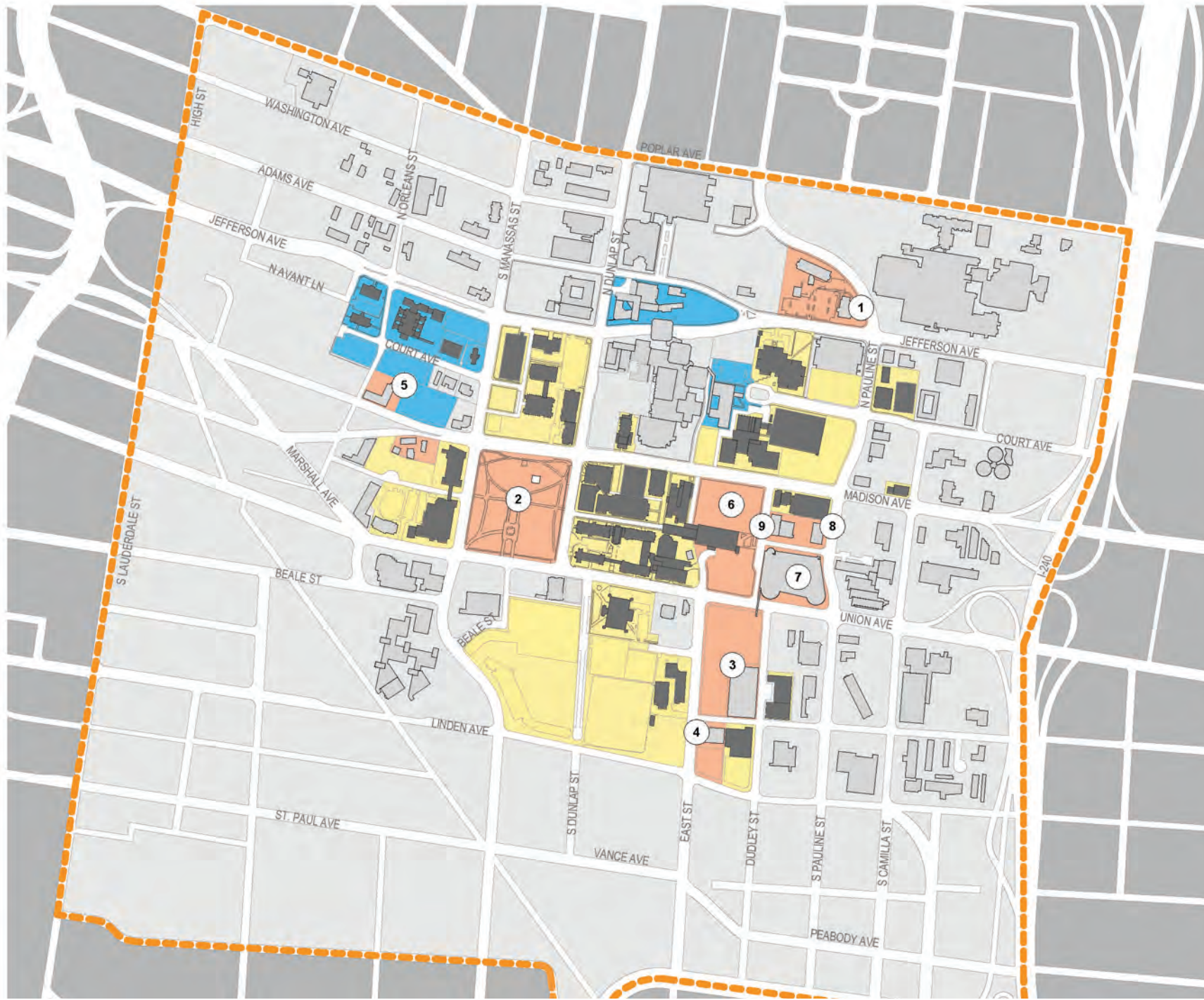
- Support and strengthen existing and new student support services such as recreation, housing, dining and general parking along Manassas.
- Provide convenient, safe and attractive collaboration space for students in the campus core. Create a hub for student team study and gathering.
- Ensure parking for students and staff remains in logical proximity to, and is easily walkable to, the campus core.

PROPOSED LAND OWNERSHIP

- UTHSC PROPERTY
- UTHSC LESSOR
- STRATEGIC ACQUISITION
- NON-UTHSC PROPERTY
- UTHSC PLANNING BOUNDARY

ACQUISITIONS

1. REGIONAL ONE + HOTEL PARCELS
2. HEALTH SCIENCES PARK
3. BAPTIST PARKING LOT
4. PAPPY'S COFFEE LOT
5. TROLLEY STOP RESTAURANT
6. INNOVA MEMPHIS LOT
7. BAPTIST PARKING GARAGE
8. MEDICAL CENTER APARTMENTS
9. INNOVA MEMPHIS OFFICE BUILDING



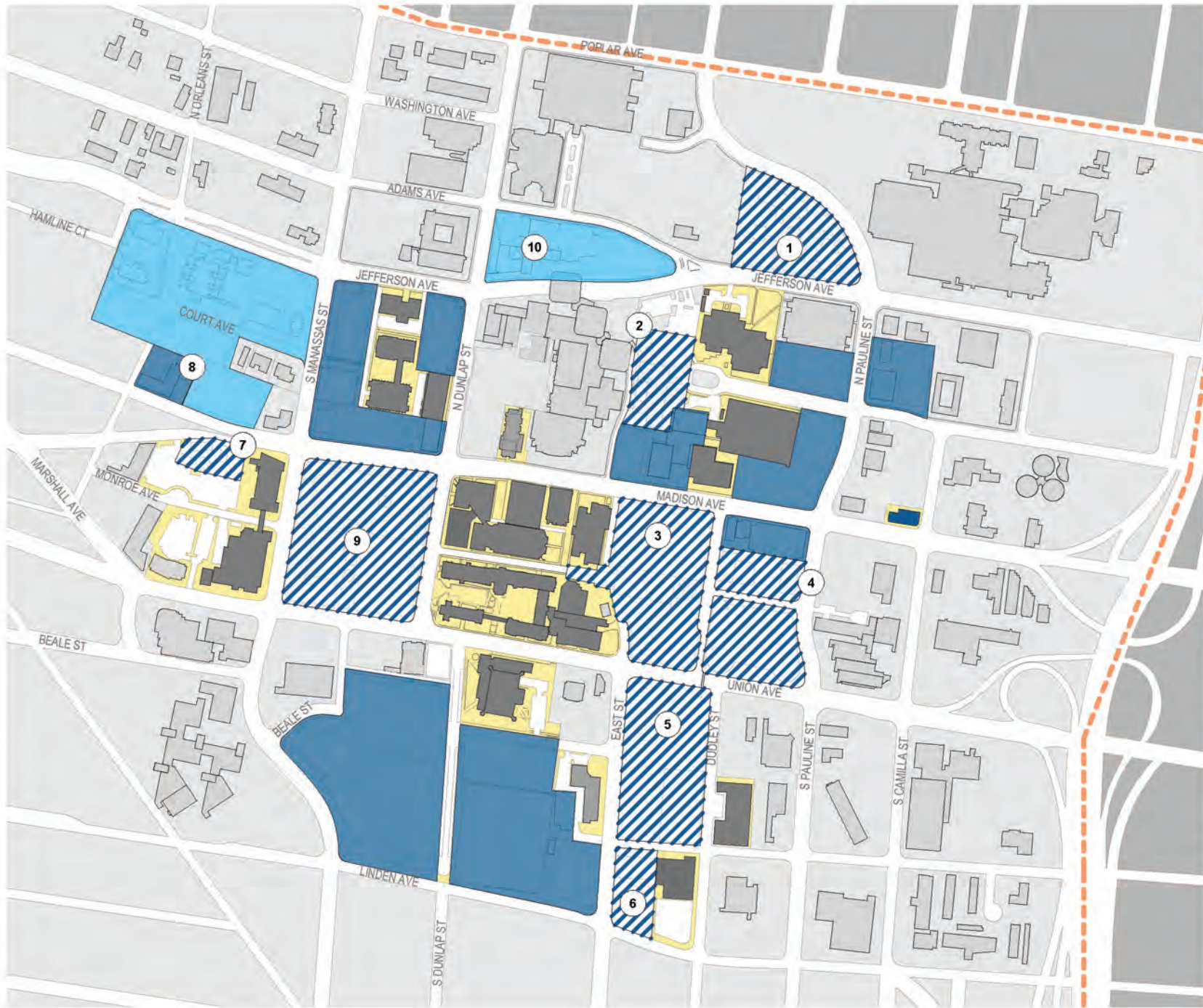
The University of Tennessee Health Science Center Campus Master Plan outlines the required and logical development of buildings, open space, vehicular and pedestrian circulation, and utility infrastructure to support the University's Strategic Planning for enrollment, staffing, programs, research, and patient care. It provides a flexible and adaptable framework for each of these physical campus elements. It is intended to evolve and respond to both current and future initiatives in the life of the University. From changes in phasing and funding sources, to programmatic or research needs, or property availability and MMD urban context, the campus planning framework sets the broad course for campus expansion and improvement while allowing the University to be as responsive as needed in the face of unexpected circumstances.

FUTURE DEVELOPMENT ZONES

The development zones indicated on the diagram to the right are the strategic basis for the University of Tennessee Health Science Center to rebuild its campus core, recruit and retain students and staff, accommodate growing enrollment, expand its critical programs and research, and attract partnerships. Whether the development is planned on current University-owned property or on property owned by a Memphis Medical District Partner, this diagram shows the possibility for renewal and construction to serve University and State of Tennessee health science needs within the constrained landholdings of the MMD. The current and projected 10-year UTHSC space needs can be met on current University land holdings; however, these needs can only be met by working with partners through land swaps and facility sharing. To move beyond the 10-year targets for enrollment,

research and patient care, realize the vision of a true health science innovation district (comparable to UTHSC peers, in the top research tiers) and provide flexible phasing in the face of complex real estate transactions, the Campus Master Plan also recommends strategic acquisition sites within the UTHSC Planning Boundary.

The parcels shown with a diagonal hatch represent land parcels that directly influence the ability of the University to meet its Mission and Vision over the next 10-15 years, the life of this Campus Master Plan. These strategic sites have a high priority for redevelopment, acquisition or partnership for specific development opportunities which position UTHSC for operational efficiencies, programmatic prominence, and sustainable growth. The Campus Master Plan recommendations for facilities, open space and infrastructure assume that the University will either redevelop these existing properties to a higher density, identify potential partnership opportunities, or acquire parcels if they come up for sale.

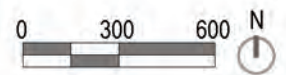


PROPOSED DEVELOPMENT + PARTNERSHIP ZONES

- UTHSC REDEVELOPMENT
- UTHSC TARGETED STRATEGIC PARTNERSHIP OR ACQUISITION
- UTHSC LEASED PROPERTY REDEVELOPMENT
- UTHSC FACILITIES TO REMAIN
- UTHSC FACILITIES TO BE REMOVED
- UTHSC PROPERTY
- UTHSC PLANNING BOUNDARY

POTENTIAL PARTNERSHIPS + ACQUISITIONS

1. ALTERNATE COLLEGE OF MEDICINE RELOCATION + RESEARCH EXPANSION
2. EXPANDED MENTAL HEALTH PROGRAMMING + MANAGEMENT
3. RESEARCH EXPANSION
4. COLLEGE OF MEDICINE RELOCATION + EXPANSION
5. PARKING RELOCATION + FLEXIBLE RESEARCH EXPANSION
6. RESEARCH FACILITY SUPPORT EXPANSION
7. PARKING RELOCATION + FLEXIBLE EXPANSION
8. STUDENT LIFE SUPPORT
9. STUDENT LIFE SUPPORT
10. WOMEN + INFANTS CLINICAL CARE PAVILION



PROPOSED LAND USE ZONES

Determining the highest and best use for UTHSC land and buildings is a high priority in the campus planning process. Critical questions include:

- What are the space needs and adjacencies to support health science instruction, administrative and faculty office and work space, research, patient care, or collaboration, wellness and student life?
- Which parcels would be best for each use?

Understanding the programmatic use and physical characteristics of existing buildings is a key to this puzzle. Most of the Academic and Administrative space within the campus is located between Madison and Union Avenues, including the 910/920/930 and Madison Plaza Buildings. UTHSC aspires to strengthen its campus core, showcase its programs, and create a logical “home base” for all Colleges along these major Memphis thoroughfares. It also aims to provide a centralized Clinical Zone on campus that includes the 930 Madison Building. To this end, Academic/Administrative land and facility use is focused within the traditional campus core, focusing on Madison Avenue as an east/west campus spine, through building renovations and new building infill. The Academic Zone can flexibly expand as far east as Pauline, as far west as Dunlap, as far south as the Dunn Dental Building Complex and as far north as the Memphis Mental Health Institute.

Integral to the Academic Zone is the Research Zone: a north/south spine for research expansion directly adjacent to campus colleges, particularly the Medicine and Pharmacy. This zone can expand as far north as the Veterans Administration campus and as far south as the evolving Plough Center Good Manufacturing Process facilities and Martin Luther King Boulevard. This zone encompasses the

current Innova Memphis property and envisions future long-term redevelopment as a Health Science Innovation District. The entire Research Zone, along this north/south spine, aligns with a potential pedestrian quad that can emerge when the 910/920 and Madison Plaza Buildings are removed. It also takes advantage of the Innova Memphis Vivarium and allows easy access for students and faculty alike.

An expanded Research Zone on the perimeter of Health Sciences Park, acknowledges the significant investments that have already been made in the development and continuing improvements to the Translational Research Center, Cancer Research Center and the Van Vleet Building.

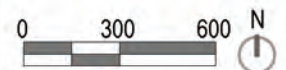
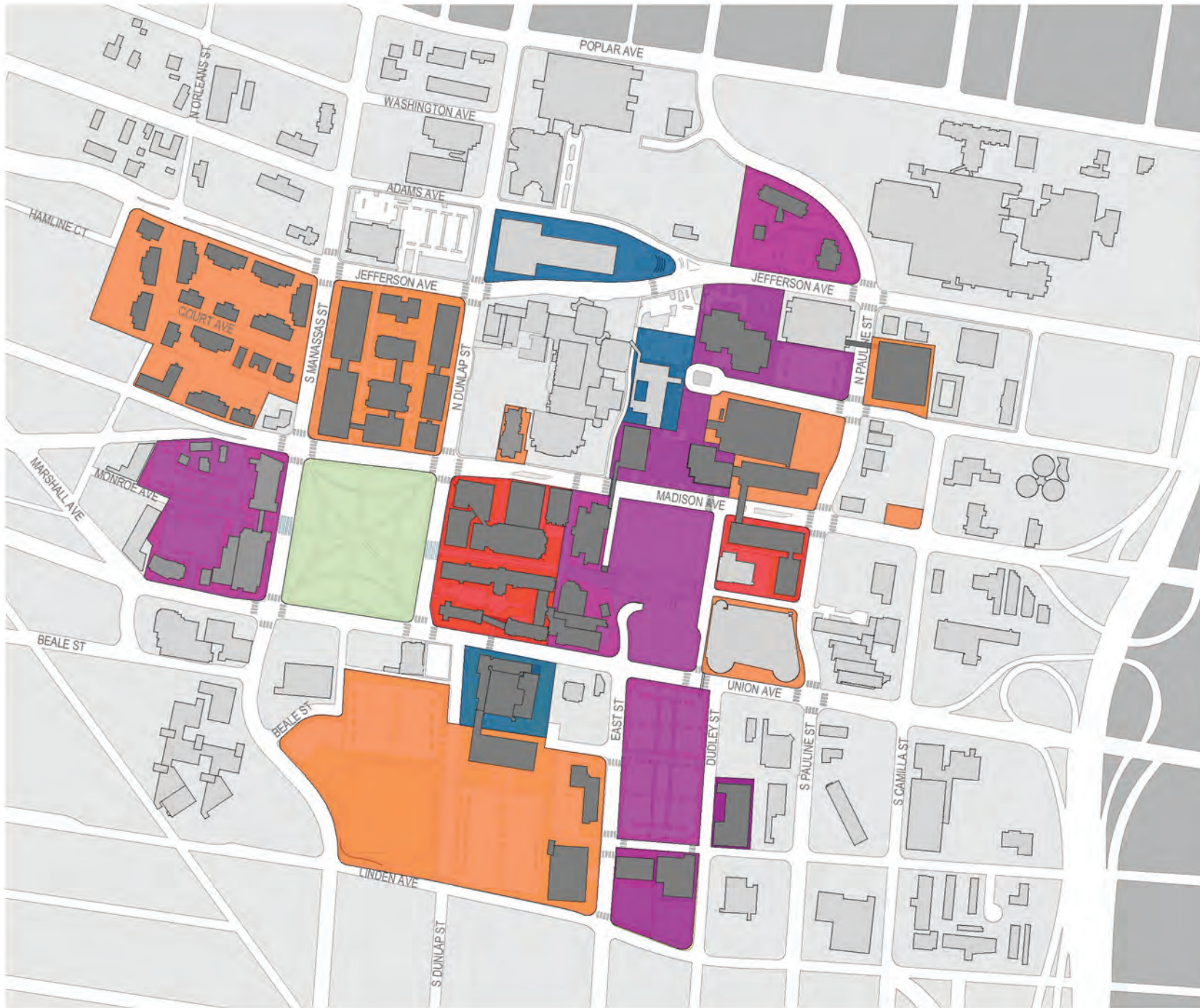
Consolidation of all clinical uses adjacent to 930 Madison will provide easy access for faculty and students and provide trouble free entry and parking for patients. The Dunn Dental Building clinical space is the exception to this recommendation. Its current location south of Union is convenient for College students and staff, on-site visitor parking, and expansion area on the building's existing site.

In addition to the centralized and expanded outpatient clinical space proposed on Madison, the Campus Master Plan recommends that the UTHSC parcel at Jefferson and Dunlap, currently leased to Regional One Health, be brought back into University control and developed for Inpatient Care as a Women and Infants Pavilion.

The Multi-purpose Zone provide sites for student activities, recreation, retail amenities, market-rate housing, administrative and facility offices, and parking. Primarily situated on the campus perimeter, these uses help support academic, research, and clinical programs located in the campus core without occupying valuable core buildings and land.

**PROPOSED
LAND-USE ZONES**

-  RESEARCH
-  ACADEMIC
-  CLINICAL
-  MULTI-PURPOSE
-  IMPROVED OPEN SPACE
-  UTHSC EXISTING FACILITIES



PROPOSED FACILITY USE

New facilities are identified by future use, including academic, research, clinical, student support, and facilities support.

Academic Buildings

- **New College of Medicine Building** - Meet demands for instructional and office space. Will be located at the Southwest corner of Pauline Street and Madison Avenue on the old hotel site.
- **College of Pharmacy Expansion Building** - As a potential expansion of the College of Pharmacy, a new building at the corner of Madison Avenue and Hospital Street will house expansion academic and research space.
- **Addition to the College of Dentistry** - Provide additional clinical training space, as well as space for planned program expansion. Will be located to the south of the existing Dunn Dental Building.

Research Buildings

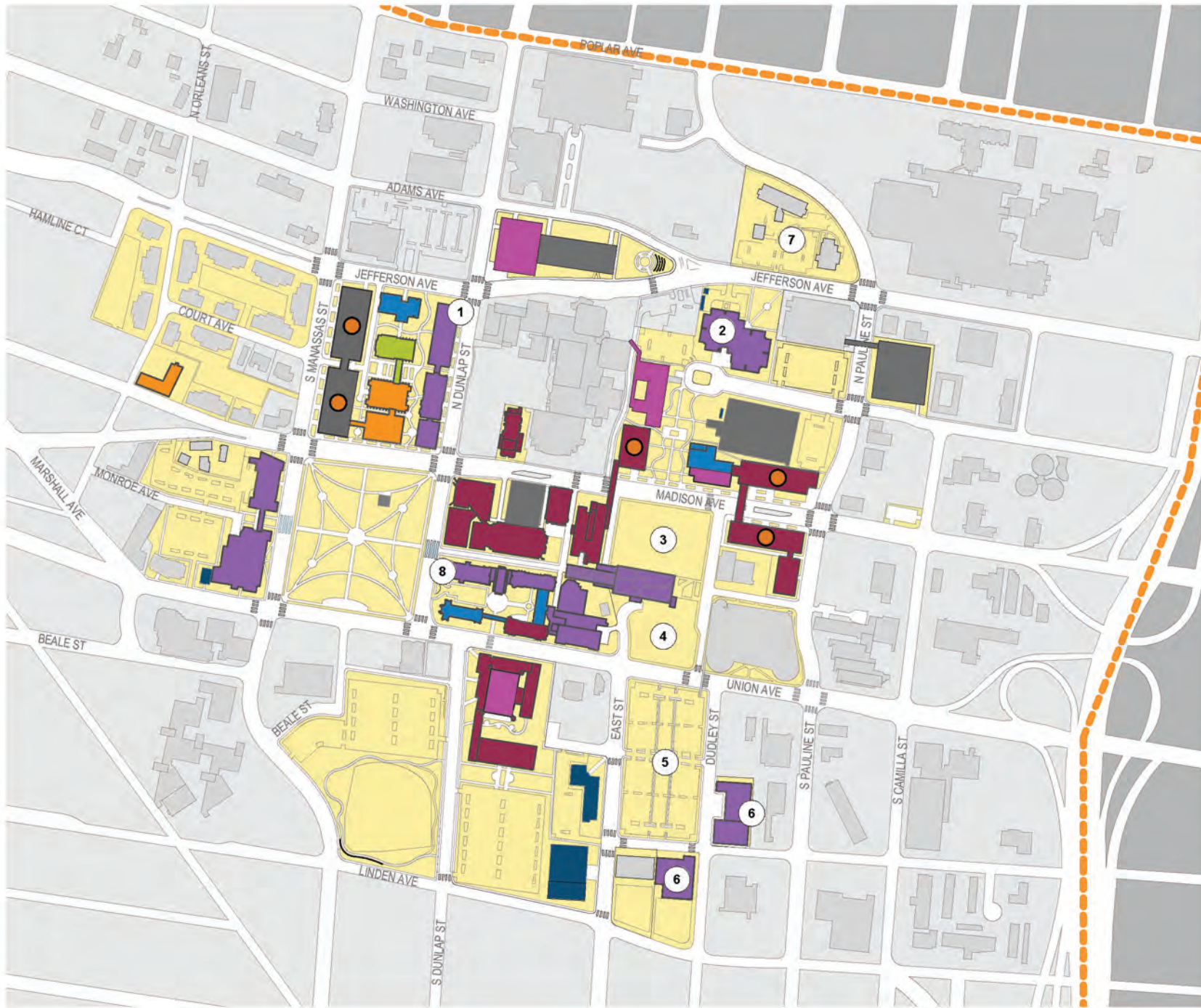
- **Build-out of Cancer Research Center 4th Floor**- New research space planned within the next five years
- **New Good Manufacturing Practices buildings** - Future investment in the existing facilities along Dudley Street

Clinical Buildings

- **UTHSC Primary Care Clinic and Interdisciplinary Center** - Expansion for the College of Health Professions, this new building will house multiple disciplines, including their clinical space as they grow and expand over time. This location at the corner of Madison Avenue and Pauline Street.
- **New Women's and Infants' Pavilion** - Partner with Regional One Health and Le Bonheur Children's Hospital.

Student Support Buildings

- **Student-Alumni Center Expansion** - Provide updated student services offices, dining, meeting, and recreation facilities on the site directly south of the existing SAC along Madison Avenue.
- **New Parking Garages** - Provide additional structured parking for staff, student, and visitor parking. Ramps are located along Manassas Street directly west of the Student Alumni Center (SAC), and east of Pauline Street on the site of the existing Doctor's Office Building. The ground floor of each of these garages will provide office, retail and dining locations, and campus support spaces.
- **New Housing** - Partnership venture along Manassas Street between Jefferson Avenue and Madison Avenue.
- **New Facilities Support Building** - Provide new and additional purchasing, physical plant offices, and shops as they are relocated along East Street.



