5 | THE MASTER PLAN
MASTER PLAN PRINCIPLES

The physical Campus Master Plan is comprised of three components: the principles and themes, campus-wide systems and guidelines, and neighborhood recommendations.

The planning principles convey the intent, goals, and long-term values of the University. They are the most fixed and enduring elements. The planning principles were developed early in the process to test campus concepts and alternative scenarios for campus development. They represent ideas regarding campus enhancement, preservation, and opportunities to reinvigorate existing campus neighborhoods and districts. The planning principles for the Bloomington campus include:

- Respect the character of the historic core.
- Restore the Jordan River corridor.
- Define and enhance neighborhood edges.
- Create a compact, walkable campus.
- Increase and enhance gathering spaces.
- Introduce vertical integration.
- Preserve natural features and memorable open spaces.
- Sustainably manage physical and natural resources.
- Provide the infrastructure necessary to support campus growth and change.

KEY THEMES

These planning principles grew into five key themes that guided the detailed concepts and recommendations of the Campus Master Plan.

1. Promote Bloomington’s Unique Natural Features
2. Preserve and Reinvigorate the Core
3. Embrace the Jordan River
4. Commit to a Walkable Campus
5. Create Diverse Campus Neighborhoods

Theme 1 Recommendations

Indiana University is defined by a powerful and very special genius loci. As one of the most beautiful campuses in America, the grounds are dominated by a cathedral of trees and an abundance of spatial experiences. The richness of these experiences is defined in large part by the indigenous vegetation and unglaciated geology of south central Indiana. As a result, the campus enjoys unique topographic variety, habitat diversity, and an abundance of natural character. The campus has captured this natural heritage and developed a special vocabulary defined by its terrain and vegetation, and has emphasized the sympathetic development of buildings in response to this unique landscape context.

- Preserve natural features and memorable open spaces.
- Compose new spaces that respect the topography, native ecology, and viewsheds.
• Ensure that new architecture creates meaningful and appropriately scaled exterior spaces.
• Reconnect woods, streams, and other key habitat to larger regional preserves.
• Maintain a natural, informal landscape character across campus, balanced with the preservation of existing classical and romantic landscapes.
• Sustainably manage physical and natural resources.

2. Preserve and Reinvigorate the Core
One of the principal consequences of new space types is larger buildings. This phenomenon is not new to higher education or to Bloomington. This leaves smaller and older facilities searching for compatible uses and long-term functions. The Campus Master Plan recommends the conversion of certain facilities in the historic core back to their original use as student housing, and the return of the historic crescent and Dunn’s Woods areas of campus into a re-engaged learning environment. This can be accomplished by selectively replacing administrative functions with academic units and better woodland management. This strategic repurposing will energize the historic core with student life, activity, and academic purpose. The long-term consequences of this shift will help enliven the Indiana Memorial Union and repopulate the “original” quad of campus with an academic vitality closer to downtown Bloomington.

In addition to repurposing buildings, the renovation and construction of new academic buildings should create opportunities for greater interaction among students, faculty, and staff, across different disciplines and departments. Enhanced gathering spaces, both inside and outside of buildings, provide an alternative, informal learning environment just as critical as formal classrooms and labs.

Theme 2 Recommendations
• Respect the character of the historic core.
• Selectively re-introduce academic and residential functions into the core.
• Preserve and renovate historic buildings.
• Repurpose historic buildings with programs compatible with their size.
• Develop the Indiana Memorial Union as the social and cultural destination.
• Program and energize underutilized campus spaces and landscapes.
• Increase places for unprogrammed, social interaction within buildings and in the external campus environment.
3. Embrace the Jordan River
One of the more obvious and yet underutilized assets of the campus environs is the Jordan River. Named for past University president and ichthyologist David Starr Jordan, the Jordan River represents an opportunity for campus-wide rejuvenation. Although central to campus, the Jordan River is in poor quality in the upper watershed segments and some portions of the core campus.

One of the key recommendations of the Campus Master Plan is to emphasize the river corridor as an organizing element, a new front door, and focal point of sustainably managed resources. The river is also an important habitat connection and will be a continuous, wooded spine between Griffy Lake, the core of campus, and the city of Bloomington.

Theme 3 Recommendations
- Restore the Jordan River corridor.
- Use the Jordan River as a linear organizing element and front door for new facilities.
- Rebuild the river for habitat and a restored ecology.
- Mimic the best segments of the river and extend this vocabulary to poor quality areas.
- Enhance water quality with a continuous vegetative buffer and tree canopy.
- Route pedestrian paths, punctuated by outdoor spaces and access points, along its length.