PROPOSED FACILITY USE + IMPROVEMENTS

- ACADEMIC
- RESEARCH
- STUDENT LIFE + EVENT
- RECREATION + FITNESS
- ADMINISTRATIVE + OFFICE
- FACILITY SUPPORT
- PARKING
- CLINICAL
- ACTIVE/PUBLIC GROUND FLOOR

1. LEASE/RENTAL FOR PARTNERSHIP START-UP COMPANIES
2. EPIDEMIOLOGY + SICKLE CELL / ENCEPHALEPTIC ALPHAVIRUS RESEARCH
3. INNOVATION DISTRICT
4. CLINICAL TRIALS ZONE
5. REGENERATIVE/PRECISION MEDICINE ZONE
6. GMP FACILITIES
7. ALTERNATE COLLEGE OF MEDICINE SITE
8. FACULTY / STAFF OFFICE ZONE



UTILITIES AND TECHNOLOGY INFRASTRUCTURE

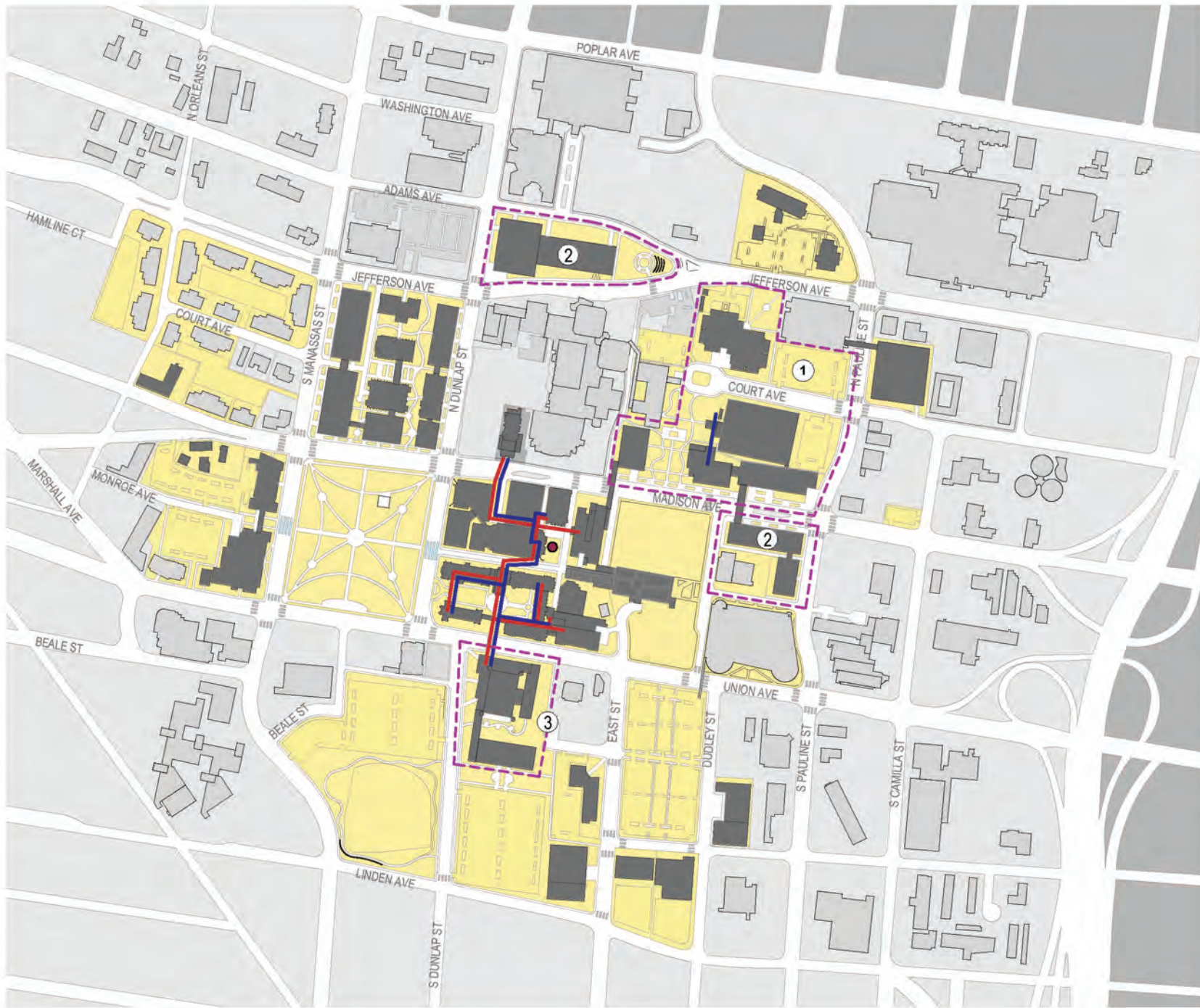
PROPOSED STEAM AND CHILLED WATER

Since expansion of the existing Core and Madison Central Plants is not practical, stand-alone boilers and chillers will serve the hot water/steam and chilled water needs of most proposed buildings. Regional Central Plants may be considered where multiple buildings are planned and could benefit from the efficiencies of a single, combined plant however Regional Plants will need to be a component of the first building built in an area to anchor the region's hot water/steam and chilled water needs. One area that may benefit from a regional central plants would include the Phase 02 College of Medicine and adjacent buildings.

The new addition to the Dunn Dental Building will add a stand-alone chiller to provide primary chilled water. The existing Core Central Plant will provide secondary or back-up chilled water. The Core Central Plant will provide steam to the Dunn addition. When the Phase 03 addition is added to the Dunn Dental Building additional steam and chilled water capacity will be needed from stand-alone equipment.

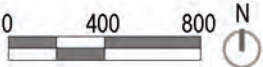
With the demolition of the 910, 920 and Madison Plaza buildings, capacity from the Madison Central Plant will be available to support the proposed Phase 03 new construction in this area.

Existing, stand-alone boilers and chillers within the Coleman Building, and Van Vleet Center, will continue to serve the new uses for these buildings.



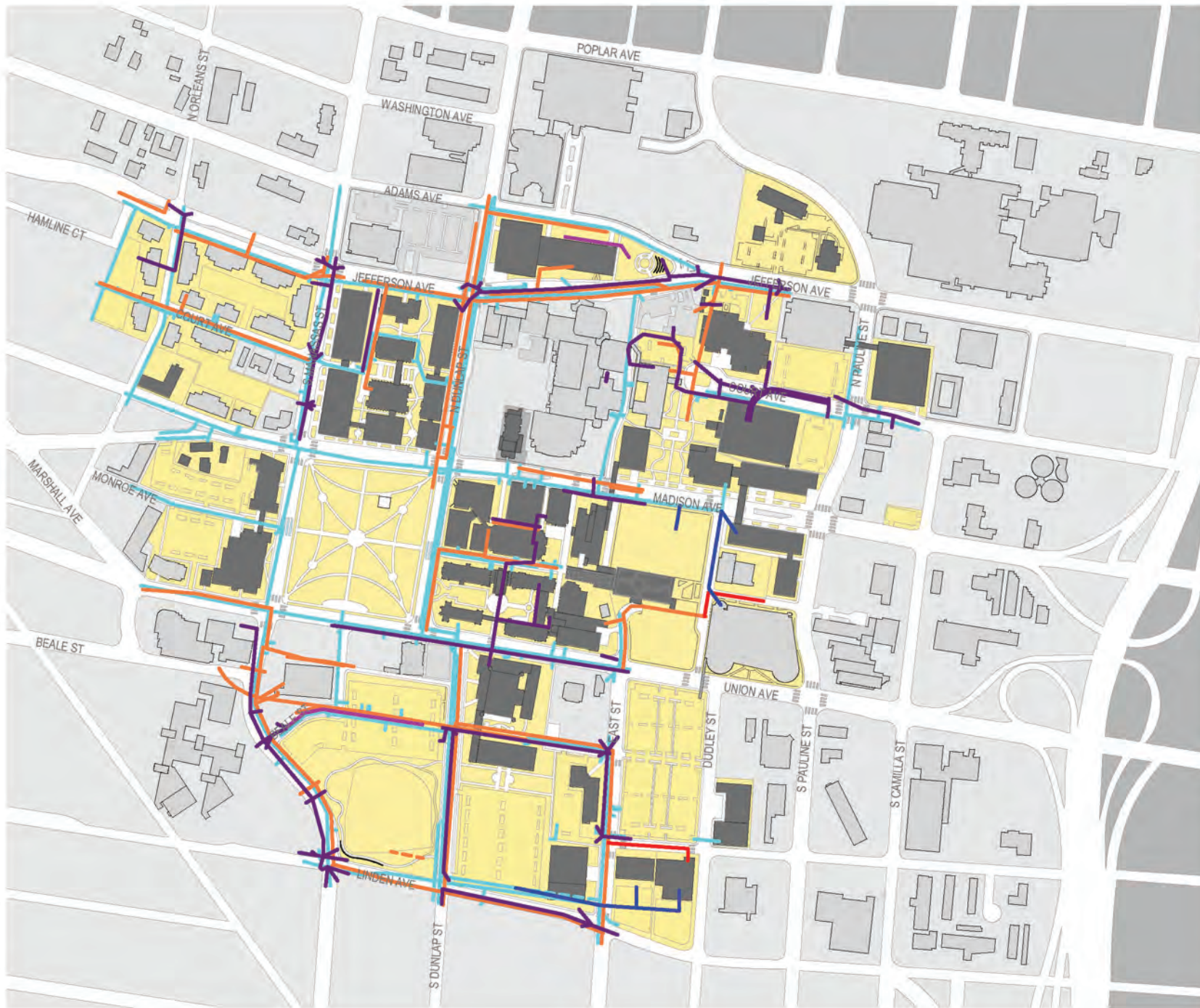
**PROPOSED
STEAM AND
CHILLED WATER
INFRASTRUCTURE:**

- EXISTING CHILLED WATER LINES
- PROPOSED CHILLED WATER LINES
- EXISTING STEAM LINES
- PROPOSED STEAM LINES
- - - PLANT REGION BOUNDARIES
- EXISTING STEAM AND OUTBOUND CHILLED WATER PLANT
- UTHSC PROPERTY
- 1 PHASE 1 POTENTIAL REGIONAL CENTRAL PLANT LOCATION
- 2 PHASE 2 POTENTIAL REGIONAL CENTRAL PLANT LOCATION
- 3 PHASE 3 POTENTIAL REGIONAL CENTRAL PLANT LOCATION



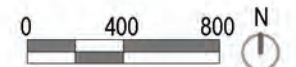
PROPOSED STORMWATER, SANITARY SEWER, AND POTABLE WATER INFRASTRUCTURE

Since the campus is located within an urbanized area that is developed, there are no major modifications or upgrades anticipated to the existing storm drainage, sanitary, or potable water infrastructure. Modifications that are required for individual building service connections and minor relocations required for proposed improvements are anticipated. As improvements take place, exact modifications will be determined based on a project-by-project basis.



**PROPOSED
WATER, SEWER,
AND STORMWATER
INFRASTRUCTURE**

- EXISTING WATER LINES
- PROPOSED WATER LINES
- EXISTING SEWER LINES
- PROPOSED SEWER LINES
- EXISTING STORMWATER LINES
- PROPOSED STORMWATER LINES
- UTHSC PROPERTY











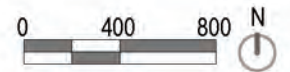
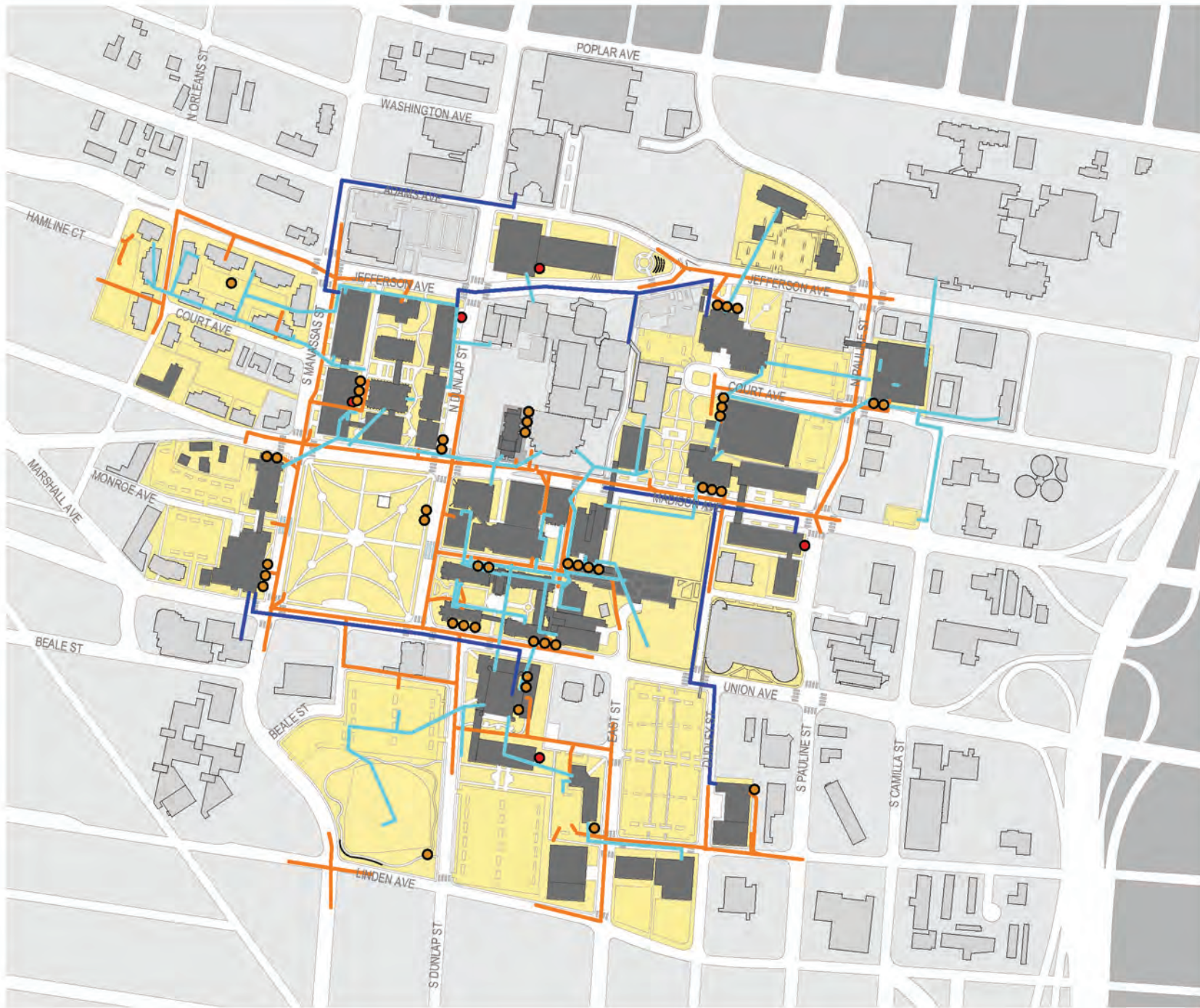
PROPOSED TRANSFORMER LOCATION, FIBER AND ELECTRICAL INFRASTRUCTURE

Campus buildings are powered by the local utility. The utility will provide building transformers for new buildings and renovations to buildings requiring upgrades to electrical service. These transformers shall be either pad mounted or located in vaults.

A campus-wide, fiber loop continues to be completed by UTHSC and will allow tie-ins for all new buildings. Extensions of the loop to area partners including Southwest Community College, Lebonheur Children's Hospital, Veterans Administration Medical Center and Regional One are also being completed.

**PROPOSED
TRANSFORMER
LOCATIONS, FIBER,
AND ELECTRICAL
INFRASTRUCTURE**

-  EXISTING TRANSFORMERS
-  PROPOSED TRANSFORMERS
-  UTHSC FACILITIES
-  UTHSC PROPERTY
-  EXISTING ELECTRICAL LINES
-  PROPOSED ELECTRICAL LINES
-  EXISTING FIBER LINES
-  PROPOSED FIBER LINES



OPEN SPACE IMPROVEMENTS AND USE

Open space is central to the identity of the University. The sequence of spaces brings order to the campus, connecting people and buildings. While Health Sciences Park and the newly renovated historic quad provide quality space for students, staff, and faculty, the remainder of open spaces on campus are secondary, contributing little to the overall campus environment. Future initiatives will emphasize unifying the disparate pieces of the campus through a strengthened east-west pedestrian corridor, improved north-south pedestrian circulation, and well-defined campus spaces. High urban land values make open space unique, and it should be maintained and enhanced.

Eight objectives will guide improvements, building upon the positive physical elements already in place and supporting long term needs.

- **Develop well-defined campus edges, campus loop, and gateways** - A well-defined campus edge clearly delineates the limits of the campus, creating a threshold for students, faculty, staff, and visitors. Edges project a sense of place to the surrounding community and enhance the overall impression of a campus. Within an urban context, this delineation should not separate or buffer the campus from the surrounding city, but rather provide a connection between them. Strategic primary and secondary gateways provide a defined entrance onto the UTHSC campus.
- **Consistent and coherent landscape plantings** - Using a consistent planting palette of shade trees, ornamental species, and native varieties across the campus provides a unifying element, connecting various building uses and architectural styles into one cohesive place.



Precedent Image: Iconic Campus Gateway



Precedent Image: Ornamental Plantings on Campus

- **Tree preservation** - Although an urban campus, UTHSC has several mature tree stands beyond Health Sciences Park. As necessary redevelopment occurs to increase density and maximize developable area, the preservation of the significant, healthy existing trees will enhance the public realm within the campus.

- **Enhanced student, staff, and faculty gathering spaces** - There is limited defined public gathering space on campus. The development of several key nodes into plazas and the enhancement of existing courtyards will provide areas outside the classroom for engagement and enhance the overall image and identity of the University. Spaces should provide gathering for groups large and small, with flexible and multi-use areas.

- **Strong pedestrian connections for north-south and east-west pedestrian corridors and streetscapes** - Streetscape improvements to Madison Avenue and Dunlap Street will provide pedestrians with safe and comfortable circulation corridors on the main thoroughfare of campus. The redevelopment of Monroe Avenue east of Dunlap Street as a pedestrian plaza will enhance the experience east-west through central campus. An enhanced streetscape with street trees, signage, pedestrian-scale lighting, planting, and decorative pavements contributes to the vibrancy of the campus open space network.



Precedent Image: Gathering Space / Outdoor Classroom on Campus



Precedent Image: Safe Pedestrian Streetscape Corridor

- **Accessible pedestrian circulation** - Open spaces should connect through a series of well-defined and accessible pedestrian connections. Inclusive design should drive pedestrian circulation throughout campus, where all routes are accessible for all users to all facilities. The enhancement of the public realm must exceed minimum requirements, providing a welcoming and functional environment.

- **Coordinated open space and building use** - The buildings that define the limits of the space should also engage the space, physically with building entries and windows, and programmatically by supporting outdoor activities associated with building use. Building and site design should seamlessly blend the indoor and outdoor environments. Classroom buildings should provide outdoor classrooms and areas for gatherings to encourage engagement beyond the classroom. Research buildings may need smaller spaces, often more intimate in nature for reflection or privacy. Student life spaces should include flexible areas for gatherings.

- **Campus safety and visibility** - Through the use of pedestrian-scaled lighting, increase in and improvement of sidewalks and crosswalks, and enhanced landscape material that is appropriate for an urban environment, increased visibility and activity throughout the campus will contribute to a safer environment.



Precedent Image: Integrated Indoor + Outdoor Spaces



Precedent Image: Safe + Accessible Pedestrian Connections

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OPEN SPACE TYPOLOGIES

Open spaces at UTHSC vary in type, scale, size, use, and level of significance. Each space, along with enhanced streetscapes, forms part of a larger pedestrian circulation network and contributes to the overall perception of the campus.

Courtyard

A courtyard is a small pedestrian space generally framed by buildings on three or four sides. Often internal to a building or formed by several separate buildings, a courtyard space can vary as either informal quiet space used for reflection or gathering space used for instruction or social interaction. The landscape should complement the architectural design of the surrounding buildings using similar materials while incorporating campus standards. The historical courtyard framed by the Crowe, Mooney, and Wittenborg buildings provides a passive open space for users. Improvements in this area include renovated sidewalks, seating areas and supplemental landscape plantings. Improved areas immediately at the building entrances will provide opportunities for meeting and socializing. The new Hamilton Courtyard, as a result of the demolition of an older building, provides a new opportunity for open space along Madison Avenue and a direct pedestrian connection to the College of Medicine. A future building will frame the western edge of the space.



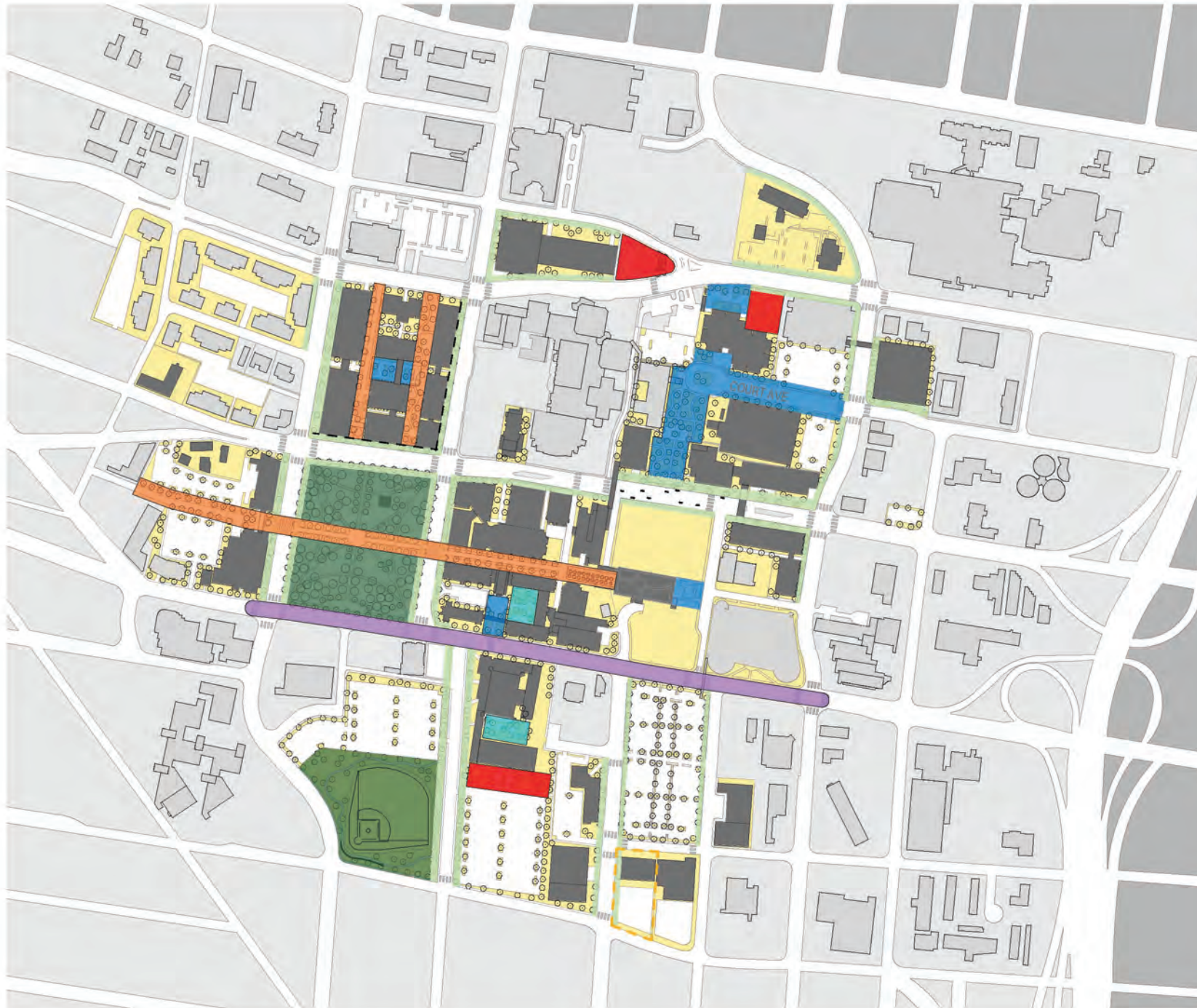
Precedent Image: Courtyard



Precedent Image: Courtyard

OPEN SPACE USE + IMPROVEMENTS

-  COURTYARD / QUAD
-  ENTRY PLAZA
-  CAMPUS PARK / RECREATION
-  LANDMARK LANDSCAPE
-  CAMPUS STREETSCAPE
-  BUS RAPID TRANSIT STREETScape
-  PEDESTRIAN STREET
-  UTHSC FACILITIES
-  UTHSC PROPERTY



Plaza

Plazas can vary in scale and size depending upon the function of the space and its relationship to its surrounding context. Plazas are generally hardscape spaces, used for formal or informal gatherings, where high pedestrian traffic occurs between several circulation paths or as a recognition of a significant cultural event. Plazas are often utilized as ceremonial “arrival” spaces associated with a building entrance. Hardscape and plant materials complement the architectural design of the surrounding buildings. There are several well-defined plazas at UTHSC. However, all plazas within the campus are in need of investment to elevate them into attractive pedestrian spaces. The extension of the Monroe Avenue plaza located south of the Pharmacy Building west of Health Sciences Park will provide a critical, internal, pedestrian spine within the campus, transforming a service area into a central pedestrian environment.



Precedent Image: Campus Plaza

Park

The Health Sciences Park is the central open space element for the campus as well as the surrounding Memphis Medical District. The 8.2 acre park provides a passive experience similar to many historic university quads. The tree canopy and visibility across the park creates a unique space within the surrounding area. Targeted improvements will focus on park pedestrian paths, most notably the path aligned with Monroe Avenue, improving connection across the park to the Translational Sciences Research Building and Cancer Research building.



Art Installation at Health Sciences Park

Recreation

Active recreation areas are critical components of a campus's open space. These spaces provide opportunities for formal and informal interaction. With the redevelopment of the University's campus housing, the recreation fields and walking trail will provide active recreation as well as spaces for informal gatherings for residents.

Informal

Informal spaces provide areas for plantings, allow for flexibility in use or act as buffers between non-compatible uses. Informal spaces can also define the formal edges of a campus or district. Although varying in size, these consistently design edges provide a common and recognizable campus threshold. Edges are the first impression of a campus. At UTHSC, enhanced edges will visually define the boundaries of the campus. Utilizing similar decorative hardscape, landscape materials, and signage, these informal edges will project the "brand" of the University while visually enhancing the perception of the surrounding Memphis Medical District.



Precedent Image: Baseball Field



Precedent Image: Informal Space with Enhanced Design

PEDESTRIAN CIRCULATION

Within an urban context, pedestrian circulation is informed by building use, campus open space, and the existing street fabric. At UTHSC, the existing street fabric provides natural pedestrian corridors for circulation, allowing for maximum building development of the campus. However, these streets have prioritized the vehicle at the expense of the pedestrian, similar to many cities. The prioritization of the pedestrian along these corridors will transform these streets into major components of a comprehensive pedestrian circulation system.

Campus Spine

The Campus Spine along Madison Avenue is the central pedestrian circulation corridor through UTHSC. This street is a direct connection west to the adjacent retail node, a key corridor to downtown, and is served by the city's trolley system. The spine connects the western research facilities to the campus through a series of spaces. As the future expansion of the east campus occurs, the Central Spine shall be the primary and ceremonial circulation corridor on campus. Important elements for the Campus Spine development include shade trees in equally spacing, planting bed buffers, pedestrian scale lighting, moments of seating, campus banners on lightpoles, and a wide decorative pavement walkway. Decreasing the amount of lanes on Madison, or providing bump-outs, should be considered to reduce the speed of vehicular traffic. A critical element to this transformation is the redevelopment of Monroe Avenue from a service-and-vehicular-focused alley to a pedestrian-focused environment.









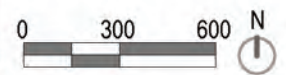
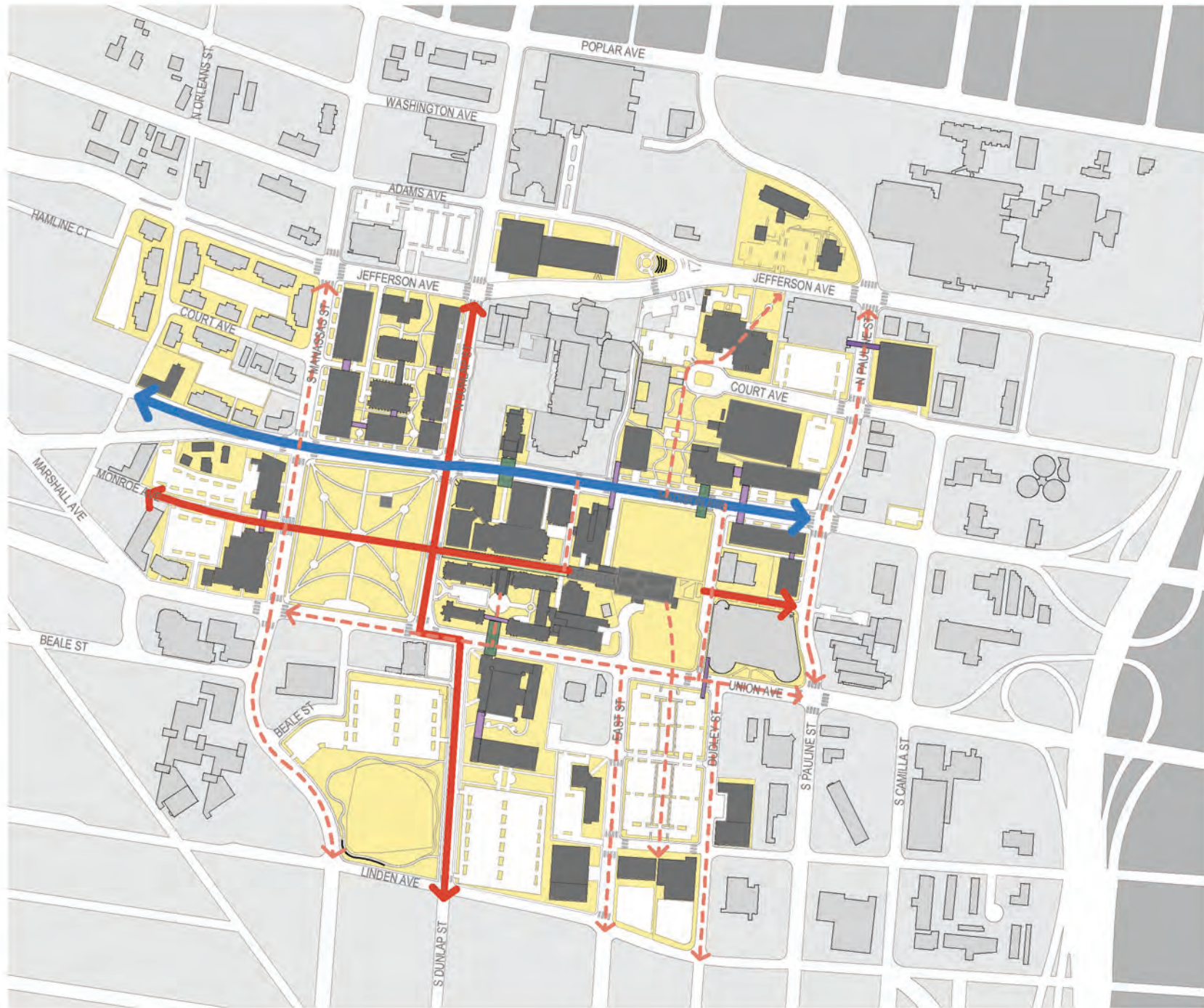
Precedent Image: Campus Spine



Precedent Image: Campus Spine

PROPOSED PEDESTRIAN, CIRCULATION, + IMPROVEMENTS

-  CAMPUS SPINE
-  INTERNAL CAMPUS AXES
-  MINOR PEDESTRIAN ROUTE
-  OVERHEAD CONNECTIONS
-  CAMPUS TUNNEL
-  UTHSC PROPERTY



Major Pedestrian Routes

There are three major pedestrian routes at UTHSC. Union Avenue is a major east-west corridor. While not traveled as heavily by vehicles, Users of the Cancer Research Center, Dentistry, and other clinical buildings use this street to connect to the research facilities at Health Sciences Park and parking facilities. Dunlap Street is the one major north-south corridor connecting the University to its medical partners. Dudley Street is another major north-south corridor. Enhanced pedestrian environments will include wider sidewalks allowing more than three students to walk side-by-side and use canopy trees between the curb and sidewalk to provide shade and separation from vehicular traffic. The inclusion of pedestrian scale lighting and site furniture will further enhance the space and foster pedestrian movement. Future buildings should orient entries and windows towards the street to enhance the pedestrian-level experience. At key intersections, enhanced pedestrian elements provide visual and safety cues for pedestrians and vehicles.

Minor Pedestrian Routes

Minor pedestrian routes on campus provide another layer of circulation. They include both interior connections through skyways, underground tunnels, and secondary exterior sidewalks. While these connections are primarily north-south, they include several east-west streets. Along vehicular streets, an enhanced pedestrian environment would include street trees, wider sidewalks, and pedestrian-friendly lighting with limited site furniture. Pedestrian-only areas include a well-defined and visually apparent route with a wide sidewalk and adequate tree cover.



Precedent Image: Major Pedestrian Route Improvement



Precedent Image: Minor Pedestrian Route Improvement

Tunnel Enhancements

The existing tunnels within the core of the campus provide another opportunity for mobility of students, faculty, and staff within the campus. Tunnels should be enhanced with improved lighting, decorative pavement materials, and possibly school-branded graphics.

Overhead Connections

Overhead connections are generally a detriment to an enhanced urban environment. They take pedestrians off the street, impacting the viability and character of the place. However, at UTHSC, the use of an overhead connection will allow pedestrians a safe and secure crossing of Madison Avenue and Union Avenue, heavily traveled corridors between downtown Memphis and the eastern suburbs, where the introduction of a traffic light would negatively impact vehicular traffic. This elevated walk would connect into an existing pedestrian system, linking the parking south of Union Avenue to the future College of Medicine.



Precedent Image: Tunnel Enhancements



Precedent Image: Skybridge Connection

CIRCULATION, TRANSPORTATION, AND PARKING

MASS TRANSIT

The UTHSC campus has access to the Memphis Area Transit Authority (MATA) bus system and trolley system. The MATA system provides numerous bus stops in and around the campus and Memphis Medical District. These stops offer access to numerous bus routes throughout the Memphis metro area.

Memphis and the MATA are currently in the design phase for a new bus rapid transit (BRT) system to be installed along Union Avenue. This BRT system will connect Downtown with the Medical District and the University of Memphis with modern BRT vehicles running on 10 minute headways. Two BRT stations are proposed to be within the boundaries of the UTHSC campus, with one being near Manassas Street at Union Avenue and the other being near East Street at Union Avenue. The BRT system is expected to be open to services by 2024.

In addition to public transportation providing access to and from campus, there also is a desire to provide internal transportation for both students and faculty. An internal shuttle system would provide numerous stops along primary routes connecting the core of the UTHSC campus to outlying parking areas and other campus facilities. As is being planned for the University of Memphis campus, these shuttle buses could share the BRT stations and provide immediate transfers between the BRT vehicles and the campus shuttle system. This would prevent extended pedestrian routes that require crossing major vehicular circulation routes. Secondary routes could provide shuttle service to Methodist Hospital, St. Jude, and other affiliated destinations, however, both St. Jude Children's Research Hospital and Methodist University Hospital will be served by the BRT system.

BIKE ROUTES AND PATHS

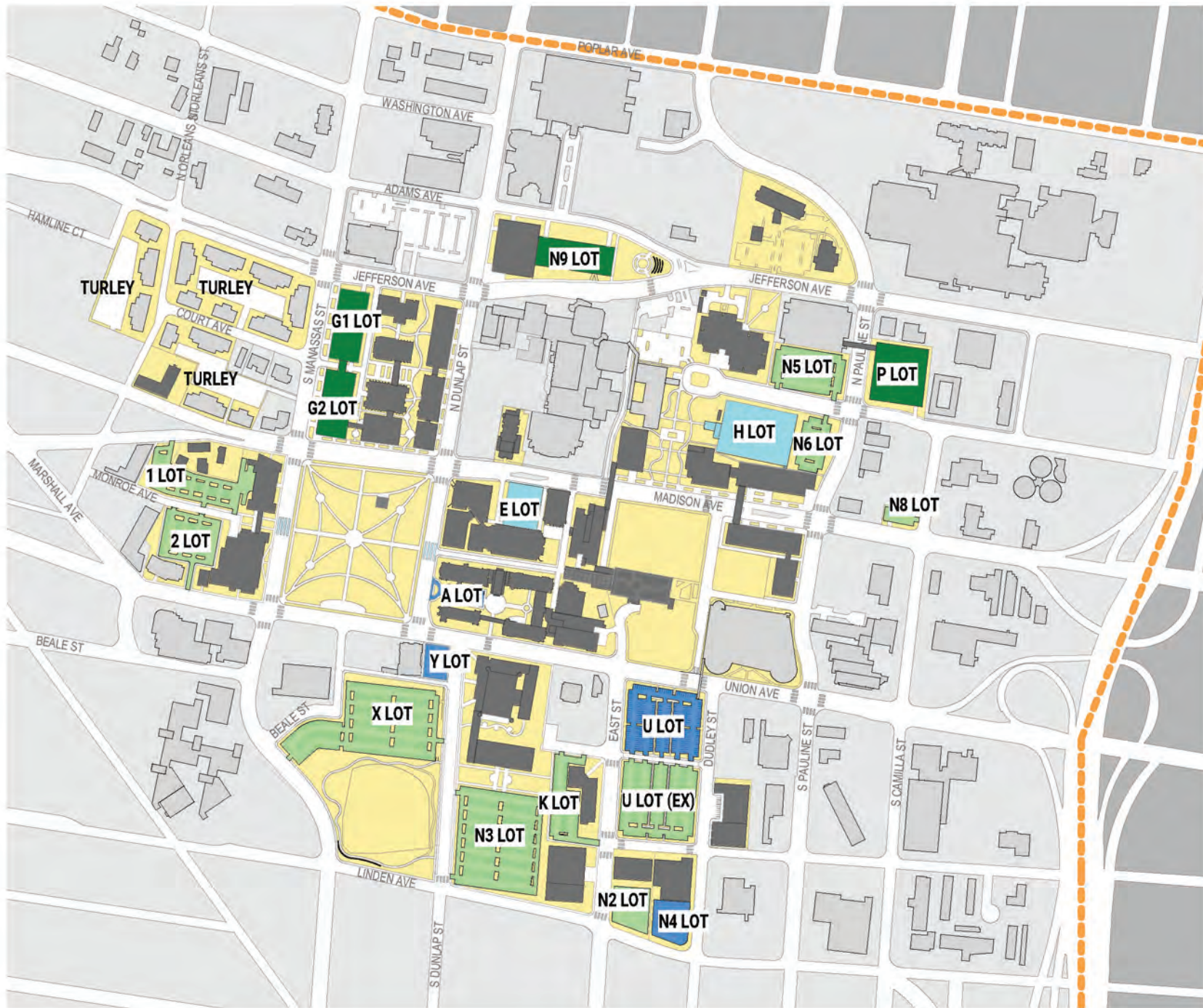
While there are not currently many existing bicycle routes providing access to campus, numerous bicycle routes and paths are being implemented as the streets are resurfaced and additional bicycle facilities are proposed through and adjacent to the campus in the 2017-2020 Transportation Improvement Program (TIP). Additional paths are proposed for internal circulation. Connections and crossings are planned for existing signalized intersections to reduce uncontrolled conflicts between vehicular and bicycle traffic, increasing safety and encouraging biking throughout campus.



Bike Share Rollout

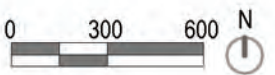
PROPOSED VEHICULAR PARKING

Four existing parking structures and several surface parking areas currently exist and currently provide 4,680 parking spaces. While the majority of the existing parking facilities are planned to remain over the long term, approximately 460 parking spaces will be removed with the construction of the planned housing east of Manassas Street. While the total number of parking spaces will fluctuate as new parking lots and garages are built and existing parking lots and garages are removed to make room for new and expanded buildings, the projected total number of parking spaces on campus will be approximately 5,275 in 2030.



**PROPOSED
PARKING**

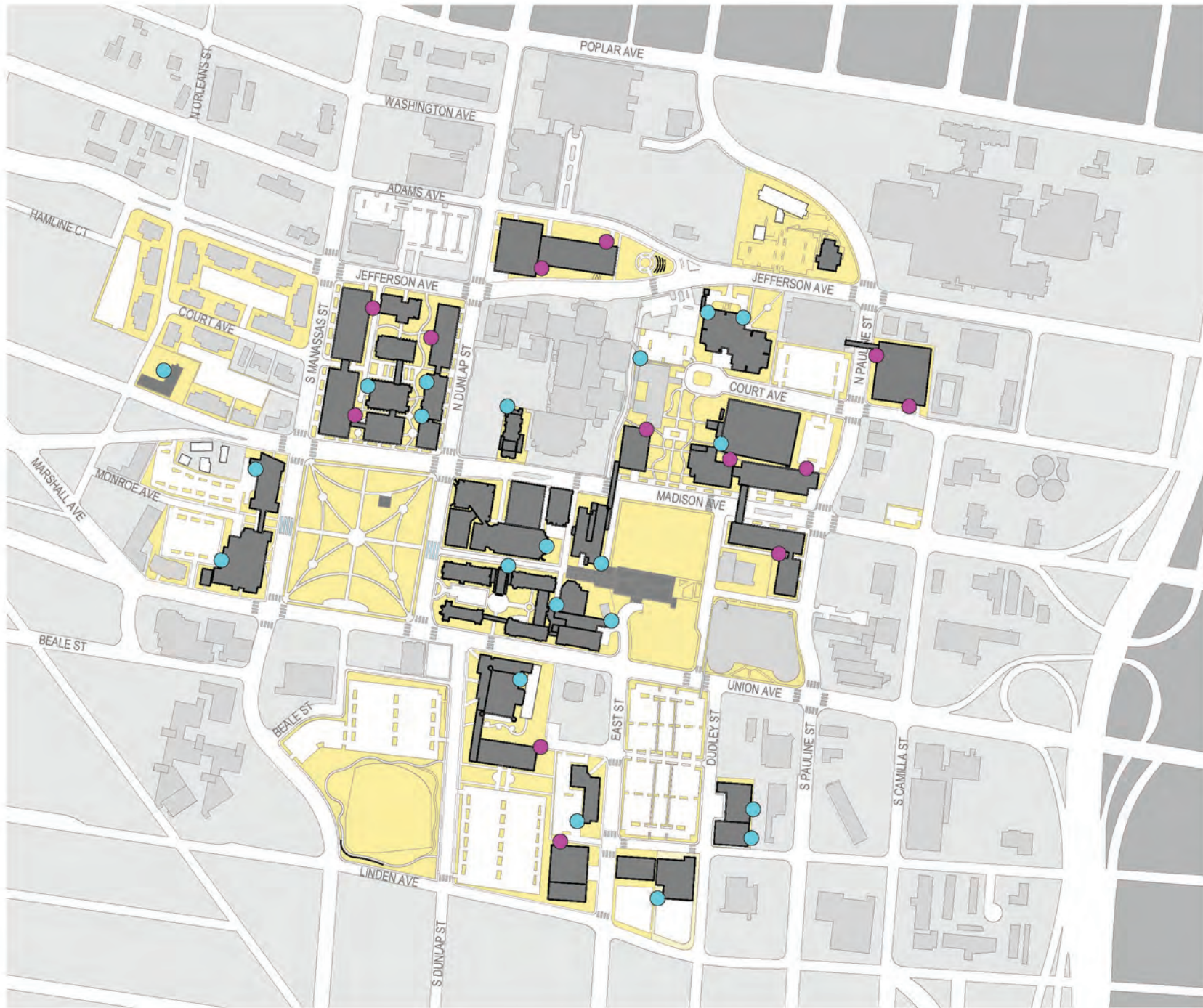
- NEW SURFACE PARKING
- NEW STRUCTURE PARKING
- EXISTING SURFACE PARKING
- EXISTING STRUCTURE PARKING
- UTHSC PROPERTY



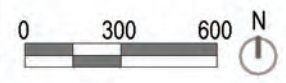
SERVICE NODES

Service access to facilities must be maintained for existing structures and provided for proposed structures to allow proper operation.

Service nodes for existing facilities were incorporated into project planning, verifying proposed projects would not adversely affect service. New service node locations are proposed for proposed structures. Existing and new service node locations are highlighted at right.



- PROPOSED SERVICE NODES**
- EXISTING SERVICE NODES
 - RECOMMENDED SERVICE NODES
 - UTHSC FACILITIES
 - UTHSC PROPERTY



UTHSC TODAY



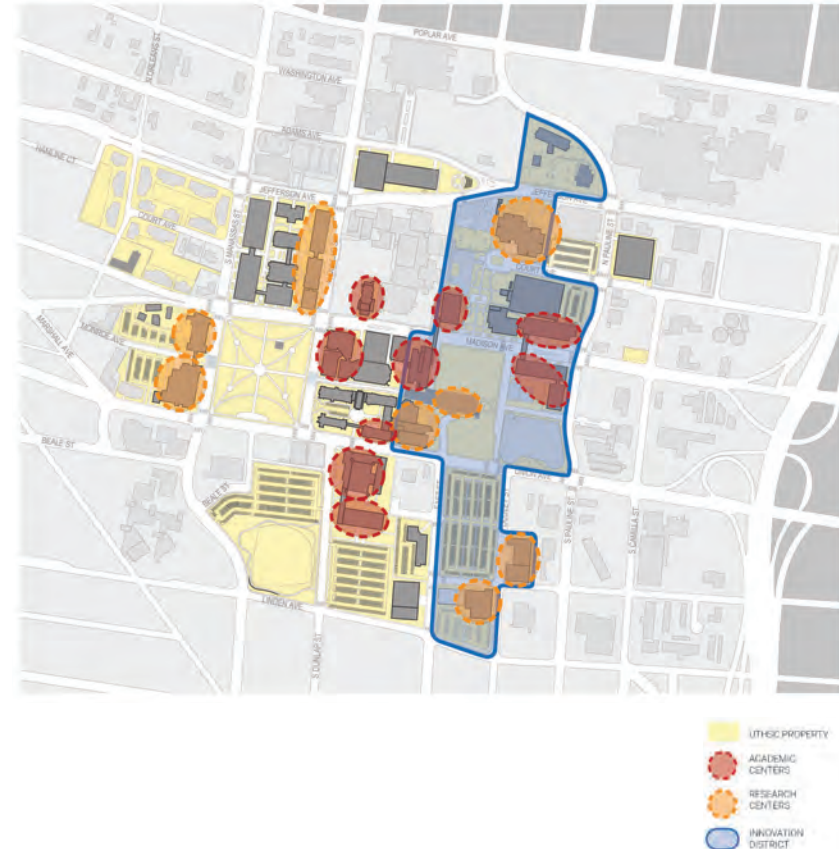
UTHSC LONG-TERM PLAN



TRANSFORMING INTO A **TOP-TIER HEALTH SCIENCE RESEARCH INSTITUTION**

With aspirations of becoming a top-tier Health Science Research Institution, the vision for the campus environment over the next several decades should support this transformation. In the campus vision plan, there are additional parcels dedicated to innovation and research. As UTHSC meets its mission and vision, its centers of excellence should have easy connectivity to a central research and innovation district.

Within the Research Operational Strategic Plan, the Chancellor has stated the robust goal of doubling research over a 10-year period which will require 8% compounded growth. As the institution strives to continue this upward trend in research activity, it will be critical to align with the Research Strategic Plan and meet its growth targets. With a stated goal to increase research grant awards and expenditures, and entrepreneurial activity, develop new research partnerships, hire additional faculty and researchers, and increase its ranking of Academic Health Centers based on Total NIH dollars, this expanded research portfolio will require a substantial amount of additional space.



UTHSC VISION PLAN



5

PHASING AND IMPLEMENTATION PLAN

IMPLEMENTATION PLAN

Each phase of the campus development supports and furthers the goals and objectives UTHSC laid out during the master planning process. From the initial building projects through the full campus build-out, projects were selected and prioritized to ensure the highest and best use of the University's resources for academics, research, clinic use, and student life, connections to the community and partners, circulation, open space, and image and identity. There are three types of projects identified per phase:

RENOVATIONS

Based on physical and functional assessment of existing UTHSC facilities, several buildings warrant reinvestment of capital to bring them to their highest and best use. Continuing the capital reinvestment in the historic core will preserve the iconic character that has defined UTHSC from its beginning. Outlay of capital will bring these existing buildings up to code in terms of accessibility, fire safety, energy efficiency and functional improvements, as well as replace aging building systems where needed.

Buildings that have outlived their usefulness or don't lend themselves to renovation are planned for demolition, and the property will be repurposed as a site for new construction or open space.

NEW CONSTRUCTION

UTHSC's location in the heart of urban Memphis means there aren't many readily available building sites adjacent to or on campus, and creativity is required to identify land for new facilities. Whether development occurs on currently empty lots or on sites with buildings

that have outlived their usefulness, these new projects are infill projects in an urban environment. The UTHSC campus will grow through acquisition, demolition, and partnerships to create these new facilities.