4. Commit to a Walkable Campus
One of the most powerful ideas of the Campus Master Plan is to contract, or compress the campus closer to the core. Simply stated, it aims to develop a long-range strategy to relocate from the perimeter and repopulate the center. Until the mid 20th century, the campus maintained a unique spatial and pedestrian-centered environment. This vernacular was defined by human-scaled spaces, compact neighborhoods, and comfortable walking distances. As the Bloomington campus expanded following World War II, new patterns arose based on automobile travel distances. The principal consequence of this development was the consumption of acreage and campus “sprawl” out to the SR 45/46 Bypass. This led to a time and spatial inequality for those students residing in apartments at the perimeter of campus, and an increase in bus service and automobiles on campus. It also resulted in a lack of scale, pedestrian character, and walkability.

An important corollary of this commitment to a walkable campus is to replicate the density, character, and spatial order of the best elements of the historic core in underdeveloped areas of campus. This will positively affect the density, interaction, and quality of space for campus areas adjacent to the core.
5. Create Diverse Campus Neighborhoods
Diverse campus neighborhoods are integrated learning and living environments for faculty and students. They are places that blur the boundary between academics, housing, and recreation. Previous concepts in campus planning called for single-use zoning—isolating academic from residential precincts. Diverse campus neighborhoods are complete places where a variety of students of a variety of ages and interests can find a housing type to meet their needs. They are places where students can take classes within their residence hall or neighborhood; where they may find access to faculty; where they can study together, socialize, get coffee, or recreate; and where they can access student services and amenities. As Indiana University contemplates future academic, research, and residential life expansion, the success of the Campus Master Plan is contingent on developing such complete neighborhoods.

Theme 5 Recommendations
- Define and enhance campus neighborhoods and edges.
- Develop neighborhoods as complete living and learning environments.
- Combine academic, residence life, social, recreational, and community amenities.
- Introduce a mix of uses vertically within buildings and as adjacent uses within neighborhoods.
- Use the 5-minute walking radius (¼ mile or 1,250 feet) as a geographic delineation of a neighborhood.
- Increase and enhance gathering spaces.
- Maintain pedestrian movement as the primary transportation mode.
- Develop transit mechanisms to link other neighborhoods and campus-wide destinations.
The Illustrative Master Plan represents an ideal future campus configuration, translating the principles and key planning themes into a graphical representation. It illustrates opportunities for new development and provides a guide for growth, representing future building envelopes, their relative scale, and how they shape space. Specifically, the Illustrative Master Plan proposes the placement of new features such as opportunities for future buildings, roadways, open space, parking, and other facilities in relationship to existing campus facilities, roads, parking, and open space. Second, the Illustrative Master Plan introduces a spatial order between the physical elements of campus.

The Illustrative Master Plan is supported by the following series of recommendations for campus-wide systems:

- Sustainable Planning
- Campus Development
- Landscape Character
- Circulation and Parking
- Campus Infrastructure
- Architectural Guidelines

Recommendations are detailed for ten campus neighborhoods, with suggestions for future development, re-use, open space, infrastructure, and design guidelines at the neighborhood level. Campus Neighborhoods:

- Historic Core
- Seventh Street - Cultural District
- University Edge
- Jordan Avenue Corridor
- East of Jordan
- Woodlawn and Tenth Street
- Fee Lane Area
- Northeast Area
- Research Park
- Intercollegiate Athletics

As a planning document, the Illustrative Master Plan and its supporting graphics are most valuable when communicating the character and intent of the plan, rather than specific detail. This plan is not a final design, and the footprints shown will not be the final building configurations. At the Campus Master Plan altitude, specific college or departmental designations are not predetermined for proposed footprints. Taken collectively, the Illustrative Master Plan is intended to aid in short-, mid-, and long-term decision making. As political, administrative, and programmatic variables change, the Campus Master Plan needs to remain flexible. The fundamental function of the Campus Master Plan then, is to suggest a principle-driven framework for managing future opportunities.

**CAMPUS MASTER PLAN SUMMARY**

**STATISTICS**

<table>
<thead>
<tr>
<th>Proposed Use</th>
<th>Total GSF</th>
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<td>Total Proposed Facilities</td>
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<td>+ Academic, Support, Auxiliary</td>
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<tr>
<td>Total Future Housing</td>
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Building on the groundbreaking Campus Sustainability Report (January 7, 2008), this Campus Master Plan embeds sustainability throughout. The Campus Master Plan has focused on a purposeful and strategic incorporation of both quantitative and qualitative improvements to the setting of the academic mission, to promote a campus that manifests sustainable planning principles. Implicit in the plan is the goal of developing the campus as a learning environment where innovation is promoted, interpreted, and celebrated.