OPEN SPACE, PUBLIC REALM, AND CIRCULATION

Improvements to campus open space should be focused around:

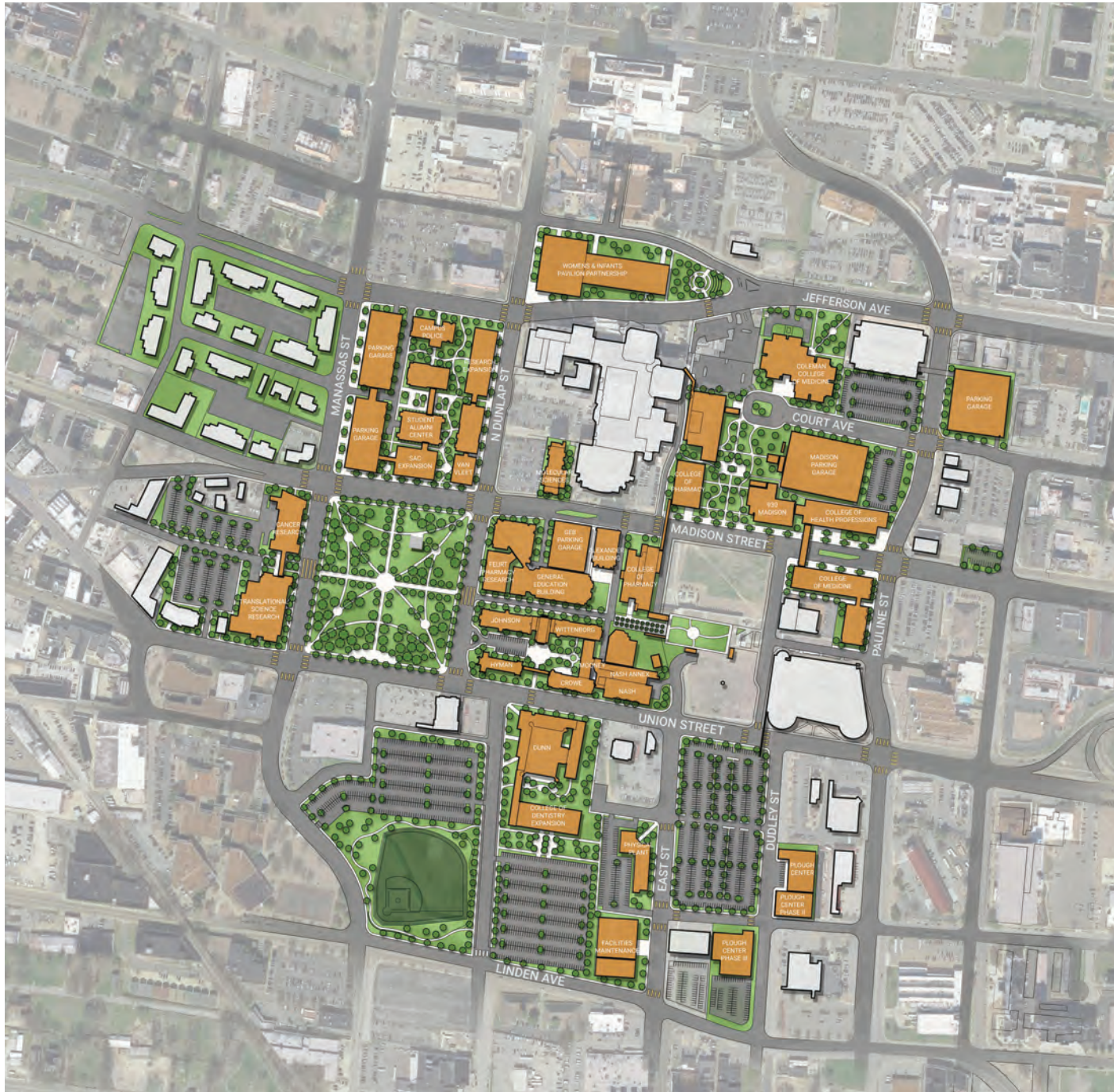
- Defining campus edges, campus loop, and gateways
- Consistent and coherent landscape planting
- Tree preservation
- Enhanced student, staff, and faculty gathering spaces
- Strong pedestrian connections for north-south and east-west pedestrian corridors and streetscapes
- Accessible pedestrian circulation
- Campus safety and visibility

ACQUISITIONS

As UTHSC is able to expand its property ownership and/or partnerships, the master plan makes recommendations for investments and acquisitions that will allow the University to grow its physical footprint to support its mission and vision to be a top-tier health science research institution.

PARTNERSHIP PROJECTS

With MMD partners, UTHSC will create operational partnerships that could result in shared-use facilities.



PHASE I - SHORT-TERM DEVELOPMENT PLAN (0-5 YEARS)

Development Focus:

- Address the immediate academic and college-specific needs with re-investment/renovation projects.
- Optimize and expand existing student support and recreation facilities through renovations and additions.
- Improve open space including renovations to Health Sciences Park and reconfiguring recreation fields.

PROJECTS CURRENTLY UNDERWAY

Crowe, Mooney, Nash, Nash Annex Renovation and Quad Renovation (U, V, W, X, Y)

The University is currently renovating buildings within the Historic Quadrangle. The Crowe Building will be renovated as a home for the College of Nursing while the Nash and Nash Annex will be renovated for state-of-the-art laboratory research space. The Mooney Medical Library Building will be restored to serve as administrative and meeting space and house a faculty refectory.

955/959 Madison Renovation (R, S)

The University has recently purchased the buildings at 955/959 Madison Avenue. In the short-term, these structures will accommodate swing space from the demolition of the Boling Center. In the long-term, these buildings will be demolished to free up space for a higher density structure along Madison Avenue.

Food Bank Renovation (N)

The University has recently purchased the existing Food Bank building at Eastmoreland Avenue and Dudley Street. In the short-term, these structures will accommodate swing space from the demolition of the Boling Center. In the long-term, this building will be expansion space for the Plough Center and Good Manufacturing Practices (GMP) facilities.

Campus Police Renovation (D)

Conversion of a recently purchased facility at 807 Jefferson Avenue into a new home for Campus Safety and Security.

Dunn Dental Building Renovations and Addition (J)

Renovations and improvements to the existing Dunn Dental building will be possible as clinical space moves to a planned, adjacent addition. The goal of the renovation is to bring clinical, academic, and offices up-to-date. Current challenges for the existing building include insufficient space for storage, meetings, resident work areas (as per accreditation standards), and growth. Research activities are not collocated, and it is difficult for patients to find the front door.

Plough Center Addition (O)

As an extension of the first Plough Center renovation, this next renovation project transforms an adjacent vacated structure into an expansion of the existing Plough Center which will continue to house the Good Manufacturing Practices (GMP) facility.

PROJECT LIST

- A. 910 MADISON BUILDING RENOVATION FOR COLLEGE OF MEDICINE
- B. 920 MADISON RENOVATION FOR COLLEGE OF MEDICINE
- C. MOLECULAR SCIENCES BUILDING RENOVATION FOR COLLEGE OF HEALTH PROFESSIONS
- D. CAMPUS POLICE RENOVATION
- E. SAC EXPANSION BUILDING
- F. NEW MULTIPURPOSE PARKING STRUCTURE + STREETSCAPE
- G. ACQUIRE 694-704 MADISON
- H. HEALTH SCIENCES PARK RENOVATION
- I. NEW BRT (BUS RAPID TRANSIT) STOPS + STREETSCAPE
- J. DUNN BUILDING RENOVATION & ADDITION
- K. DOCTORS FIELD RELOCATION + RECREATION AREA
- L. EXPANDED SURFACE PARKING
- M. NEW FACILITY MAINTENANCE SUPPORT BUILDING
- N. FOOD BANK RENOVATION FOR BOLING SWING SPACE
- O. PLOUGH CENTER RENOVATION PHASE 2
- P. ACQUIRE BAPTIST PARCEL / DEMO PARKING STRUCTURE / NEW SURFACE PARKING
- Q. ACQUIRE MEDICAL CENTER APARTMENTS
- R. 955 BUILDING RENOVATION FOR BOLING SWING SPACE
- S. 959 BUILDING RENOVATION FOR BOLING SWING SPACE
- T. ACQUIRE INNOVA VIVARIUM
- U. CROWE BUILDING RENOVATION
- V. MOONEY BUILDING RENOVATION
- W. NASH BUILDING RENOVATION + VIVARIUM
- X. NASH ANNEX RENOVATION + VIVARIUM
- Y. RENOVATED QUAD
- Z. NASH VIVARIUM
- AA. NASH 4TH/5TH FLOOR
- BB. GROSS ANATOMY LAB (GEB)

PHASING LEGEND

- UTHSC PROPERTY
- STRATEGIC ACQUISITION
- NEW CONSTRUCTION
- RENOVATE / REPURPOSE
- PARTNER / LEASE
- DEMOLISH
- SURFACE PARKING
- OPEN SPACE/STREETSCAPE IMPROVEMENTS



910, 920 Madison Building Renovations (A, B)

Baptist Memorial Hospital donated the 910, 920, and 930 Madison buildings to the University in 2005. Currently, these buildings are not functional for academic purposes; Outdated layouts and materials, mechanical systems, and floor to floor heights indicate these buildings need to be renovated in order to be utilized more efficiently in the near-term. The strategy that is currently underway will renovate the 910 and 920 Madison buildings to further consolidate College of Medicine functions. Using these buildings as swing space in the near-term allows for a continued flexible timeframe for fundraising for a new College of Medicine Building which is planned for construction in Phase 02.

In the long-term, due to a high degree of deferred maintenance, these buildings are planned for demolition. To that end, the scale of renovations should balance short-term needs with the inevitable demolition of these spaces planned for Phase 03.

PHASE I RENOVATIONS

Gross Anatomy Lab Renovation (GEB Third Floor) (BB)

The overall goal for the project is to create a state-of-the-art Gross Anatomy Space for the study of human anatomy by students. The renovation of the GEB space will provide needed flexibility, address changes in how gross anatomy is taught and integrate technology into the pedagogy.

Nash Annex 4th/5th Floor (AA)

The 4th and 5th floors of the Nash Building were not included as part of the ongoing building renovation capital project. Currently, they are shell space. This project will provide critical instructional office, and lab space for the Physiology Department.

Nash Vivarium (Z)

There is also opportunity for Nash and/or Nash Annex to house additional vivarium space should the University need space for this function in the future.

Molecular Sciences Building (C)

This building has a character similar to the buildings in the historic core. The building currently has some active lab space, however nearly one-third of the building is vacant due to outdated space. The vacant space should be repurposed to a less systems-intensive function such as offices and learning environments.

Once the renovation is complete, this building will house a consolidated College of Health Professions, relocating those programs from their existing aging facilities located at the outskirts of the campus into the core along Madison Avenue. This renovated structure will provide the College its new identity along the main spine of the campus, as well as flexibility to grow and expand in the future.

PHASE I NEW CONSTRUCTION

Student Activities Center Expansion (E)

A new expansion to the existing Student Activities Center will create new student gathering spaces, meeting spaces, and multi-purpose spaces for recreation and large events. This is intentionally placed along the campus' main pedestrian spine, Madison Avenue, as an active space for students and campus users.

Parking Structure with Ground Floor Retail (F)

A new parking structure will be constructed at the corner of Manassas Street and north of Madison Avenue replacing an existing surface parking area and green space. The first floor of the structure will be inhabited space, including programs such as student support, offices, and retail space. These functions will serve both the University and residents of the new housing development to the west of Manassas Street. Above, four levels of parking resulting in approximately 440 spaces will replace the stalls lost with the planned demolition of the existing parking structure just to the north.

Maintenance and Facility Building (M)

With the proposed new square footage being added to the campus, an expanded Maintenance and Operations building will be located at Linden Avenue and Dr. MLK Jr. Avenue on the existing operations fleet space and the existing tennis courts.

PHASE I OPEN SPACE, PUBLIC REALM AND CIRCULATION

Recreation Fields (K)

The area of land at Manassas Street and MLK Avenue is currently part of a larger open space complex for outdoor sports and recreation. This space will be divided into both parking and recreation use in the future. The outdoor space will include a multi-purpose trail with a competition sized baseball field. Directly adjacent to the improved open space, a new surface parking lot will accommodate expanded parking for the UTHSC programs south of Union Avenue.

Health Sciences Park (H)

Health Sciences Park is the largest and most recognizable open space at UTHSC. The park, framed on four sides by public streets, provides

large areas for gathering, shade from large canopy trees, and a circulation network for pedestrians. The park is currently owned and managed by Memphis Greenscape, a non-profit. Currently, the park is a strategic acquisition for the University within the next five years. Upon its purchase, the University will improve the outdoor space for University events, campus users, and Memphis Medical School District use. Improvements will focus on improving circulation patterns, both functionally and aesthetically, enhancing the entry points at each intersection to the park, and continuing to improve event programming to further activate the park and engage the community. The enhancement of the existing circulation network within the park includes improved hardscape material and additional site furnishings. Additional benches and trash cans provide opportunities for people to linger and enjoy the park. New hardscape and landscape materials at the park entrances will help to define the entry points to the space and reduce pedestrian traffic straying from the paths. Additional pedestrian-scale light fixtures will expand use of the park into the evening, and provide a safe passageway to users.

Expanded Surface Parking Lot (L)

Demo Baptist Parking Structure and Build new Surface Lot (P)

PHASE I ACQUISITIONS

Trolley Stop (G)

Baptist Parcel (P)

Medical Center Apartments (Q)

Innova Memphis Vivarium (T)

PHASE I PARTNERSHIP PROJECTS

BRT Stops and Streetscape (I)

PHASE II - MID-TERM DEVELOPMENT PLAN (5-10 YEARS)

Development Focus:

- Continuation of re-investment/renovation projects to address a growing research portfolio.
- Creation of signature building for College of Medicine.
- Further expansion of Plough Center.

PHASE II RENOVATIONS

O. W. Hyman Administration Building, Johnson, Link, and Wittenborg Building Renovations (G, H, I, J)

As research and vivaria spaces shift out of the Johnson, Wittenborg, and Link buildings, there is opportunity to renovate these facilities to match the level of quality and updates achieved by the other buildings in the Historic Quad (Crowe, Mooney, and Nash) and the potential to house future research space. Upon completion, the buildings can be used as flexible swing space for research as the Coleman Building is renovated.

Coleman Building Renovation (B)

As the home to critical research resources that serve the campus, as well as a large amount of square footage for research space, the Coleman building will be renovated into state-of-the-art research space.

Cancer Research Building (4th Floor) (E)

The Cancer Research Building, located on the corner of Madison Avenue and Manassas Street, will expand into existing unfinished space located on the fourth floor in order to provide additional laboratories configured in open, wall-less modules to foster collaboration among investigators from several UTHSC colleges as they conduct research on experimental therapeutics to treat adult cancer.

Plough Center Renovation (K)

Renovation of the existing Food Bank Building, which is slated for swing space in Phase I will ultimately be renovated into an expansion of the Good Manufacturing Practices (GMP) facilities.

MID TERM PLAN 5-10 YEARS

PROJECT LIST

- A. NEW COLLEGE OF MEDICINE BUILDING
- B. COLEMAN BUILDING RENOVATION FOR VIVARIUM EXPANSION AND RESEARCH
- C. NEW RESEARCH QUAD + STREETSCAPE
- D. NEW MULTIPURPOSE PARKING STRUCTURE + STREETSCAPE
- E. CANCER RESEARCH BUILDING - FLOOR 4 RENOVATION
- F. NEW PEDESTRIAN STREET IN COORDINATION WITH BUILDING RENOVATIONS
- G. WITTENBORG RENOVATION RESEARCH
- H. LINK RENOVATION FOR RESEARCH
- I. JOHNSON BUILDING RENOVATION FOR RESEARCH
- J. HYMAN BUILDING RENOVATION FOR OFFICE + ENCLOSED CONNECTION TO CROWE BUILDING
- K. RENOVATION FOR PLOUGH CENTER PHASE III
- L. DEMOLITION OF 910/920 MADISON

PHASING LEGEND

- UTHSC PROPERTY
- STRATEGIC ACQUISITION
- NEW CONSTRUCTION
- RENOVATE / REPURPOSE
- PARTNER / LEASE
- DEMOLISH
- SURFACE PARKING
- OPEN SPACE/STREETSCAPE IMPROVEMENTS



PHASE II NEW CONSTRUCTION

College of Medicine Building (A)

Planned for the corner of Madison Avenue and Pauline Street, a new College of Medicine Building will consolidate all academic and research functions from 910/920 Madison and the Coleman Building into a single state-of-the-art structure. This building will be planned to encourage interdisciplinary teaching and learning. The first floor of the new College of Medicine building will be dedicated for all disciplines to gather, study, and collaborate, as well as provide a large event space.

Its proximity to the existing clinical locations, an improved, activated, pedestrian-focused Madison Avenue, and an expanded Health Professions building makes the location ideal for students, faculty, and staff to provide easy access and constructive collisions between disciplines.

Parking Structure with Ground Floor Retail (D)

The existing parking garage east of Manassas Street and south of Jefferson Avenue is in need of significant repairs and it has been determined that demolition would be the most economical decision. A new parking structure will be constructed in its place. This deck could potentially be built as a partnership with the adjacent housing developers or other Medical District partners. The first floor of the structure will be inhabited space that will serve both the University Medical District users, and residents of the new housing development west of Manassas Street. Above, four levels of parking will expand the number of stalls on the campus by 440.

PHASE II OPEN SPACE, PUBLIC REALM AND CIRCULATION

New Research Quad and Streetscape (C, L)

With the demolition of 910/920 Madison Buildings, a new open space will create a much-needed green space along Madison Street. The streetscape along Madison Street will be enhanced with planting buffers and shade trees lining the street edge. Pedestrian connections through the open space lead to the College of Medicine, Parking Garage, and Women & Infants Pavilion Partnership. Various uses will be within the open space including open lawn, small gathering courtyards, and a large central gathering plaza. Students, staff, and visitors will use the space frequently to activate the campus.

New Pedestrianized Streetscape/Open Spaces with Building Renovations (F)

The Campus Spine will be the primary east-west pedestrian connection on-campus, linking the various research, academic, and administrative facilities. The spine includes the reconfiguration of Monroe Street, from a building service corridor to a pedestrian-first space. Vehicular traffic would be limited to service-only vehicles, removing existing on-street parking. The space will include canopy trees, enhanced hardscape elements, site furnishings and landscape. Groupings of benches will provide opportunities for gatherings. Incorporating sculpture elements will provide an additional layer to the space.

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PHASE III - LONG-TERM DEVELOPMENT PLAN (BEYOND 10 YEARS)

Development Focus:

- Expansion of academic, clinical, and research facilities to align with a growing enrollment and research portfolio.
- Develop partnership projects and initiatives with adjacent hospitals and clinics.
- Improvements to Madison Avenue to create a primary, active, and pedestrian-focused campus spine.

PHASE III RENOVATIONS

Van Vleet Building Renovation and Addition (B, C)

As a three-part project, the existing Van Vleet Building will be transformed into large, integrated research complex. This location along Dunlap Street is proximate to Le Bonhuer Children's Hospital, Regional One Medical Center, and a new Women and Infants Pavilion, a future potential partnership between UTHSC and Regional One.

The southern portion of the existing building will be demolished. This portion of the building has substantial deferred maintenance and does not warrant an investment to renovate. Once demolished, a new addition will be built adjacent to the remaining portion of the building. The remaining (existing) building will be renovated.

Finally, the existing surface parking lot north of the existing building will become a development parcel for a long-term addition to the Van Vleet building as additional research is needed.

PHASE III NEW CONSTRUCTION

College of Pharmacy Expansion Building (N)

As a potential expansion of the College of Pharmacy, a new building at the corner of Madison Avenue and Hospital Street will house expansion academic and research space. This building will be connected to the existing Pharmacy Building by an overhead pedestrian bridge over Madison Avenue. This facility is in direct proximity to the Memphis Mental Health Institute, which is a partnership between the University and the county. Program synergies between the two facilities should be considered when programming this new building.

UTHSC Primary Care Clinic and Interdisciplinary Center (O)

This building will act as an expansion for the College of Health Professions. This new building will house multiple disciplines, including their clinical space as they grow and expand over time. This location at the corner of Madison Avenue and Pauline Street is ideal with its proximity to the new College of Medicine Building and clinical programs in the 930 Building. This new structure will be physically connected to its adjacent buildings (College of Medicine and 930 Madison) though pedestrian bridges.

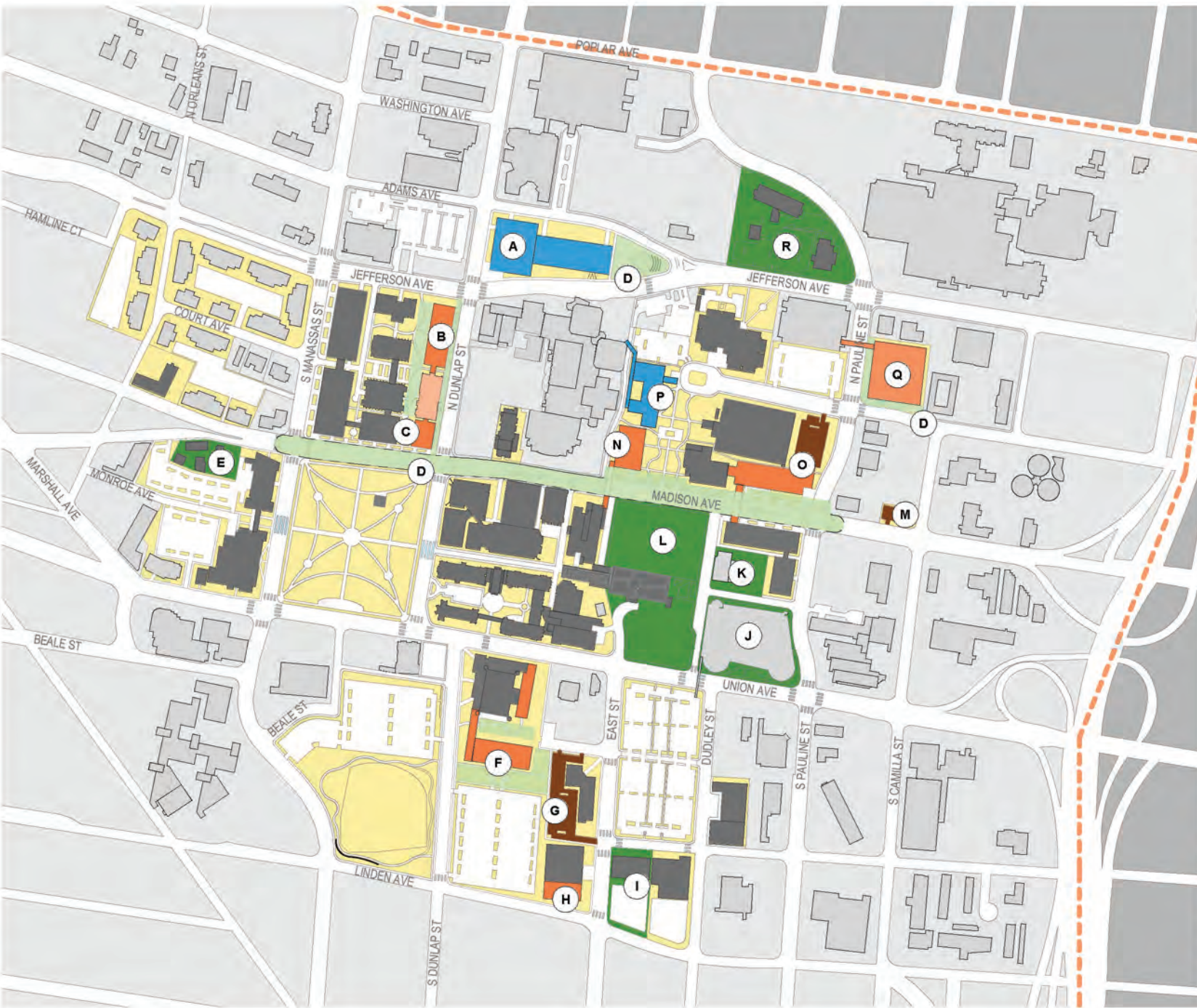
**LONG TERM PLAN
10+ YEARS**

PROJECT LIST

- A. WOMENS & INFANTS PAVILION PARTNERSHIP
- B. RESEARCH EXPANSION BUILDING
- C. VAN VLEET DEMOLITION & ADDITION
- D. CAMPUS STREETSCAPE IMPROVEMENTS
- E. ACQUIRE MONROE AVE PARCELS
- F. COLLEGE OF DENTISTRY EXPANSION + OPEN SPACE IMPROVEMENTS
- G. NEW SCREENING + SURFACE PARKING
- H. FACILITIES MAINTENANCE SUPPORT BUILDING EXPANSION
- I. ACQUIRE PAPPY'S COFFEE PARCEL
- J. ACQUIRE BAPTIST PARKING GARAGE
- K. ACQUIRE INNOVA MEMPHIS STRUCTURES
- L. ACQUIRE INNOVA MEMPHIS LOT
- M. EXPANDED SURFACE PARKING
- N. COLLEGE OF PHARMACY EXPANSION
- O. UT PRIMARY CARE CLINIC AND INTERDISCIPLINARY CENTER + ENHANCED SURFACE PARKING
- P. MEMPHIS MENTAL HEALTH INSTITUTE OPERATIONAL PARTNERSHIP
- Q. NEW MULTIPURPOSE PARKING STRUCTURE + STREETSCAPE IMPROVEMENTS
- R. ACQUIRE REGIONAL ONE + HOTEL PARCEL

PHASING LEGEND

- UTHSC PROPERTY
- STRATEGIC ACQUISITION
- NEW CONSTRUCTION
- RENOVATE / REPURPOSE
- PARTNER / LEASE
- DEMOLISH
- SURFACE PARKING
- OPEN SPACE/STREETSCAPE IMPROVEMENTS



Dunn Dental Building Expansion (F)

As the College of Dentistry grows in enrollment and expands clinical and research functions, a new addition is planned for south of the existing Dunn Dental Building.

Facilities Maintenance Support Building Expansion (H)

With the proposed new square footage being added to the campus, an addition to the Maintenance and Operations building will be located at Linden Avenue and Dr. MLK Jr. Avenue.

PHASE III OPEN SPACE, PUBLIC REALM AND CIRCULATION

Madison Avenue and Union Avenue Improvements (D)

As visitors travel from the freeway exits into downtown Memphis, the major east/west corridors - Madison Avenue and Union Avenue - will become a branded, campus environment that demonstrate UTHSC an important anchor institution within the City of Memphis and illustrates a place that offers high-quality education and research in the State of Tennessee.

Madison and Union Avenues becomes the urban main street of the campus, with pedestrian-realm improvement such as wider sidewalks, street trees, traffic calming, and safer crosswalks. Pedestrian bridges and tunnels will move pedestrians off of busy streets with interior connections to major campus buildings. Union Avenue will soon have Bus Rapid Transit that will bring about improvements to Union Avenue with multiple stops adjacent to the University.

Parking Structure with Ground Floor Retail (Q)

A new parking structure will be constructed with the demolition of the Pauline Annex and Doctor's Office Building and Garage.

New Screening and Surface Parking Lot (G)

Expanded Surface Parking (M)

PHASE III ACQUISITIONS

Monroe Avenue Parcels (E)

Pappy's Coffee Parcel (I)

Baptist Parking Garage (J)

Innova Memphis Structures (K)

Innova Memphis Lot (L)

Regional One and Hotel Parcel (R)

PHASE III PARTNERSHIP PROJECTS

Women and Infants Pavilion Partnership (A)

The Women's and Infants' Pavilion is planned in conjunction with Regional One Health to provide state-of-the-art maternity, fetal, and women's health care. Its proximity to Le Bonheur Children's Hospital is also an advantage. The University's strategy is to build a world-class facility that will attract expectant mothers from across the region and improve the current infant mortality rate by providing excellent care.

Memphis Mental Health Institute Operational Partnership (P)



CAPITAL PLAN AND COST MODELING

COST MODEL

Connico Incorporated, cost consultants to the University, provided a Rough Order of Magnitude estimate of probable cost for multiple projects recommended in the UTHSC Campus Master Plan.

The Rough Order of Magnitude cost estimates have been developed using “cost per square foot” models based on other similar projects.

The following indirect mark-ups, or Owner’s soft costs, are included in the estimate: Architectural/Engineering Design; Architectural/Engineering Construction Administration; Materials Testing/Inspection/Commissioning/Miscellaneous; Permit, Tap and impact Fees; Plan Check Fees; Furniture, Fixtures and Equipment Costs; and Owners Construction Contingency. No Escalation was figured in these estimates.

An estimating design evolution has been included in the estimate for unforeseen work and final detailing that may be necessary to accomplish the project scope of work. The design evolution is not intended to be used for additions to the general scope of work.

An allowance for insurance is included in the estimate. There are many variables that will impact the cost of insurance including, but not limited to, the contractor’s performance history, project size, complexity, location and phasing. Additionally, insurance costs will change if the Owner selects an Owner or Contractor Controlled Insurance Policy.

An allowance for payment and performance bonds is included in the estimate. There are many variables that will impact the cost of

payment and performance bonds including, but not limited to, the contractor’s performance history, project size, complexity, location and phasing.

The estimated cost is determined on the understanding that there will be free and open competition at all levels of contracting; that there will not be a restricted bidders list either for general or trade contractors; and that there will be at minimum three general contract bidders and at minimum three sub bids will be available for each trade involved.

The following markups are included in the project costs:

Estimating Design Evolution:	
New Construction	15.0%
Renovation	20.0%
Demolition	20.0%
General Contractors Markups	
Project Logistics & Labor Factor	0.0%
General Requirements, Phasing & Temporary Construction	4.0%
General Conditions	8.0%
General Contractors Overhead & Profit	5.0%
Insurance	2.0%
Payment & Performance Bonds	1.0%
Sustainability Requirements	3.0%
Owner's Soft Costs	
Program Management	0.0%
Construction Manager	0.0%
Planning & Preconstruction	0.0%
Architectural / Engineering Design	8.0%
Architectural / Engineering Construction Admin	2.0%
Staff	0.0%
Materials Testing / Inspection / Commissioning	2.8%
Permit, Tap & Impact Fees	0.5%
Plan Check Services	0.1%
Cost Estimating & Scheduling	0.0%
Miscellaneous Owner Costs (i.e. Legal)	1.0%
Artwork	0.0%
FF&E (Movable Equipment / Loose Furniture)	10.0%
Owner's Construction Contingency	5.0%
Project Contingency	0.0%

Notes / Exclusions:

Hazardous material abatement is excluded from demolition / renovation scope

Project	Project Indicator	Demolition GSF	Renovation GSF	New Construc. GSF	Funding	Cost/SF	Budget
UTHSC MAIN CAMPUS							
910 Madison Avenue	A		130,280 GSF*		State	\$219	\$28,531,320*
920 Madison Avenue	B		132, 850 GSF *		State	\$219	\$29,094,150*
Molecular Science Building	C		103,500 GSF		State	\$522	\$54,027,000
807 Jefferson Ave. (Campus Police)	D		29, 632 GSF		State	\$429	\$12,712,128
SAC Expansion	E			88,000 GSF	State	\$532	\$46,816,000
Existing Parking Deck		(148,000) GSF			State	\$16	\$2,368,000
Parking Deck A/Ground-Floor Retail	F			440 stalls	State	\$219	\$42,086,325
Health Sciences Park Renovation	H				TBD		\$2,908,000
Dunn Building Renovation & Addition	J				Funded	-	\$41,000,000
Doctor's Field Relocation & Recreation Area	K				TBD		\$3,709,000
Parking Lot N3	L			544 stalls	TBD	\$28	\$4,004,000
Maintenance & Facilities Bldg.	M			50,000 GSF	State	\$531.00	\$26,550,000
Food Bank (Swing Space)	N		27,000 GSF		Other	\$312	\$8,424,000
Plough Center Addition	O		15,000 GSF		Other	\$788	\$11,820,000
Baptist Parking Deck/Parking Lot U Expansion	P	(217,600) GSF		98,000 SF	State	\$16	\$6,323,600
Tower Apartments	Q	(70,000) GSF			TBD	\$26	\$1,820,000
955 Madison Avenue	R		4,100 GSF		Other	\$351	\$1,439,100
959 Madison Avenue	S		4,500 GSF		Other	\$347	\$1,561,500
Crowe Building Renovation	U				Funded	-	\$68,500,000**
Mooney Building Renovation	V				Funded	-	
Nash Building Renovation	W				Funded	-	
Nash Annex Renovation	X				Funded	-	
Renovate Quad	Y				Funded	-	
Nash Vivarium	Z		20,000 SF		State		\$15,000,000
Nash Building 4th/5th Floor	AA		40,506 SF		State	\$198	\$8,000,000
Gross Anatomy Lab renovation (GEB)	BB		24,460 SF		State	\$817	\$20,000,000
UTHSC KNOXVILLE							
Audiology and Speech Pathology Phase 1							\$9,900,000
Audiology and Speech Pathology Phase 2							\$10,000,000***
Funded Project							\$119,400,000
State Funding - Proposed			-	-	-		\$326,429,523
Other/Institutional Funding			-	-	-		\$23,244,600
TBD							\$12,441,000

* includes necessary deferred maintenance items such as replace elevators, replace some windows, MEP systems overhaul/repair
 ** vivarium included as separate project
 *** conceptual estimate

PROJECT LIST

- A. 910 MADISON BUILDING RENOVATION FOR COLLEGE OF MEDICINE
- B. 920 MADISON RENOVATION FOR COLLEGE OF MEDICINE
- C. MOLECULAR SCIENCES BUILDING RENOVATION FOR COLLEGE OF HEALTH PROFESSIONS
- D. CAMPUS POLICE RENOVATION
- E. SAC EXPANSION BUILDING
- F. NEW MULTIPURPOSE PARKING STRUCTURE + STREETSCAPE
- G. ACQUIRE 694-704 MADISON
- H. HEALTH SCIENCES PARK RENOVATION
- I. NEW BRT (BUS RAPID TRANSIT) STOPS + STREETSCAPE
- J. DUNN BUILDING RENOVATION & ADDITION
- K. DOCTORS FIELD RELOCATION + RECREATION AREA
- L. EXPANDED SURFACE PARKING
- M. NEW FACILITY MAINTENANCE SUPPORT BUILDING
- N. FOOD BANK RENOVATION FOR BOLING SWING SPACE
- O. PLOUGH CENTER RENOVATION PHASE 2
- P. ACQUIRE BAPTIST PARCEL / DEMO PARKING STRUCTURE / NEW SURFACE PARKING
- Q. ACQUIRE MEDICAL CENTER APARTMENTS
- R. 955 BUILDING RENOVATION FOR BOLING SWING SPACE
- S. 959 BUILDING RENOVATION FOR BOLING SWING SPACE
- T. ACQUIRE INNOVA VIVARIUM
- U. CROWE BUILDING RENOVATION
- V. MOONEY BUILDING RENOVATION
- W. NASH BUILDING RENOVATION + VIVARIUM
- X. NASH ANNEX RENOVATION + VIVARIUM
- Y. RENOVATED QUAD
- Z. NASH VIVARIUM
- AA. NASH 4TH/5TH FLOOR
- BB. GROSS ANATOMY LAB (GEB)

PHASING LEGEND

- UTHSC PROPERTY
- STRATEGIC ACQUISITION
- NEW CONSTRUCTION
- RENOVATE / REPURPOSE
- PARTNER / LEASE
- DEMOLISH
- SURFACE PARKING
- OPEN SPACE/STREETSCAPE IMPROVEMENTS



Project	Project Indicator	Demolition	Renovation	New Construction	Funding	Cost/SF	Budget
College of Medicine	A			360,000 GSF	State	\$592	\$213,120,000
Coleman Building	B		153,000 GSF		State	\$493	\$75,429,000
New Research Quad	C				TBD		\$3,709,000
Parking Structure B	D			440 stalls	State	\$216	\$44,280,000
Cancer Center (4th Floor)	E		27,000 GSF		Other	\$460	\$12,420,000
Johnson	G		75,000 GSF		State	\$550	\$41,250,000
Link	H		49,000 GSF		State	\$470	\$23,030,000
Wittenborg	I		55,000 GSF		State	\$572	\$31,460,000
O. W. Hyman Building	J		44,000 GSF		State	\$468	\$20,592,000
Food Bank (Plough Center Ph 3)	K		27,000 GSF		Other	\$763	\$20,601,000
910/920 Madison Avenue/Madison Plaza	L	(297,130) GSF (total)			State	\$112	\$12,882,830
State Funding - Proposed							\$462,043,830
Other/Institutional Funding							\$33,021,000
TBD							\$3,709,000

MID TERM PLAN 5-10 YEARS

PROJECT LIST

- A. NEW COLLEGE OF MEDICINE BUILDING
- B. COLEMAN BUILDING RENOVATION FOR VIVARIUM EXPANSION AND RESEARCH
- C. NEW RESEARCH QUAD + STREETSCAPE
- D. NEW MULTIPURPOSE PARKING STRUCTURE + STREETSCAPE
- E. CANCER RESEARCH BUILDING - FLOOR 4 RENOVATION
- F. NEW PEDESTRIAN STREET IN COORDINATION WITH BUILDING RENOVATIONS
- G. WITTENBORG RENOVATION RESEARCH
- H. LINK RENOVATION FOR RESEARCH
- I. JOHNSON BUILDING RENOVATION FOR RESEARCH
- J. HYMAN BUILDING RENOVATION FOR OFFICE + ENCLOSED CONNECTION TO CROWE BUILDING
- K. RENOVATION FOR PLOUGH CENTER PHASE III
- L. DEMOLITION OF 910/920 MADISON

PHASING LEGEND

- UTHSC PROPERTY
- STRATEGIC ACQUISITION
- NEW CONSTRUCTION
- RENOVATE / REPURPOSE
- PARTNER / LEASE
- DEMOLISH
- SURFACE PARKING
- OPEN SPACE/STREETSCAPE IMPROVEMENTS



Project	Project Indicator	Demolition	Renovation	New Construction	Funding	Cost/SF	Budget
Women and Infants Pavilion	A		164,000 GSF		Other	\$571	\$93,644,000
Parking Structure N9	A				Other	\$149	\$36,665,000
Research Building	B			104,000 GSF	State	\$521	\$27,169,629
Van Vleet Building	C	(27,900) GSF	52,149 GSF	44,000 GSF	Other		\$104,834,600
Campus Streetscape Improvements	D				TBD		\$4,204,000
College of Dentistry Expansion Building	F			127,500 GSF	State	\$708	\$90,270,000
Dunn Dental Building Addition	F			42,000 GSF	State	\$641	\$26,922,000
Parking Lot K	G			40,000 SF	TBD	\$28	\$1,120,000
Maintenance & Facilities Bldg.	H			24,000 GSF	State	\$576	\$13,824,000
Expanded Surface Parking N8	M			8,570 SF	TBD	\$28	\$245,000
Parking Lot N5				52,000 SF	TBD	\$28	\$1,456,000
College of Pharmacy Expansion	N			105,000 GSF	State	\$739	\$77,595,000
UTHSC Primary Care Clinic and Interdisciplinary and Enhanced Parking Center	O			160,000 GSF 26,000 SF Parking	State	\$689	\$110,240,000
New Multipurpose Parking Structure and Streetscape Improvements	Q	(135,820) GSF (total)			State	\$143	\$36,964,520
State Funding - Proposed							\$382,985,149
Other/Institutional Funding							\$235,143,600
TBD							\$7,025,000

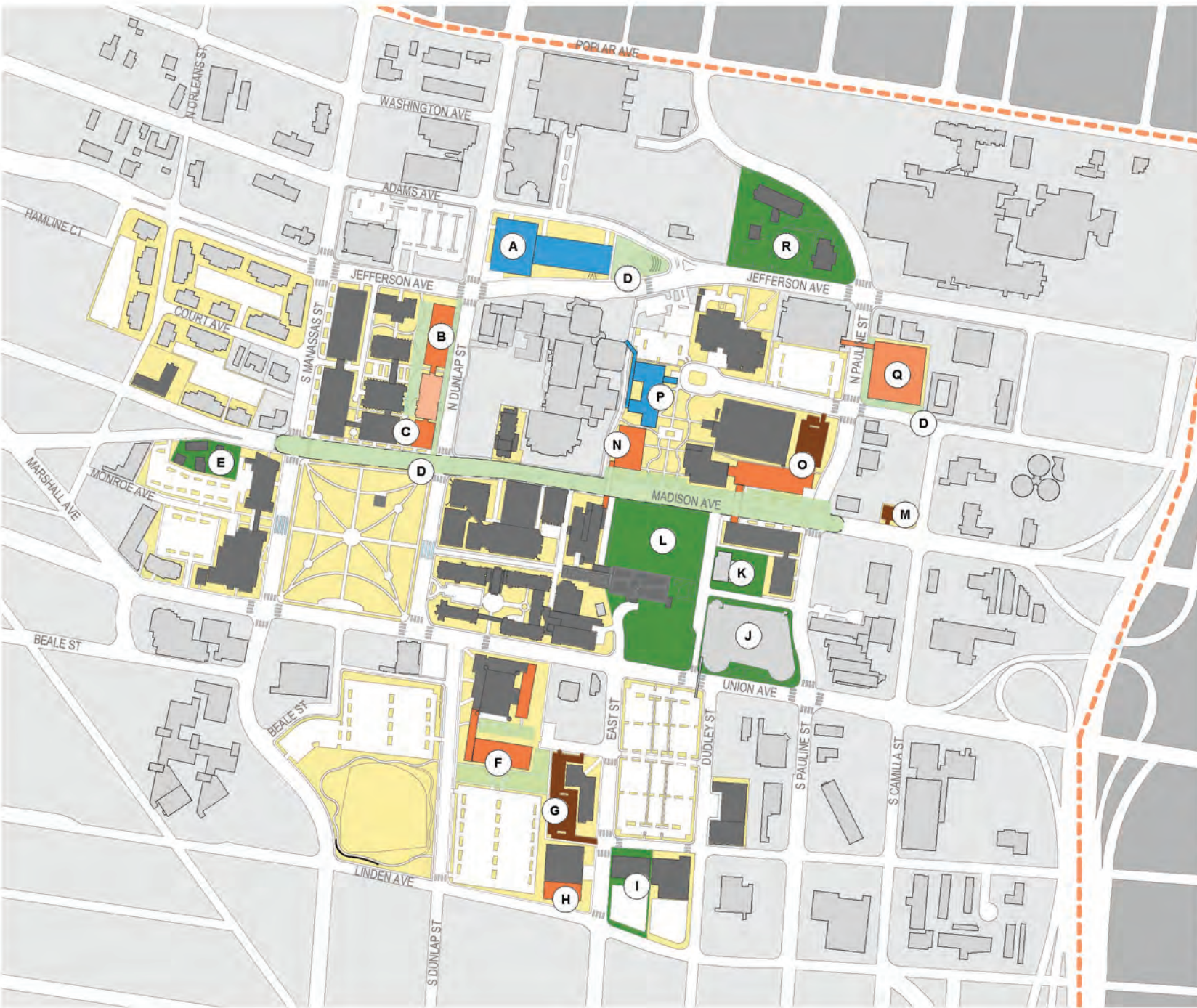
**LONG TERM PLAN
10+ YEARS**

PROJECT LIST

- A. WOMENS & INFANTS PAVILION PARTNERSHIP
- B. RESEARCH EXPANSION BUILDING
- C. VAN VLEET DEMOLITION & ADDITION
- D. CAMPUS STREETSCAPE IMPROVEMENTS
- E. ACQUIRE MONROE AVE PARCELS
- F. COLLEGE OF DENTISTRY EXPANSION + OPEN SPACE IMPROVEMENTS
- G. NEW SCREENING + SURFACE PARKING
- H. FACILITIES MAINTENANCE SUPPORT BUILDING EXPANSION
- I. ACQUIRE PAPPY'S COFFEE PARCEL
- J. ACQUIRE BAPTIST PARKING GARAGE
- K. ACQUIRE INNOVA MEMPHIS STRUCTURES
- L. ACQUIRE INNOVA MEMPHIS LOT
- M. EXPANDED SURFACE PARKING
- N. COLLEGE OF PHARMACY EXPANSION
- O. UT PRIMARY CARE CLINIC AND INTERDISCIPLINARY CENTER + ENHANCED SURFACE PARKING
- P. MEMPHIS MENTAL HEALTH INSTITUTE OPERATIONAL PARTNERSHIP
- Q. NEW MULTIPURPOSE PARKING STRUCTURE + STREETSCAPE IMPROVEMENTS
- R. ACQUIRE REGIONAL ONE + HOTEL PARCEL

PHASING LEGEND

- UTHSC PROPERTY
- STRATEGIC ACQUISITION
- NEW CONSTRUCTION
- RENOVATE / REPURPOSE
- PARTNER / LEASE
- DEMOLISH
- SURFACE PARKING
- OPEN SPACE/STREETSCAPE IMPROVEMENTS





APPENDIX

INTRODUCTION

The City of Memphis, the evolving Memphis Medical District, and UTHC's urban campus offer a diverse and stimulating environment to live, work, and socialize. The campus public realm consists of the lots, blocks, streets, parks, and infrastructure within the UTHSC Planning Boundary and property. The public realm forms the first impression of the University and frames it's physical image and identity. UTHSC is situated in a walkable, flexible urban environment, however, its public realm is currently oriented to vehicles. As the campus transforms and grows, refocusing the public realm towards pedestrians and creating active and engaging public spaces is paramount.

The Urban Design Guidelines will ensure that circulation, open space, and facility design strategies which are implemented within the framework of the 2020 UTHSC Campus Master Plan Update form a coherent campus sense of place. These guidelines are consistent with the Campus Master Plan overarching goals to position and provide a safe environment for students, faculty, and staff to work and learn; expand safe and secure pedestrian access between campus facilities; simplify navigation and wayfinding, and provide clear points of public entry to the UTHSC campus, buildings and programs.

Key elements within the guidelines include:

1. Circulation

- Multi-modal Complete Streets: Encourage major campus streets to be "complete streets" accommodating all forms of transportation such is bicycles, transit, pedestrian, and vehicular traffic.
- Improving Parking: Add active ground floors, screening garages, and considering impervious surface parking.
- Pedestrian Circulation: Develop a safe, enhanced and efficient campus pedestrian environment.

2. Open Space and Public Realm

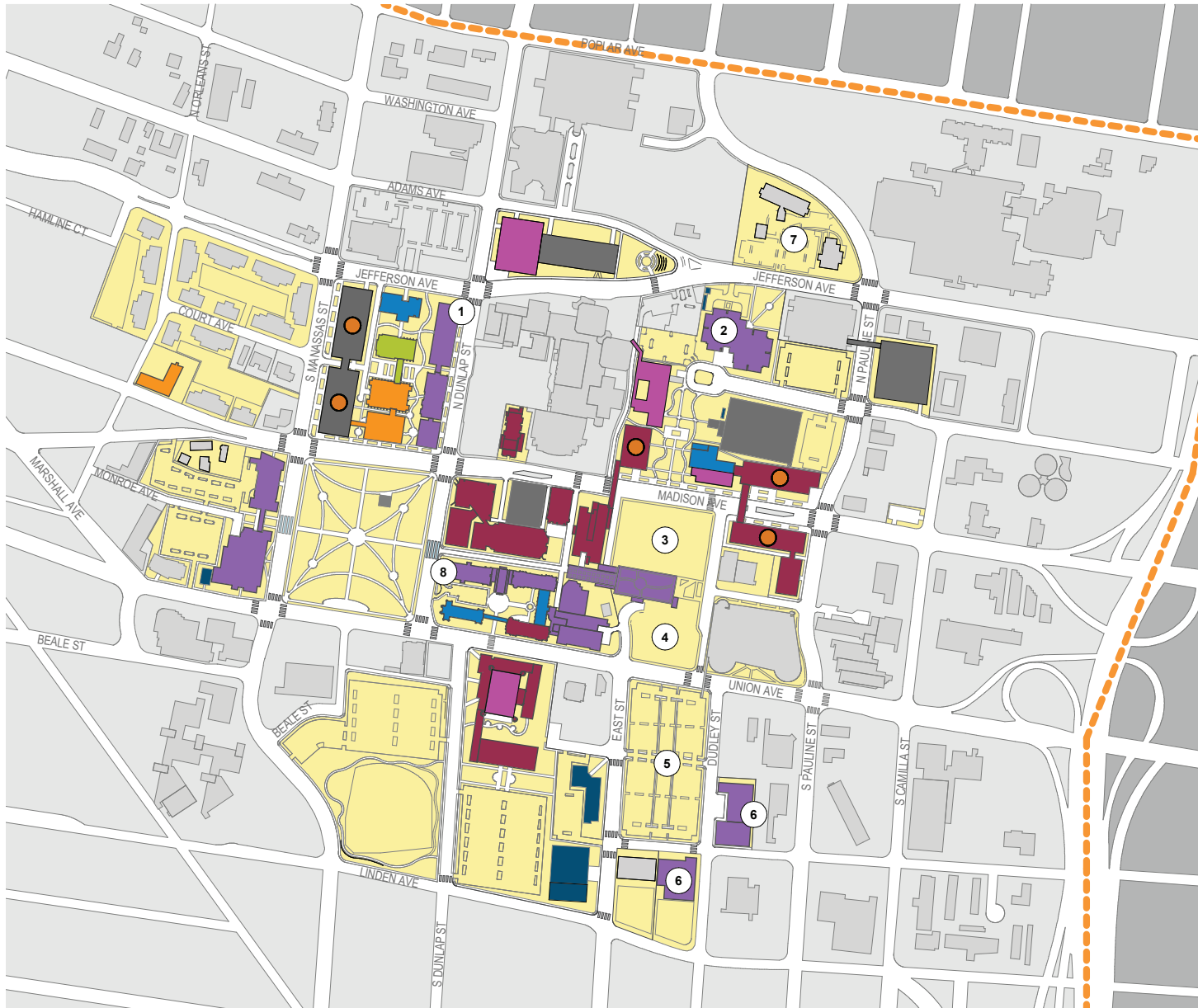
- Gateways: Create clearly defined campus arrival thresholds.
- Improved Signage and Wayfinding: Integrate campus signage hierarchy and locations with planting, paving, lighting and furnishings to brand the campus and provide intuitive wayfinding.
- Landscape and Streetscape: Develop a hierarchy of campus open space, public gathering space, amenities, artwork, and streetscapes.

3. Facilities

- Building Orientation: Locate renovated and future building improvements to engage the public realm.
- Active Use: Enliven the public realm with complimentary uses on the ground floor of renovated and new buildings.