Overlaid on the key themes of the Campus Master Plan, the recommendations are grouped under several broad sustainable planning principles:

1. Adopt environmentally sensitive land use practices.
2. Move toward a carbon-neutral campus.
3. Ensure a range of transportation options.
4. Plan for innovative sustainable buildings and landscapes.

1. Adopt Environmentally Sensitive Land Use Practices.

“Through research, self-reporting, and adoption of environmentally sensitive land-use practices we seek to help IUB use resources sustainably and improve environmental quality and to protect the health of citizens on campus, in Bloomington, and beyond.”

—“Environmental Quality and Land Use,” Campus Sustainability Report, 2008

Building on the extraordinary environmental quality of the Bloomington campus, the Campus Master Plan increases the campus area dedicated to quality habitat—woodland, stream, and meadow. Tree cover is increased from 20 to 40 percent of the campus area. By strategically consolidating the location of residential and student recreational areas, pedestrian activity and transit ridership is promoted and the quality of student life enhanced. The Jordan River corridor is enhanced and reconceived as the central piece in an on-campus biological stormwater treatment and flood accommodation system.
Sustainability Principle 1 Recommendations

- Enhance and protect existing woodlands—Dunn's Woods, Bryan Hollow, and the Research and Teaching Preserve.
- Expand and connect existing woodland fragments outside the campus core.
- Protect existing ephemeral streams; restore subsurface hydrology and seasonal flow.
- Eliminate invasive species and control non-native, non-invasive species.
- Promote an increase in native landscaping, including restoration of riparian vegetation, no-mow zones, and forested areas.
- Decrease use of hazardous lawn chemicals, pesticides, and fertilizer wherever possible.
- Implement Integrated Pest Management in both outdoor and indoor environments, wherever possible.
- Locate opportunities for community gardening, composting, and permaculture, with potential links for Residential Programs and Services and Indiana Memorial Union dining facilities.
- Capture and treat water where it falls or as close as possible.
- Release water from the campus at volumes no greater than that released by the site in its native state.
- Allow the Jordan River and its tributaries to flood in controlled areas upstream.
- Establish or enhance vegetated buffers for the Jordan River.
- Protect and restore aquatic habitat on the Jordan River and its tributaries.
- Create wetlands within stream corridors for habitat and flood control.
- Diversify uses throughout the campus to encourage walking and increase quality of life.
- Increase density of academic and cultural uses along the East Seventh Street corridor.
- Create academic and residential campus quads between East Tenth Street and the railroad tracks and between North Jordan Avenue and North Union Street.
- Steadily move uses south and west from the northeast portion of campus and create/reinforce woodland, stream corridor, and meadow habitats and community gardens.
• Create recreation fields convenient to residential uses.
• Create residential neighborhoods centered on green space and amenities.
• Reinforce existing campus pedestrian routes through additional academic and residential buildings, campus amenities, and site amenities.
• Mix academic, residential, recreational, student services, cultural, and administrative uses throughout campus.

2. Move Toward a Carbon-Neutral Campus.

“To raise awareness of IUB’s energy use among faculty, staff, and students and implement strategies to maximize the efficiency of on-campus production and distribution systems as well as reduce energy consumption and greenhouse gas emissions.” —“Energy,” Campus Sustainability Report, 2008

The Campus Master Plan proposes a number of pathways that could lead to a significant reduction in greenhouse gas emissions up to 80 percent by the year 2050. It identifies strategies that, if fully implemented, would result in a 30 percent reduction in carbon emissions by 2020, even while increasing the built area by 25 percent. As an example, this is consistent with targets established by the American College and University Presidents Climate Commitment (ACUPCC). The emissions addressed here result from the use of electricity and the generation of steam and chilled water. The University may wish to address the full range of emissions related to travel, commuting, and procurement through the evolution of other policies.

Sustainability Principle 2 Recommendations

• Use carbon emissions as a metric to measure future energy production and use efficiency.
• Diversify energy sources to anticipate unpredictable futures (availability, regulation, and cost).
• Anticipate solar thermal applications in the design of buildings and systems.
• Investigate biomass fuel opportunities leveraging regional agricultural wastes or University-owned woodland management.
• Plan to co-generate electricity while making steam or chilled water.

• Identify disproportionately high energy users to prioritize investments in energy efficiency.
• Set payback parameters to qualify energy efficiency initiatives.
• Reduce the energy requirements for computer servers by consolidation and virtualization into space designed for Data Center use.
• Improve the energy efficiency for the Data Center through layout best practice, temperature control, and improved cooling technologies.
1 The data supporting this number are discussed in 44,000 miles from campus. Assuming those parking permits from IUB live cumulatively environmental footprint. The employees purchasing a significant contributor to the university’s environmental footprint.