The Shortlidge Mall on Penn State's University Park Campus



PROPOSED FACILITY USE + IMPROVEMENTS

- ACADEMIC
- RESEARCH
- STUDENT LIFE + EVENT
- RECREATION + FITNESS
- ADMINISTRATIVE + OFFICE
- FACILITY SUPPORT
- PARKING
- CLINICAL
- ACTIVE/PUBLIC
- GROUND FLOOR

1. LEASE/RENTAL FOR PARTNERSHIP START-UP COMPANIES
2. EPIDEMIOLOGY + SICKLE CELL / ENCEPHALEPTIC ALPHAVIRUS RESEARCH
3. INNOVATION DISTRICT
4. CLINICAL TRIALS ZONE
5. REGENERATIVE/PRECISION MEDICINE ZONE
6. GMP FACILITIES
7. ALTERNATE COLLEGE OF MEDICINE SITE
8. FACULTY / STAFF OFFICE ZONE



01 CIRCULATION

MULTI-MODAL COMPLETE STREETS

The UTHSC Campus Master Plan recommended campus improvements aim to provide pedestrian- and bicycle-friendly streets, promote bike lanes and safe walkways, and ensure universally accessible paths of travel. Streets improvements for the major campus thoroughfares should be coordinated with the City of Memphis and the MMDC to enable safe access to and from programs, amenities and transportation hubs for all users, including pedestrians, bicyclists, motorists and transit riders. Overarching goals for the Campus Master Plan Update include improving city streets that transect and link UTHSC property. Both major and minor campus streets should be developed as multi-modal complete streets in coordination with the City and its adopted complete street guidelines. Streetscape improvement strategies should include:

- Traffic calming for pedestrian crossings (paving and bump-outs).
- Accommodating bicycle lanes, and on-street parking.
- Providing a bicycle network throughout the campus, including bicycle storage facilities and shower facilities at key locations.
- Integrating transit stops along major corridors and for the Bus Rapid Transit route on Union Avenue.



Traffic Calming Measures, NACTO



Mid-Block Crossing, NACTO



Integrated Bike Lanes, NACTO



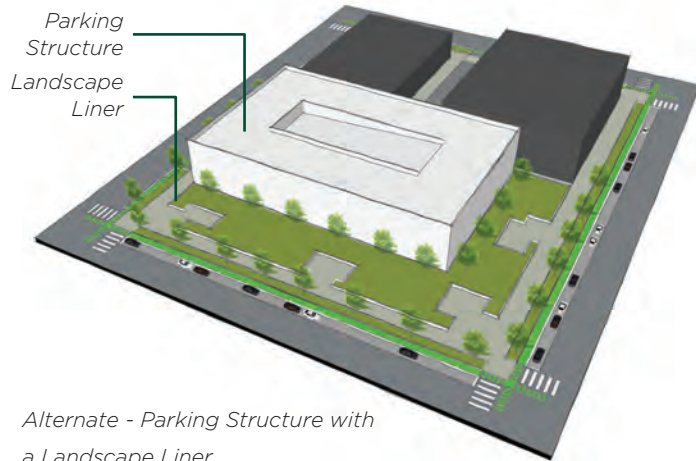
Transit Stops, NACTO



Impervious Parking System



Parking Garage Screen

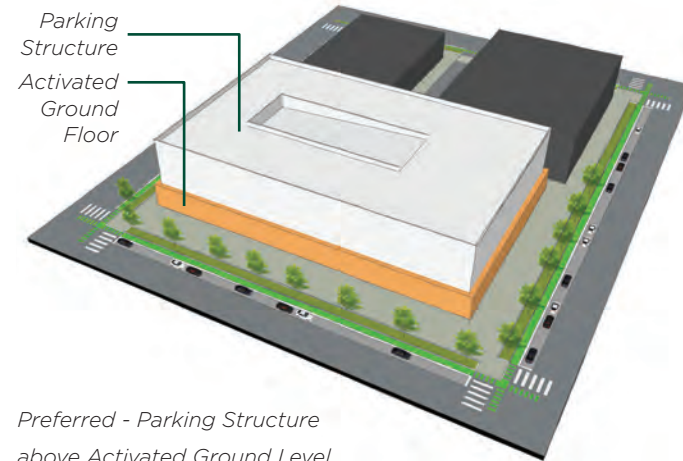


Alternate - Parking Structure with a Landscape Liner

IMPROVED PARKING

One of the overarching campus master plan goals includes improving navigation and supply of parking within the campus. The existing and proposed surface parking and structured parking facilities within the campus should be improved through the following design elements:

- Screening of existing garages. These screens could provide opportunities for signage, green walls, and façade lighting to improve architectural character.
- Active uses at street level. Consider providing programming and amenities at the ground floor within existing and proposed garages to activate the campus sidewalk experience and improve the pedestrian environment.
- Pervious surfaces within paved parking areas. Consider installing pervious paving within existing surface parking lots for green infrastructure and stormwater management.



Preferred - Parking Structure above Activated Ground Level

PEDESTRIAN MOVEMENT

At UTHSC, pedestrian movement is shaped by the existing city grid. The grid provides a logical and efficient system for vehicular and pedestrian movement. With a campus that is both internally focused around a series of plazas and courtyards, and externally connected to a series of streets and parks, UTHSC offers a unique environment within the Memphis Medical District and the Downtown.

Connecting campus sidewalks with a deliberate series of paths and open spaces will provide a rich pedestrian-oriented experience. Primary paths should focus on major or symbolic pedestrian circulation patterns, combining several types of spaces. Secondary paths should provide supplemental pedestrian routes. Within the existing MMD context, an enhanced network of streetscapes, walkways, tunnels and skyways should provide a 24/7, improved and safer pedestrian movement.

Ensuring Pedestrian Circulation during Construction

With each new construction project, existing and projected pedestrian movements should be studied to inform the design. Key elements for new construction include:

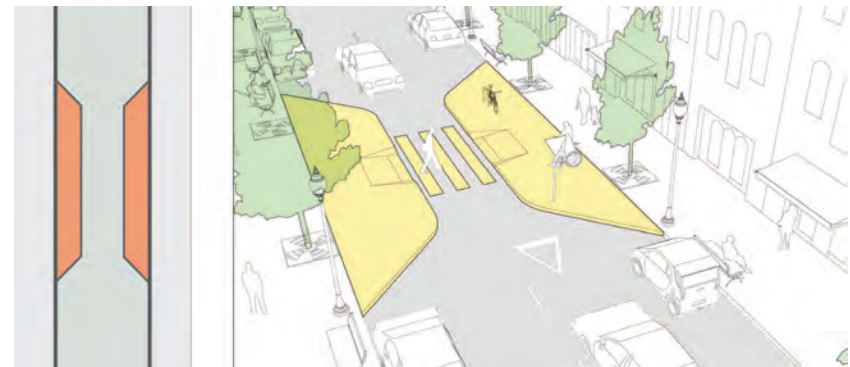
- Identifying primary and secondary routes to be maintained during construction.
- Projecting future impact and opportunity for new or enhanced pedestrian paths.
- Incorporating standard University hardscape and landscape elements.



Pedestrian Movement

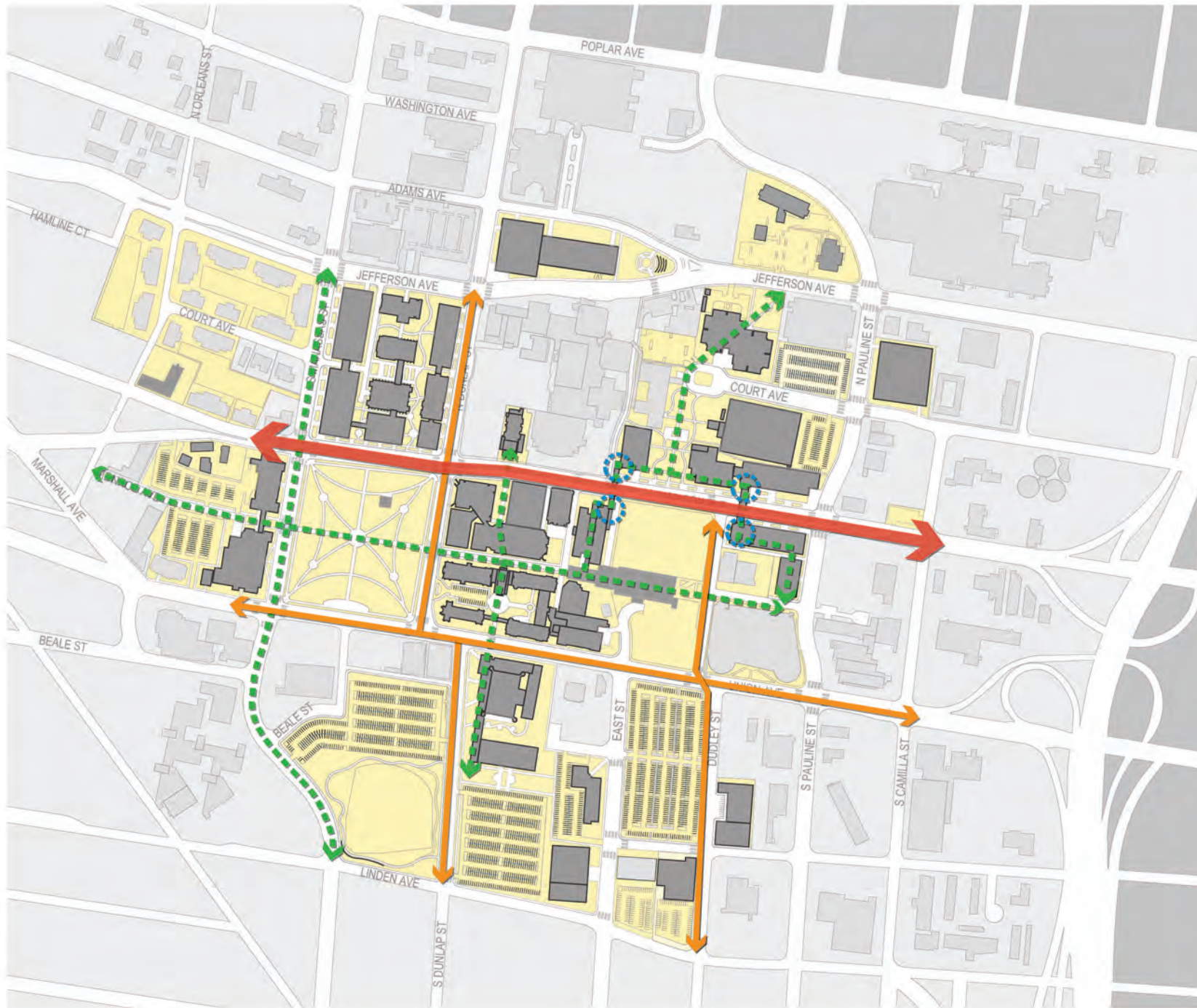


Intersection Crossing, NACTO



Mid-block Crossing, NACTO

PEDESTRIAN CORRIDORS DIAGRAM



LEGEND

- UTHSC PROPERTY
- CAMPUS SPINE
- MAJOR PEDESTRIAN CORRIDORS
- SECONDARY PEDESTRIAN CORRIDORS
- SKYWAY CONNECTIONS

02 OPEN SPACE AND PUBLIC REALM

GATEWAYS

At primary intersections, architectural and landscape elements should define the entry to the UTHSC campus. These elements should provide a sense of arrival to visitors as they explore the campus for the first time. They should consider architectural details that are visually interesting as well as the use of planting, paving, masonry, sculptural elements, and insignia to create a focal point. Gateways should be memorable and serve as landmarks within the larger Memphis Medical District. Gateways should also consider art as an element. The use of University-branded materials and signage is encouraged, further reinforcing a sense of arrival. Where campus buildings already exist, the sensitive use of common hardscape and landscape materials should be utilized to signify a campus gateway.

- Primary Perimeter Gateways: locate campus landmark signage, signature programs, and major campus redevelopment opportunities to identify primary gateways on the campus perimeter.

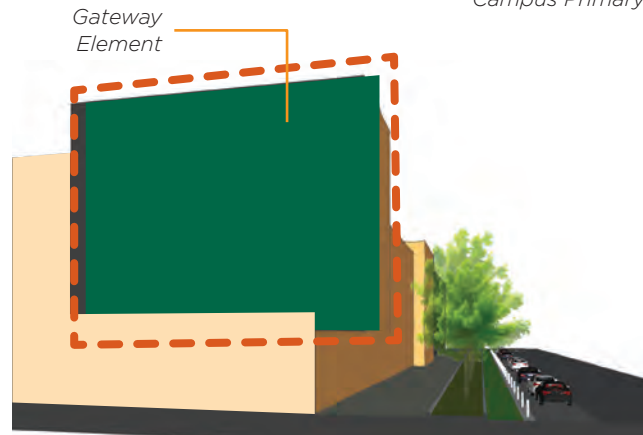
- Secondary Perimeter Gateways: develop secondary campus signage and landscape treatments to identify additional important campus thresholds per the recommendations of the 2020 Campus Master Plan Update.



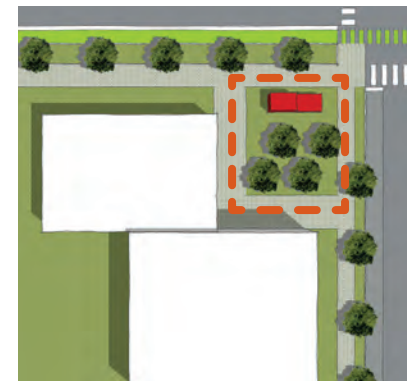
Campus Primary Gateway Example



Plan



Section



Landscape Gateway



Example of Interpretive Signage, used to educate and inform visitors to the campus about important historical or cultural elements on campus.

SIGNAGE AND WAYFINDING

Vehicular navigation and pedestrian wayfinding for visitors, students, faculty and staff, existing exterior and interior wayfinding and signage should be simplified. Building renovations, new construction, and public realm projects should all include the installation of coordinated signage, landmarks, and wayfinding graphics that identify programs and points of pride.

- Perimeter Signage Markers
- Internal Campus Wayfinding



Example of Signage and Wayfinding Hierarchy

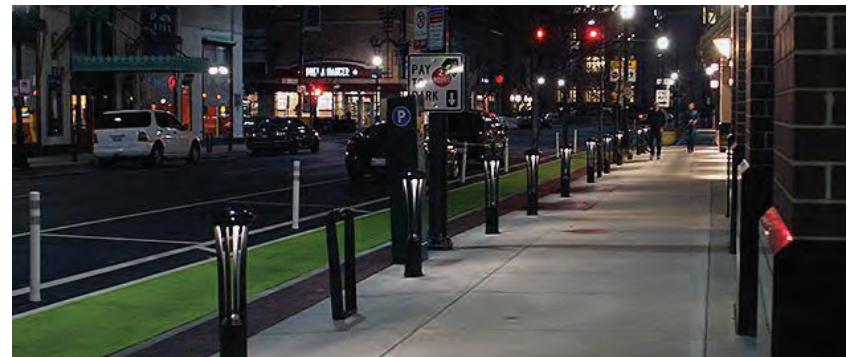
LANDSCAPE AND STREETScape

City streets fulfill several functions at UTHSC, including defining development areas, fostering pedestrian and bicycle movement, assuring parking access, and providing secure visitor, emergency and service access to facilities. Streets also define the physical character of the campus. The incorporation of canopy trees, wide sidewalks, and proper building orientation enhances the pedestrian experience of the campus. The use of landscape buffers between the building and the sidewalk may be appropriate on higher volume, vehicular-oriented streets or expanded areas for amenities and outdoor gathering. Key elements to consider include:

- Widening sidewalks and landscaping where possible to foster pedestrian movement with street furniture at key campus open spaces, student life, and collaboration areas.
- Adding and improving street furniture - including benches, pedestrian lighting, street lighting, trash collectors and signage.
- Placing canopy trees between the sidewalk and the roadway to provide shade, enhance the physical environment, and increase pedestrian safety.
- Adding public open spaces at strategic locations throughout the campus including underutilized areas between existing buildings, corner locations etc.



Street Furniture



Pedestrian Lighting

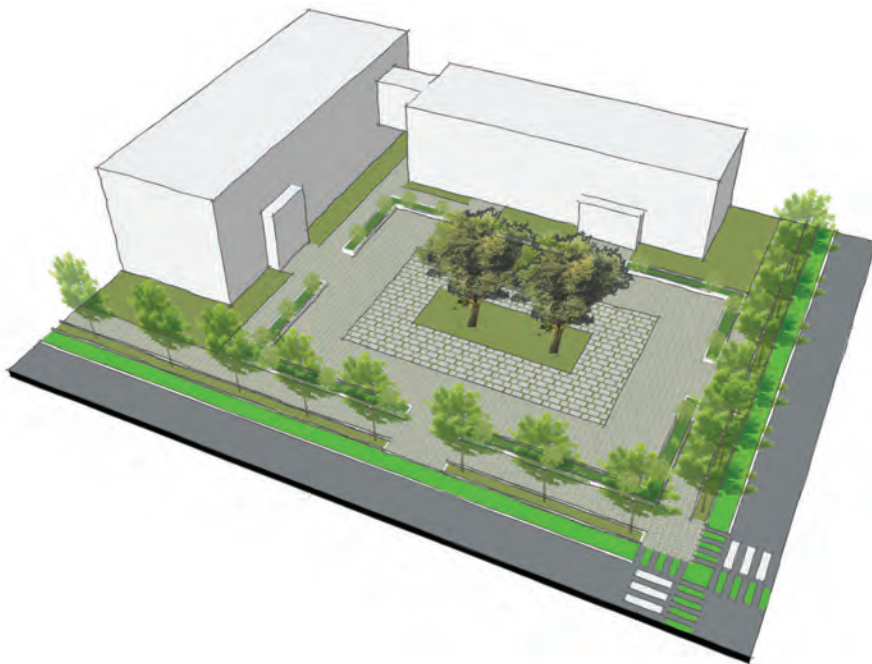


Street Trees

PEDESTRIAN SPACE

Located within an existing urban fabric, there is limited pedestrian space within the UTHSC campus. Existing conditions should be analyzed to find opportunities to improve and expand pedestrian space as new projects are undertaken. Future pedestrian space should be clearly defined, usable, active, and highly visible. Key elements include:

- Visibility: Pedestrian spaces should be visible from a minimum of three sides through a combination of public streets and private buildings
- Accessibility: Pedestrian spaces should have multiple, defined points of entry and follow Universal Design principles
- Definition: The limits of pedestrian space should be defined through the use of buildings, streets, fencing and landscape
- Edges: Public and private sidewalks should be placed on each side of the space
- Activity: Pedestrian spaces should provide areas for gatherings and places for reflection



Pedestrian Space

03 FACILITIES

ACTIVE USE

How campus buildings engage passersby is a critical component of creating a memorable, attractive, and comfortable public realm. Buildings should orient active, interdisciplinary uses, such as lobbies, retail, galleries, teaming and collaboration spaces, offices, social spaces, and major building amenities, toward the street. This is especially important on the ground floor and at the second story connectors between campus buildings and crossing campus thoroughfares.

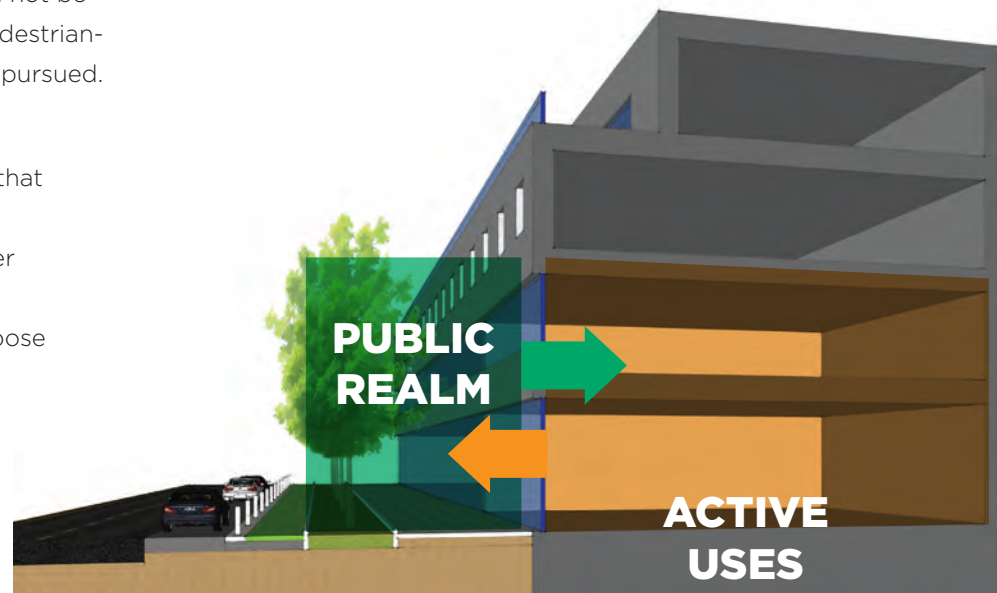
Fenestration is defined as the area and arrangement of windows and doors on the elevations of a building. The minimum target fenestration for new and reconstructed building that front public campus streets should be 50% at the ground level in order to provide a level of permeability between the inside and outside space. The glazing should be transparent in the day and evening and mirror glass should not be used. Along major pedestrian-oriented corridors, including pedestrian-only spaces, a minimum target fenestration of 60% should be pursued.

Key elements include:

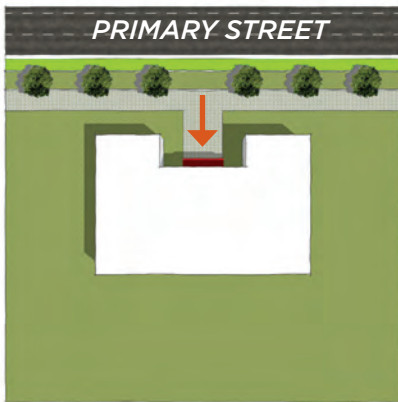
- Transparent windows and doors at the ground floor level that showcase signature programs and activities
- Active internal building uses and common areas that foster collaboration.
- Pedestrian-friendly, comfortable, accessible and multipurpose landscapes, plazas and walks.



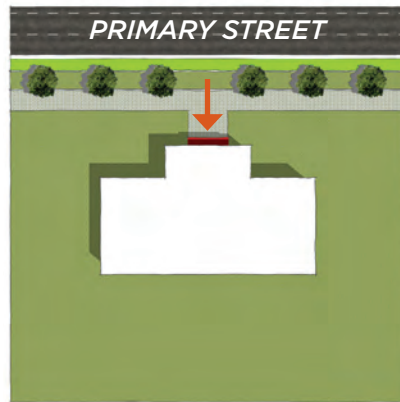
An activated sidewalk along 13th Street in Philadelphia, PA



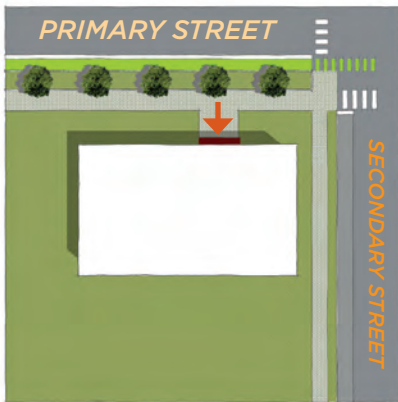
Active Use



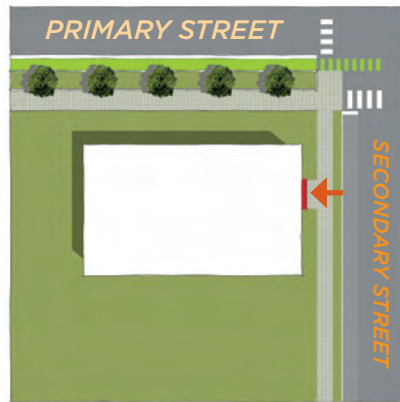
Preferred Entry



Alternate Entry



Preferred Primary Street



Alternate Secondary Street

BUILDING ORIENTATION

Within the existing urban fabric, building orientation influences the character, perception, and activity of the public realm. New construction and major renovations at UTHSC should orient “fronts” of buildings towards the primary public street. Key considerations include:

- Locating major pedestrian entries on primary streets. Primary vehicular/pedestrian corridors benefit from pedestrian activity. Along with a well-defined streetscape, the high-volume pedestrian use associated with a primary building entry activates sidewalks and open space, clearly identifies the building “front door” and accessible public entry and reinforces a programmatic sense of place. Equally important, the increased pedestrian activity associated with a building entry can slow vehicular traffic.
- Placing buildings close to sidewalks and creating a consistent line of building facades. Within an urban context, the placement of the building, with views inside at the sidewalk, can activate the public realm. The building clearly defines the public limits of the street while maximizing the development potential of the lot. Internal private activity within the building reinforces the experience of “eyes on the street”.
- Placing active uses fronting the street. While secure research facilities and parking structures are a necessity in a dense urban academic medical center, the use of solid brick walls or screen planting along a public street can negatively impact the public realm. Along primary streets at UTHSC, campus building facades should be punctuated by entrances and lobbies and parking structures should incorporate street level occupied space or “liner” buildings to activate the public realm.

GLOSSARY OF **IMAGES**

INTRODUCTION

- P. 2 : PROPOSED FACILITY USE DIAGRAM
- P. 3 : SHORTLIDGE MALL AT PENN STATE UNIVERSITY

01 CIRCULATION

- P. 4 : TRAFFIC CALMING MEASURES (CREDIT TO NATCO)
- P. 4 : MID-BLOCK CROSSING (CREDIT TO NATCO)
- P. 4 : TRANSIT STOPS (CREDIT TO NATCO)
- P. 4 : INTEGRATED BIKE LANES (CREDIT TO NATCO)
- P. 5 : IMPERVIOUS PARKING SYSTEM
- P. 5 : PARKING GARAGE SCREEN
- P. 5 : PREFERRED PARKING DIAGRAM
- P. 5 : ALTERNATE PARKING DIAGRAM
- P. 6 : PEDESTRIAN MOVEMENT
- P. 6 : INTERSECTION CROSSING (CREDIT TO NATCO)
- P. 6 : MID-BLOCK CROSSING (CREDIT TO NATCO)
- P. 7 : PEDESTRIAN CORRIDORS DIAGRAM

02 OPEN SPACE AND PUBLIC REALM

- P. 8 : CAMPUS PRIMARY GATEWAY EXAMPLE
- P. 8 : PLAN VIEW; GATEWAY ELEMENT
- P. 8 : SECTION VIEW; GATEWAY ELEMENT
- P. 8 : LANDSCAPE GATEWAY DIAGRAM
- P. 9 : EXAMPLE OF INTERPRETIVE SIGNAGE
- P. 9 : EXAMPLE OF SIGNAGE AND WAYFINDING HIERARCHY
- P. 10 : STREET FURNITURE
- P. 10: PEDESTRIAN LIGHTING
- P. 10 : STREET TREES
- P. 11 : PEDESTRIAN SPACE DIAGRAM

03 FACILITIES

- P. 12 : ACTIVATED SIDEWALK ALONG 13TH STREET IN PHILADELPHIA, PA
- P. 12 : ACTIVE USE DIAGRAM
- P. 13 : BUILDING ORIENTATION DIAGRAM SEQUENCE

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SPACE ANALYSIS APPENDIX

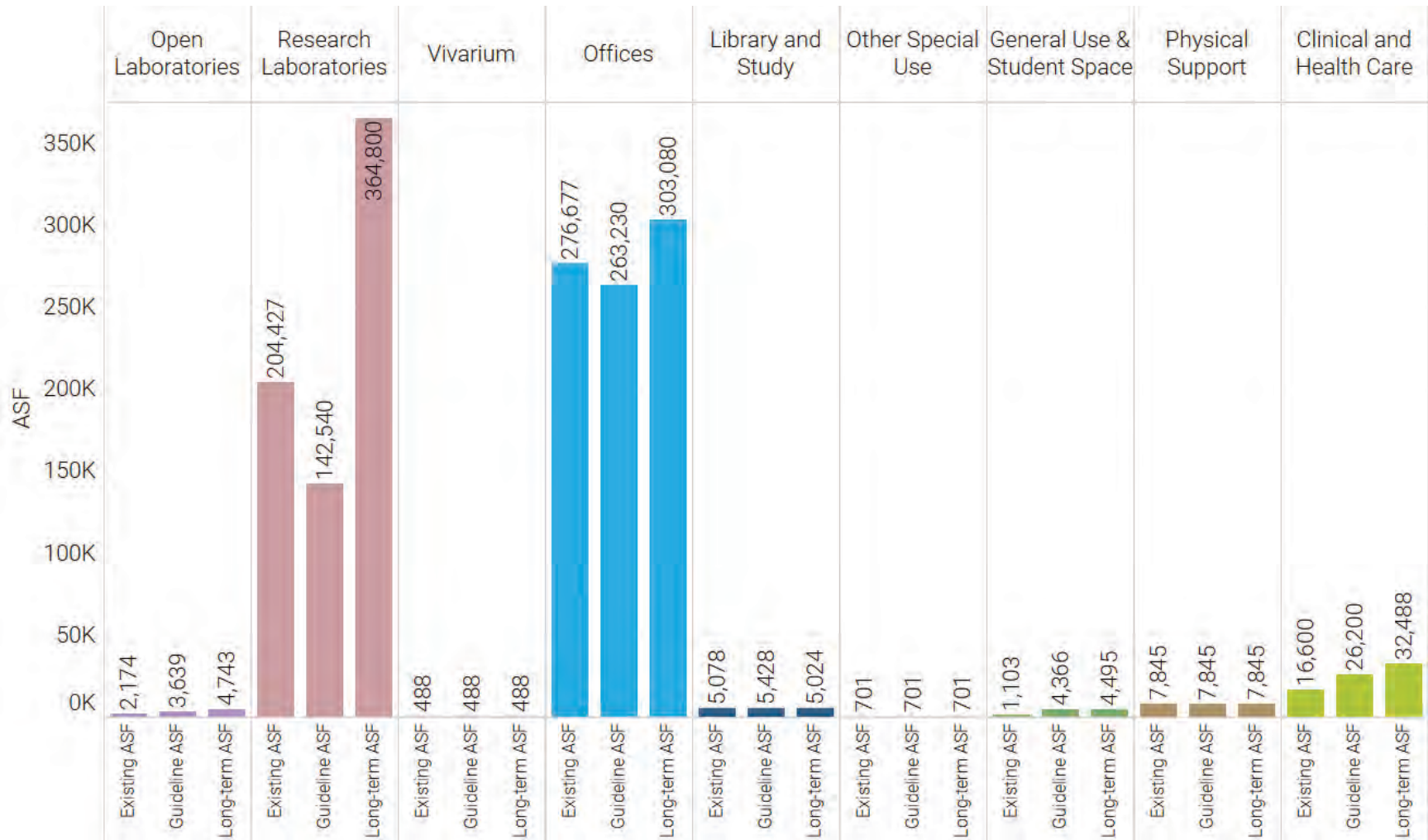
OVERALL SPACE NEEDS BY FICM CODE

100	Classroom Facilities	630	Food Facility
110	Classroom	635	Food Facility Service
115	Classroom Service	640	Day Care
200	Laboratory Facilities	645	Day Care Service
210	Class Laboratory	650	Lounge
215	Class Laboratory Service	655	Lounge Service
220	Open Laboratory	660	Merchandising
225	Open Laboratory Service	665	Merchandising Service
250	Research/Nonclass Laboratory	670	Recreation
255	Research/Nonclass Laboratory Service	675	Recreation Service
300	Office Facilities	680	Meeting Room
310	Office	685	Meeting Room Service
315	Office Service	700	Support Facilities
350	Conference Room	710	Central Computer or Telecommunications
355	Conference Room Service	715	Central Computer or Telecom. Service
400	Study Facilities	720	Shop
410	Study Room	725	Shop Service
420	Stack	730	Central Storage
430	Open-Stack Study Room	735	Central Storage Service
440	Processing Room	740	Vehicle Storage
455	Study Service	745	Vehicle Storage Service
500	Special Use Facilities	750	Central Service
510	Armory	755	Central Service Support
515	Armory Service	760	Hazardous Materials Storage
520	Athletic or Physical Education	770	Hazardous Waste Storage
523	Athletic Facilities Spectator Seating	775	Hazardous Waste Service
525	Athletic or Physical Education Service	780	Unit Storage
530	Media Production	800	Health Care Facilities
535	Media Production Service	810	Patient Bedroom
540	Clinic	815	Patient Bedroom Service
545	Clinic Service	820	Patient Bath
550	Demonstration	830	Nurse Station
555	Demonstration Service	835	Nurse Station Service
560	Field Building	840	Surgery
570	Animal Facilities	845	Surgery Service
575	Animal Facilities Service	850	Treatment/Examination Clinic
580	Greenhouse	855	Treatment/Examination Clinic Service
585	Greenhouse Service	860	Diagnostic Service Laboratory
590	Other (All Purpose)	865	Diagnostic Service Laboratory Support
600	General Use Facilities	870	Central Supplies
610	Assembly	880	Public Waiting
615	Assembly Service	890	Staff On-Call Facility
620	Exhibition	895	Staff On-Call Facility Service
625	Exhibition Service		

Total Space on Campus	Surplus /			Proposed New		Short-term		Mid-term		Future	Poor Condition	Long-term S	
	Existing	Guideline	Deficit	Projects	Short-term	S / D	Mid-term	S / D	Demolition	Space	Long-term	/ D	
ACADEMIC	639,494	727,342	(87,848)	57,989	812,443	(114,960)	870,032	(172,549)	(145,252)		3,145	870,032	(317,801)
110-115	86,458	81,203	5,255	10,150	97,787	(1,179)	105,860	(9,252)	(15,766)			105,860	(25,018)
610-615	0	11,225	(11,225)	0	11,225	(11,225)	11,225	(11,225)	0			11,225	(11,225)
680-685	14,927	12,799	2,128	800	15,413	314	16,686	(959)	(626)			16,686	(1,585)
210-215	85,005	108,273	(23,268)	0	130,380	(45,375)	141,147	(56,142)	(5,442)	1,814		141,147	(61,584)
220-225	5,423	13,025	(7,602)	0	15,685	(10,262)	16,980	(11,557)	(827)	113		16,980	(12,384)
310-355	388,317	432,060	(43,743)	45,539	464,740	(30,884)	496,675	(62,819)	(120,296)			496,675	(183,115)
400-440	56,486	64,765	(8,279)	1,500	72,259	(14,273)	75,908	(17,922)	(847)	1,090		75,908	(18,769)
530-535	0	1,000	(1,000)	0	1,500	(1,500)	2,000	(2,000)	0			2,000	(2,000)
550-555	2,878	2,991	(113)	0	3,454	(576)	3,551	(673)	(1,448)	128		3,551	(2,121)
RESEARCH	336,181	208,731	127,450	88,260	327,207	97,234	485,969	(61,528)	(8,372)		53,588	564,557	(148,488)
250-255	282,232	170,756	111,476	62,089	268,958	75,363	401,110	(56,789)	(8,372)	52,953		466,600	(130,651)
570-575	50,384	34,151	16,233	26,171	53,792	22,763	80,222	(3,667)	0	635		93,320	(16,765)
590	3,565	3,824	(259)	0	4,457	(892)	4,637	(1,072)	0			4,637	(1,072)
ADMIN/STUDENT SUPPORT	273,326	241,881	31,445	14,585	263,323	24,588	282,424	5,487	(92,914)		1,340	282,424	(87,427)
310-355	238,192	200,680	37,512	11,135	216,000	33,327	232,120	17,207	(77,483)			232,120	(60,276)
620-625	175	11,225	(11,050)	0	11,225	(11,050)	11,225	(11,050)	0			11,225	(11,050)
630-635	11,902	10,206	1,696	0	12,290	(388)	13,305	(1,403)	(8,320)			13,305	(9,723)
650-655	9,602	8,233	1,369	2,700	9,915	2,387	10,734	1,568	(495)	1,340		10,734	1,073
660-665	13,455	11,537	1,918	750	13,893	312	15,041	(836)	(6,616)			15,041	(7,452)
RECREATION	37,735	46,326	(8,591)	0	55,050	(17,315)	59,524	(21,789)	0		1,215	59,524	(21,789)
520-525	26,861	37,002	(10,141)	0	43,822	(16,961)	47,369	(20,508)	0			47,369	(20,508)
670-675	10,874	9,324	1,550	0	11,228	(354)	12,155	(1,281)	0	1,215		12,155	(1,281)
FACILITY SUPPORT	56,826	58,997	(2,171)	2,970	70,004	(10,208)	84,800	(25,004)	(5,688)		489	84,800	(30,692)
710-715	4,667	4,845	(178)	300	5,749	(782)	6,964	(1,997)	0	151		6,964	(1,997)
720-745	26,227	27,229	(1,002)	500	32,309	(5,582)	39,138	(12,411)	(99)			39,138	(12,510)
750-755	2,195	2,279	(84)	2,050	2,704	1,541	3,276	969	(933)			3,276	36
760-765	802	833	(31)	0	988	(186)	1,197	(395)	(403)	286		1,197	(798)
770-775	2,031	2,109	(78)	120	2,502	(351)	3,031	(880)	(980)			3,031	(1,860)
780	20,904	21,703	(799)	0	25,752	(4,848)	31,195	(10,291)	(3,273)	52		31,195	(13,564)
CLINICAL	92,978	86,760	6,218	8,150	97,610	3,518	107,914	(6,786)	(16,908)		0	107,914	(23,694)
800-SH	4,247	5,210	(963)	0	6,274	(2,027)	6,792	(2,545)	(4,247)			6,792	(6,792)
800-C	88,731	81,550	7,181	8,150	91,336	5,545	101,122	(4,241)	(12,661)			101,122	(16,902)
TOTAL	1,436,540	1,370,037	66,503	171,954	1,625,638	(17,144)	1,890,663	(282,169)	(269,134)		59,777	1,969,251	(629,891)

Overall Space Needs by FICM Codes

COLLEGE OF MEDICINE

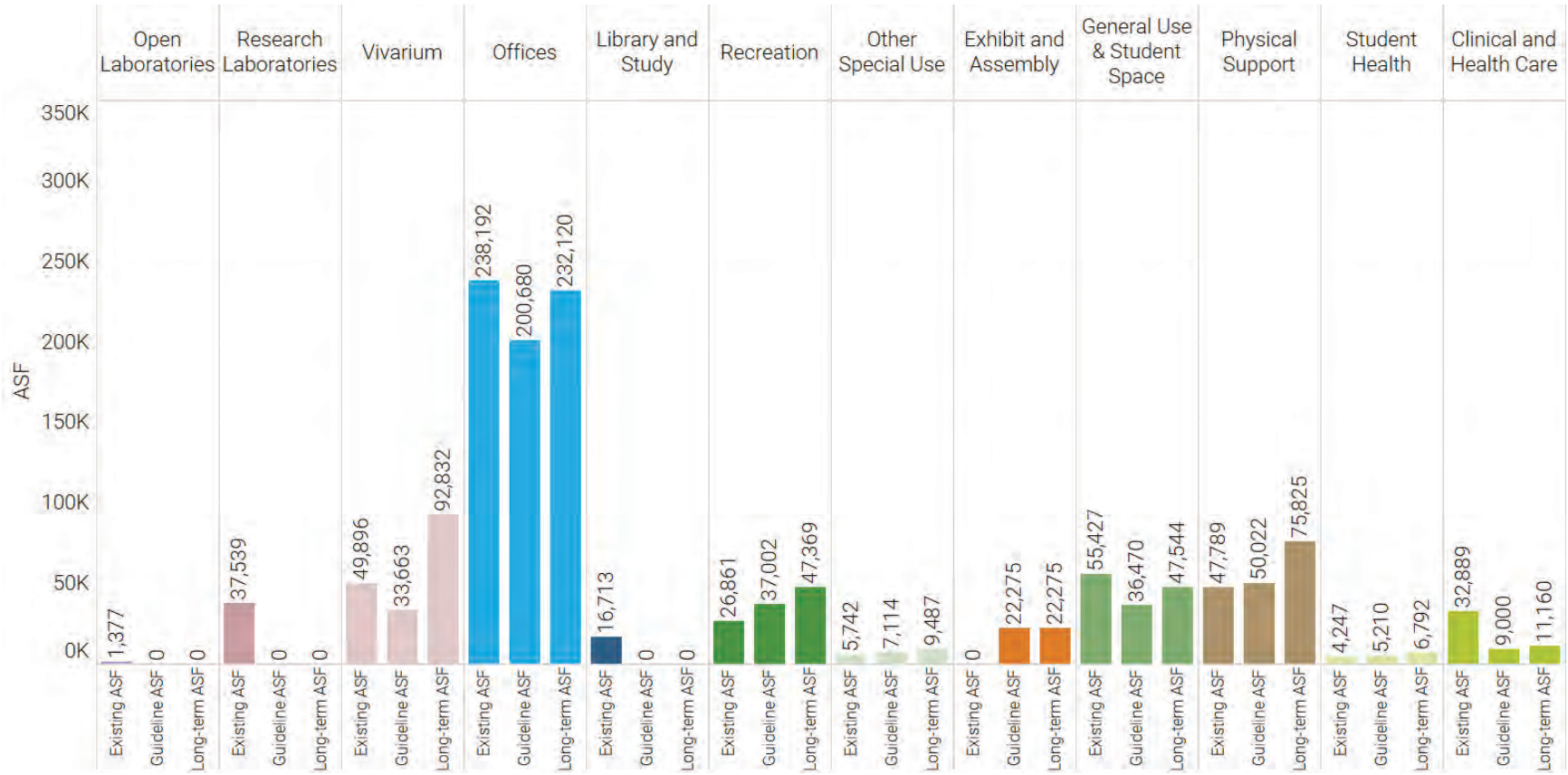


College of Medicine Space Needs Analysis

College of Medicine										
Space Type	Existing ASF	Guideline ASF	Surplus/Deficit	Future Existing ASF	Post-Demo ASF	2023 ASF	2023 Surplus/Deficit	2028 ASF	2028 Surplus/Deficit	
Classrooms	14,409	22,685	(8,276)	14,409	7,764	22,732	(14,968)	23,355	(15,591)	
Class Laboratories	14,937	30,247	(15,310)	14,937	10,381	30,308	(19,927)	31,140	(20,759)	
Open Laboratories	2,174	3,639	(1,465)	2,174	1,247	4,382	(3,135)	4,743	(3,496)	
Research Laboratories	204,427	142,540	61,887	264,591	259,678	224,514	35,164	364,800	(105,122)	
Vivarium	488	488	0	488	488	488	0	488	0	
Offices	276,677	263,230	13,447	293,496	199,348	283,200	(83,852)	303,080	(103,732)	
Library and Study	5,078	5,428	(350)	5,078	4,144	5,039	(895)	5,024	(880)	
Other Special Use	701	701	0	701	701	701	0	701	0	
General Use & Student Space	1,103	4,366	(3,263)	1,103	477	4,375	(3,898)	4,495	(4,018)	
Physical Support	7,845	7,845	0	7,845	5,648	5,648	0	5,648	0	
Clinical and Health Care	16,600	26,200	(9,600)	16,600	9,565	29,344	(19,779)	32,488	(22,923)	
Total	544,439	507,369	37,070	621,422	499,441	610,731	(111,290)	775,962	(276,521)	

College of Medicine Overall Space Needs by Space Type

ADMINISTRATIVE UNITS

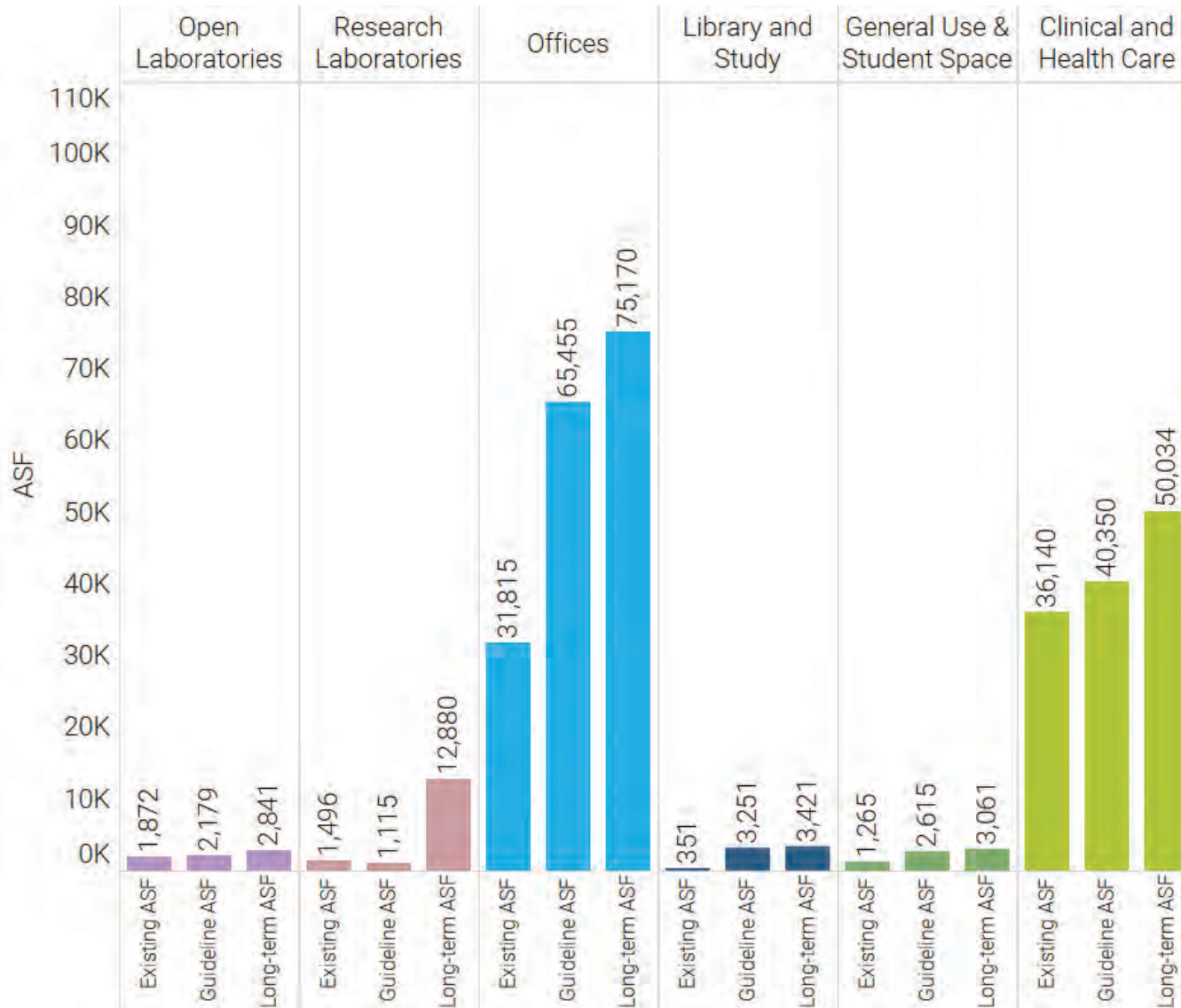


Administrative Units Space Needs Analysis

Administrative Units										
Space Type	Existing ASF	Guideline ASF	Surplus/Deficit	Future Existing ASF	Post-Demo ASF	2023 ASF	2023 Surplus/Deficit	2028 ASF	2028 Surplus/Deficit	
Classrooms	49,530	0	49,530	49,530	48,360	0	48,360	0	48,360	
Class Laboratories	69,414	0	69,414	69,414	68,528	0	68,528	0	68,528	
Open Laboratories	1,377	0	1,377	1,377	1,168	0	1,168	0	1,168	
Research Laboratories	37,539	0	37,539	37,539	35,104	0	35,104	0	35,104	
Vivarium	49,896	33,663	16,233	76,067	76,067	53,304	22,763	92,832	(16,765)	
Offices	238,192	200,680	37,512	269,429	191,946	216,000	(24,054)	232,120	(40,174)	
Library and Study	16,713	0	16,713	16,713	16,713	0	16,713	0	16,713	
Recreation	26,861	37,002	(10,141)	26,861	26,861	43,822	(16,961)	47,369	(20,508)	
Other Special Use	5,742	7,114	(1,372)	5,742	4,294	8,710	(4,416)	9,487	(5,193)	
Exhibit and Assembly	0	22,275	(22,275)	0	0	22,275	(22,275)	22,275	(22,275)	
General Use & Student Space	55,427	36,470	18,957	55,427	39,996	43,918	(3,922)	47,544	(7,548)	
Physical Support	47,789	50,022	(2,233)	50,759	46,818	63,226	(16,408)	78,022	(31,204)	
Clinical and Health Care	32,889	9,000	23,889	32,889	26,599	10,080	16,519	11,160	15,439	
Student Health	4,247	5,210	(963)	4,247	0	6,274	(6,274)	6,792	(6,792)	
Total	635,616	401,436	234,180	695,994	582,454	467,609	114,845	547,601	34,853	

Administrative Units Overall Space Needs by Space Type

COLLEGE OF DENTISTRY

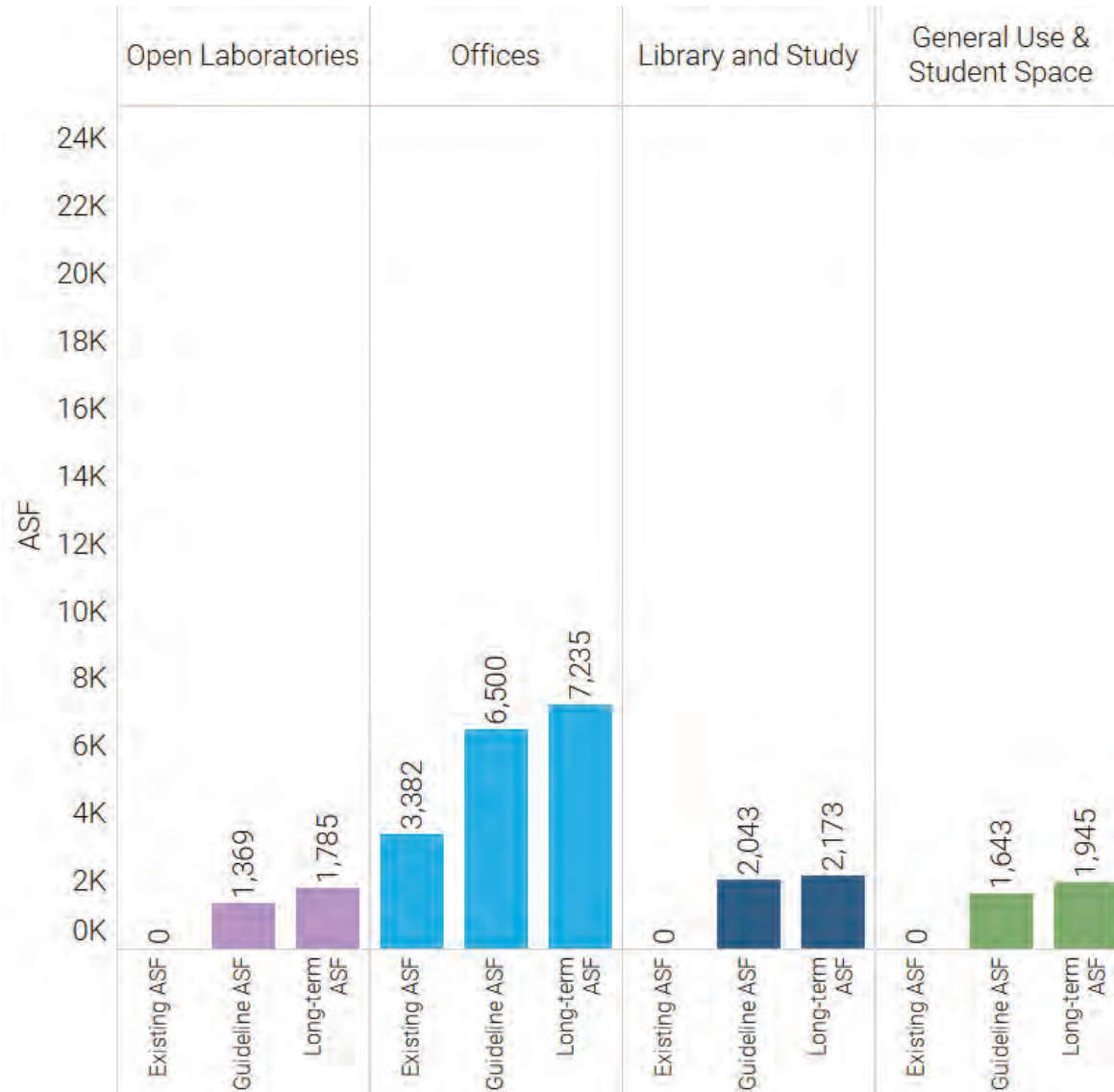


College of Dentistry Space Needs Analysis

College of Dentistry										
Space Type	Existing ASF	Guideline ASF	Surplus/Deficit	Future Existing ASF	Post-Demo ASF	2023 ASF	2023 Surplus/Deficit	2028 ASF	2028 Surplus/Deficit	
Classrooms	0	13,586	(13,586)	10,150	10,150	14,780	(4,630)	15,902	(5,752)	
Class Laboratories	158	18,115	(17,957)	158	158	19,707	(19,549)	21,203	(21,045)	
Open Laboratories	1,872	2,179	(307)	1,872	1,872	2,624	(752)	2,841	(969)	
Research Laboratories	1,496	1,115	381	1,496	1,496	1,757	(261)	12,880	(11,384)	
Offices	31,815	65,455	(33,640)	36,860	36,860	70,350	(33,490)	75,170	(38,310)	
Library and Study	351	3,251	(2,900)	351	351	3,277	(2,926)	3,421	(3,070)	
General Use & Student Space	1,265	2,615	(1,350)	2,465	2,465	2,845	(380)	3,061	(596)	
Clinical and Health Care	36,140	40,350	(4,210)	44,290	44,290	45,192	(902)	50,034	(5,744)	
Total	73,097	146,666	(73,569)	97,642	97,642	160,532	(62,890)	184,512	(86,870)	

College of Dentistry Overall Space Needs by Space Type

COLLEGE OF GRADUATE HEALTH SCIENCES

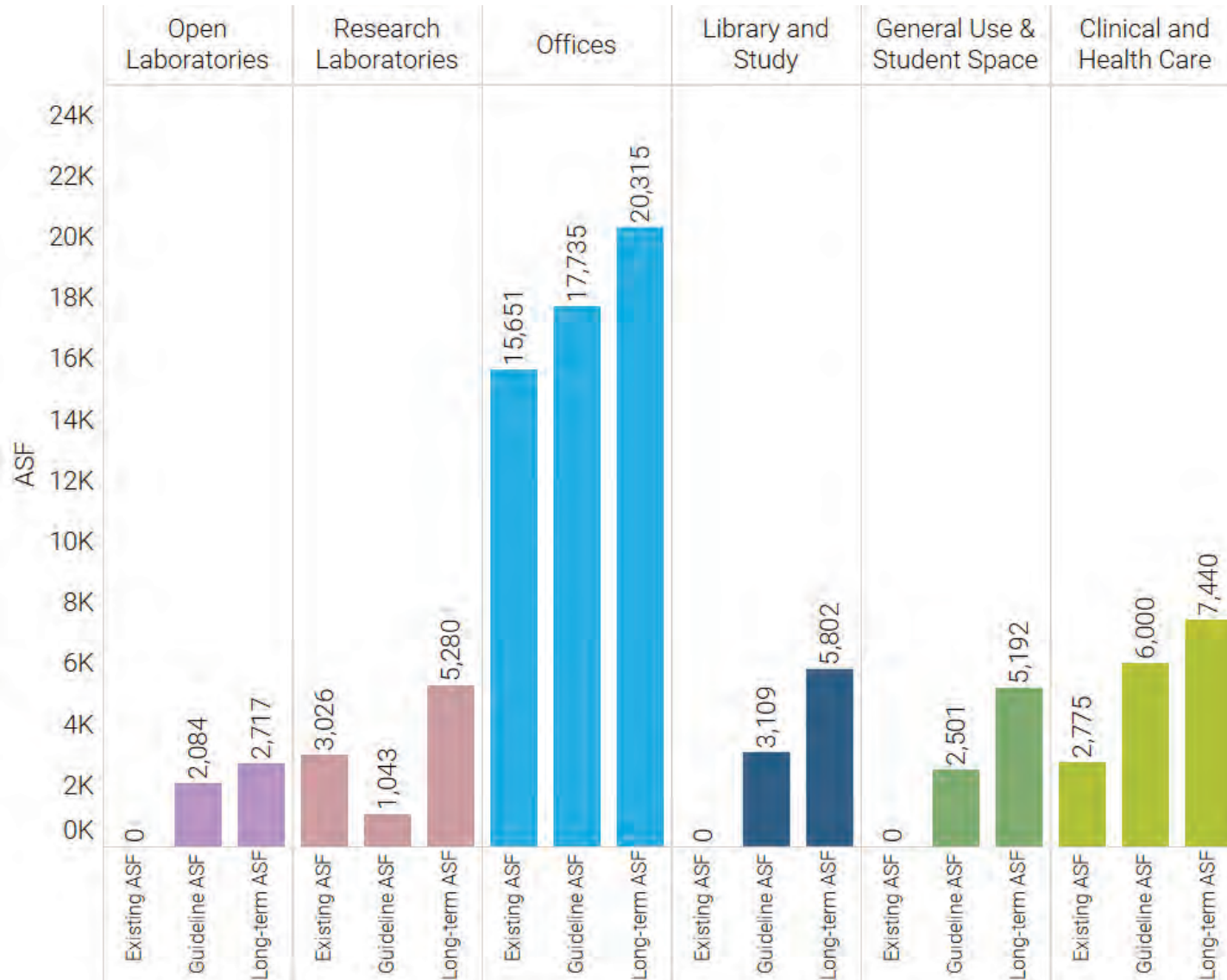


College of Graduate Health Sciences Space Needs Analysis

College of Graduate Health Sciences										
Space Type	Existing ASF	Guideline ASF	Surplus/Deficit	Future Existing ASF	Post-Demo ASF	2023 ASF	2023 Surplus/Deficit	2028 ASF	2028 Surplus/Deficit	
Classrooms	0	8,087	(8,087)	0	0	9,060	(9,060)	9,652	(9,652)	
Class Laboratories	0	11,384	(11,384)	0	0	12,680	(12,680)	13,470	(13,470)	
Open Laboratories	0	1,369	(1,369)	0	0	1,649	(1,649)	1,785	(1,785)	
Offices	3,382	6,500	(3,118)	3,382	0	6,815	(6,815)	7,235	(7,235)	
Library and Study	0	2,043	(2,043)	0	0	2,108	(2,108)	2,173	(2,173)	
General Use & Student Space	0	1,643	(1,643)	0	0	1,831	(1,831)	1,945	(1,945)	
Total	3,382	31,026	(27,644)	3,382	0	34,143	(34,143)	36,260	(36,260)	

College of Graduate Health Sciences Overall Space Needs by Space Type

COLLEGE OF HEALTH PROFESSIONS

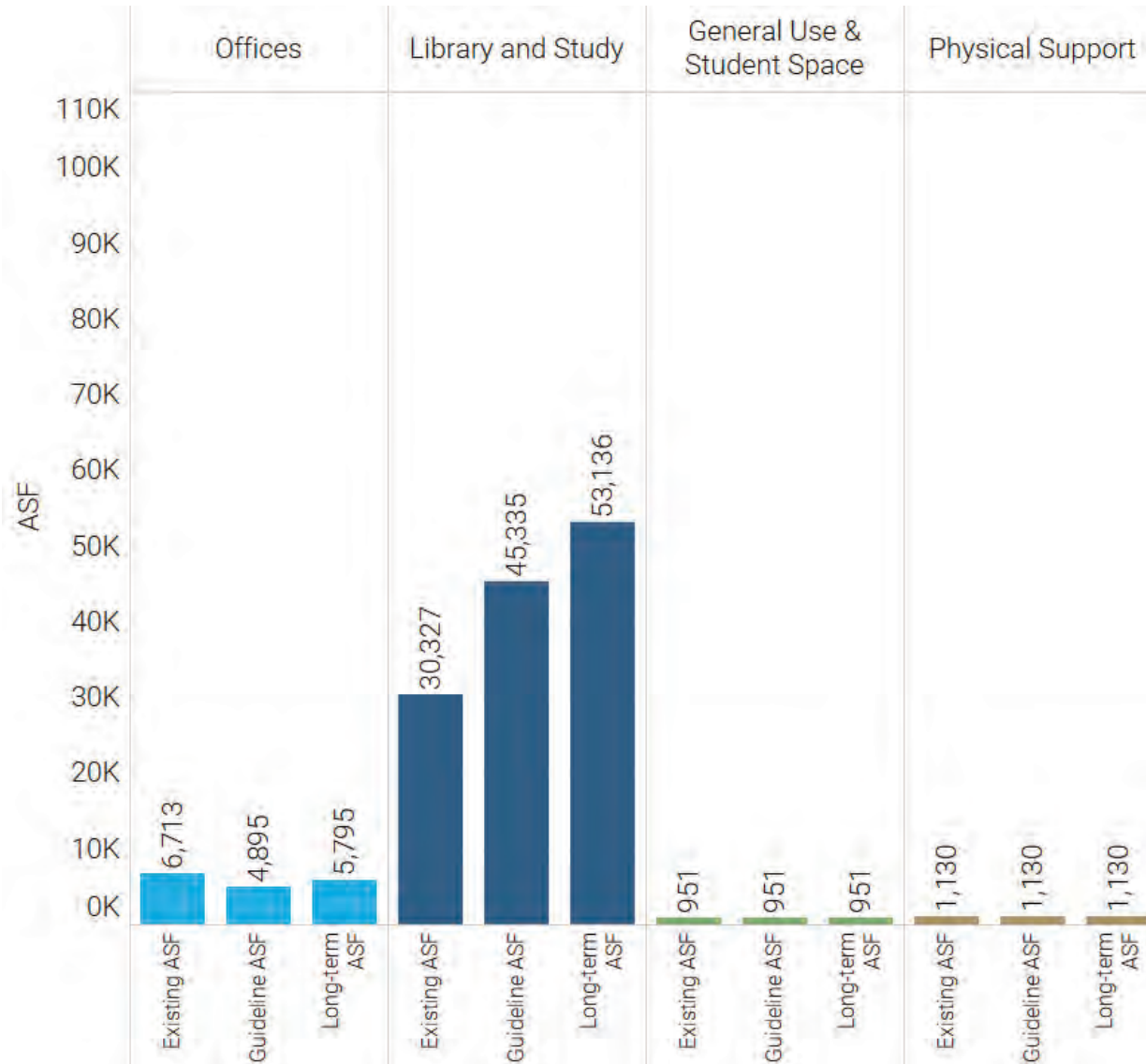


College of Health Professions Space Needs Analysis

College of Health Professions										
Space Type	Existing ASF	Guideline ASF	Surplus/Deficit	Future Existing	Post-Demo ASF	2023 ASF	2023 Surplus/Deficit	2028 ASF	2028 Surplus/Deficit	
Classrooms	5,856	12,544	(6,688)	5,856	0	22,874	(22,874)	26,522	(26,522)	
Class Laboratories	0	17,325	(17,325)	0	0	31,098	(31,098)	35,962	(35,962)	
Open Laboratories	0	2,084	(2,084)	0	0	2,510	(2,510)	2,717	(2,717)	
Research Laboratories	3,026	1,043	1,983	3,026	2,002	1,642	360	5,280	(3,278)	
Offices	15,651	17,735	(2,084)	15,651	13,518	19,205	(5,687)	20,315	(6,797)	
Library and Study	0	3,109	(3,109)	0	0	5,171	(5,171)	5,802	(5,802)	
General Use & Student Space	0	2,501	(2,501)	0	0	4,489	(4,489)	5,192	(5,192)	
Clinical and Health Care	2,775	6,000	(3,225)	2,775	514	6,720	(6,206)	7,440	(6,926)	
Total	27,308	62,341	(35,033)	27,308	16,034	93,709	(77,675)	109,230	(93,196)	

College of Health Professions Overall Space Needs by Space Type

LIBRARIES

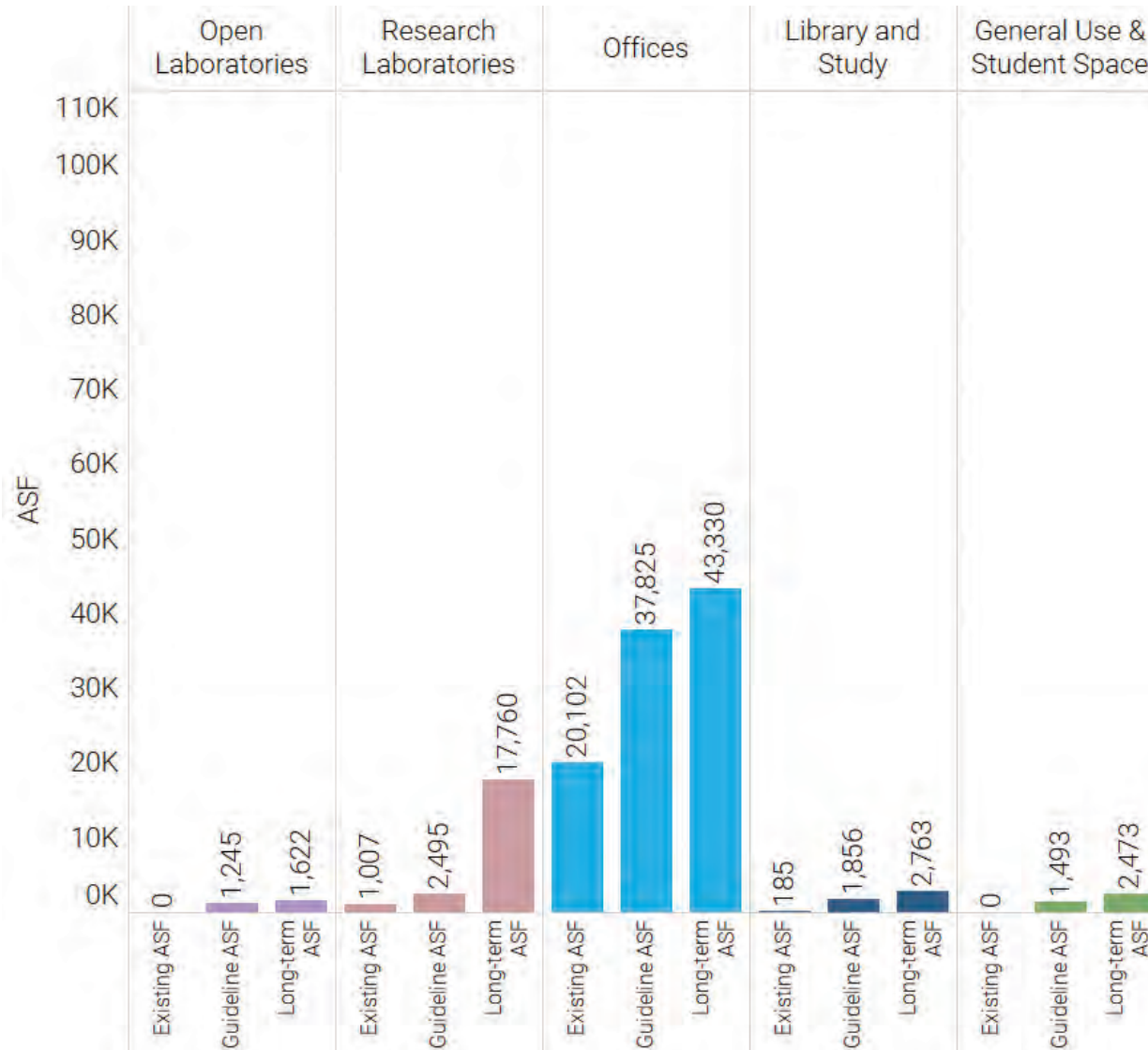


Libraries Space Needs Analysis

Libraries										
Space Type	Existing ASF	Guideline ASF	Surplus/Deficit	Future Existing ASF	Post-Demo ASF	2023 ASF	2023 Surplus/Deficit	2028 ASF	2028 Surplus/Deficit	
Classrooms	901	0	901	901	901	0	901	0	901	
Offices	6,713	4,895	1,818	6,713	5,922	5,345	577	5,795	127	
Library and Study	30,327	45,335	(15,008)	30,327	30,327	50,581	(20,254)	53,136	(22,809)	
General Use & Student Space	951	951	0	951	951	951	0	951	0	
Physical Support	1,130	1,130	0	1,130	1,130	1,130	0	1,130	0	
Total	40,022	52,311	(12,289)	40,022	39,231	58,007	(18,776)	61,012	(20,990)	

Libraries Overall Space Needs by Space Type

COLLEGE OF NURSING

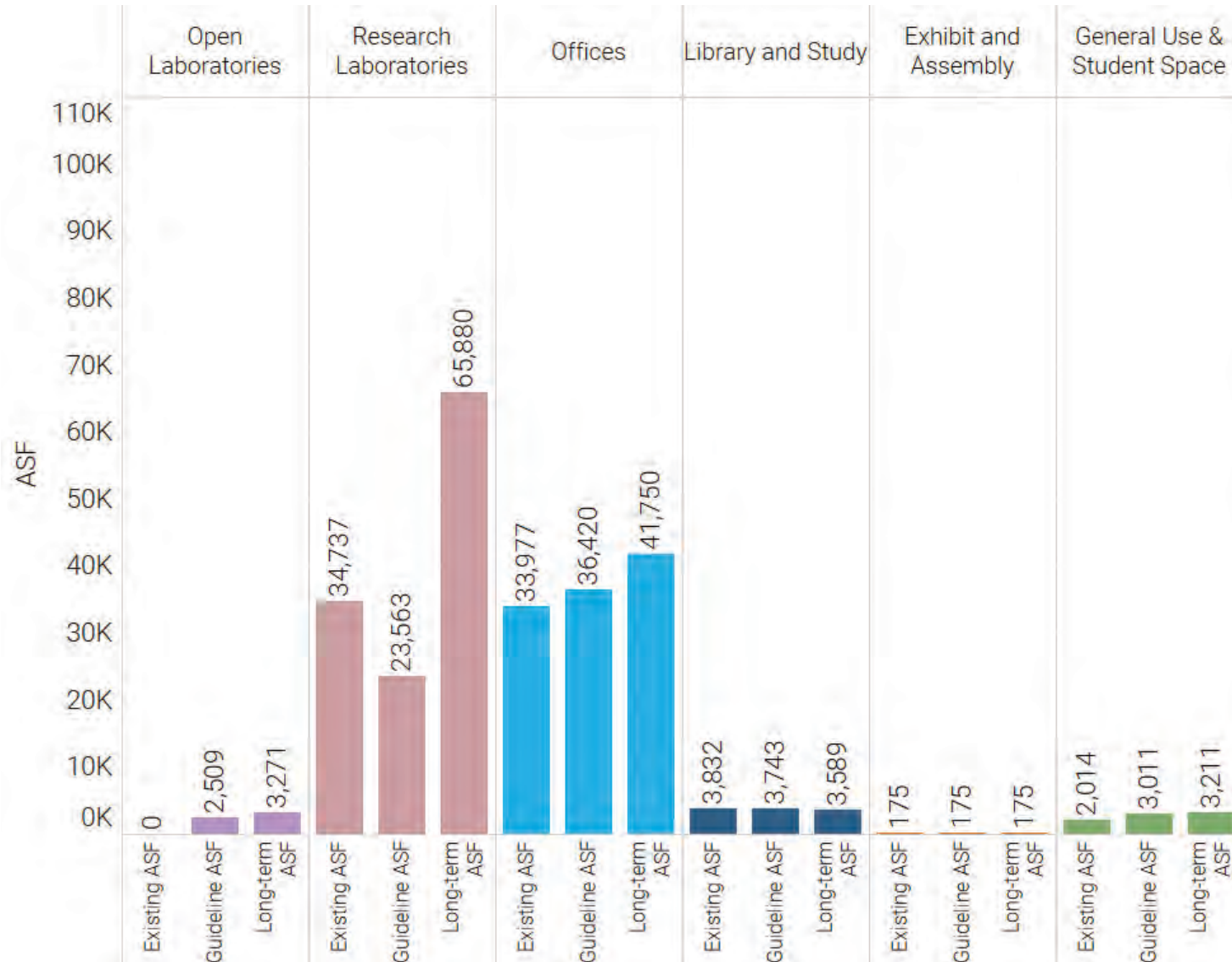


College of Nursing Space Needs Analysis

College of Nursing										
Space Type	Existing ASF	Guideline ASF	Surplus/Deficit	Future Existing ASF	Post-Demo ASF	2023 ASF	2023 Surplus/Deficit	2028 ASF	2028 Surplus/Deficit	
Classrooms	2,095	7,759	(5,664)	2,095	0	11,381	(11,381)	12,847	(12,847)	
Class Laboratories	0	10,345	(10,345)	0	0	15,175	(15,175)	17,129	(17,129)	
Open Laboratories	0	1,245	(1,245)	0	0	1,499	(1,499)	1,622	(1,622)	
Research Laboratories	1,007	2,495	(1,488)	2,932	2,932	3,930	(998)	17,760	(14,828)	
Offices	20,102	37,825	(17,723)	23,935	4,093	40,675	(36,582)	43,330	(39,237)	
Library and Study	185	1,856	(1,671)	1,685	1,500	2,523	(1,023)	2,763	(1,263)	
General Use & Student Space	0	1,493	(1,493)	3,050	3,050	2,191	859	2,473	577	
Total	23,389	63,018	(39,629)	33,697	11,575	77,374	(65,799)	97,924	(86,349)	

College of Nursing Overall Space Needs by Space Type

COLLEGE OF PHARMACY



College of Pharmacy Space Needs Analysis

College of Pharmacy										
Space Type	Existing ASF	Guideline ASF	Surplus/Deficit	Future Existing ASF	Post-Demo ASF	2023 ASF	2023 Surplus/Deficit	2028 ASF	2028 Surplus/Deficit	
Classrooms	13,667	15,642	(1,975)	13,667	13,667	16,059	(2,392)	16,682	(3,015)	
Class Laboratories	496	20,857	(20,361)	496	496	21,411	(20,915)	22,243	(21,747)	
Open Laboratories	0	2,509	(2,509)	0	0	3,021	(3,021)	3,271	(3,271)	
Research Laboratories	34,737	23,563	11,174	34,737	34,737	37,115	(2,378)	65,880	(31,143)	
Offices	33,977	36,420	(2,443)	33,977	33,977	39,150	(5,173)	41,750	(7,773)	
Library and Study	3,832	3,743	89	3,832	3,832	3,560	272	3,589	243	
Exhibit and Assembly	175	175	0	175	175	175	0	175	0	
General Use & Student Space	2,014	3,011	(997)	2,014	2,014	3,091	(1,077)	3,211	(1,197)	
Total	88,898	105,920	(17,022)	88,898	88,898	123,582	(34,684)	156,801	(67,903)	

College of Pharmacy Overall Space Needs by Space Type



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