3. Ensure a Range of Transportation Options.

“To promote a sustainable transportation system that will provide safe access and mobility for students, faculty, staff and visitors, and to ensure that individuals have a broad range of safe and convenient transportation options to walk, bicycle, carpool, or ride public transit to and around campus.”

—“Transportation,” Campus Sustainability Report, 2008

While 90 percent of undergraduate students, 75 percent of graduate students, and 57 percent of faculty live within 3 miles of campus, almost half of all campus users drive to campus alone each day. In addition, significant numbers of students move their cars during the day. This suggests that walking and riding city or campus public transit are not sufficiently convenient. The Campus Master Plan identifies land use changes to consolidate diverse campus uses within easy walking distance and reorganizes some of the critical routes through campus to increase convenience and safety.

• Establish campus-wide standards for equipment efficiencies (computers and office equipment, food service equipment, and lab equipment).
• Investigate funding and financing tools to reward/monetize emissions reduction.
• Improve energy efficiency in new construction by 30 to 50 percent over the baseline.
• Install occupancy sensors and more efficient lighting in new and existing buildings.
• Optimize laboratory energy use with high-efficiency fume hoods.
• Renovate 10 percent of existing buildings to improve energy efficiency by 26 percent over the baseline.
• Retrofit commission the remaining existing buildings to optimize performance.
• Continue to repair the steam distribution system to reduce losses.
• Purchase green power to accelerate the progress towards carbon neutrality.
Sustainability Principle 3 Recommendations

- Increase the use of lower impact modes of transportation in lieu of reliance on single-occupancy vehicles.
- Create pedestrian and bicycle priority on campus.
- Organize transit routes and select vehicles for short headways and passenger convenience.
- Reinforce inter-system connectivity with Bloomington Transit, and make the transfer between systems seamless and convenient.
- Plan and advocate for potential future regional passenger rail service and locate a future station to support campus circulation patterns.
- Increase density of central campus land use to increase pedestrian connectivity.
- Develop new buildings and pathways along the Jordan River to reinforce desirable pedestrian routes.
- Develop new separate and safe bike routes and furnish covered and protected bike racks liberally throughout the campus.
- Develop grade-separated railroad crossings for bicycles and pedestrians.
- Provide retail and service opportunities relevant to the several distinct on-campus populations to encourage the meeting of day-to-day needs on foot.
- Create a safe and convenient pedestrian and bicycle crossing at East Tenth Street and the SR 45/46 Bypass.
- Create vehicular east-west cross-campus alternatives to East Tenth Street away from the campus core.
- Concentrate new residential uses south of the railroad tracks and along North Fee Lane.
- Leverage available sites within the campus core and between East Tenth Street and the railroad tracks for new academic uses.
- Locate new parking to intercept traffic at the campus edge to reduce internal traffic and the need for shuttles.
- Develop and implement Transportation Demand Management strategies to reduce future parking demand—parking pricing, bicycle sharing, marketing for carpooling and Guaranteed Ride Home programs, and car-sharing.

“To promote campus sustainability through innovative building design and engineering principles that promote functionality, safety, and energy efficiency while respecting campus culture and heritage.”

—“Built Environment,” Campus Sustainability Report, 2008

By 2020, the Campus Master Plan anticipates that a significant number of existing buildings will be renovated, over 3 million gross square feet (GSF) of new buildings will be constructed, and a number of older, inefficient buildings will be demolished. This is an ideal time to establish standards of sustainable design to guide this new development. The University has set LEED® Silver certification as its benchmark. In addition, the Campus Master Plan outlines strategies to build on the significant past water conservation initiatives to further reduce potable water use by 50 percent over today’s use, even while increasing the overall built square footage on campus.

**Sustainability Principle 4 Recommendations**

- Design buildings for daylight harvesting without unwanted heat gain or glare.
- Orient (and pitch) roofs for solar thermal and photovoltaic applications (immediate or future).
- Site buildings for microclimate characteristics such as cooling summer breezes, protection against winter winds, sunlight, and shade.
- Site vegetative and landscaping features to create beneficial local microclimates to minimize energy and water usage in campus buildings.
- Install meters to create a thorough database of existing campus building energy (electricity, chilled water, and steam) and water use.
- Use efficient plumbing fixtures in new construction.
- Retrofit existing plumbing fixtures, especially in residential facilities.
- Consider graywater capture and re-use in new construction.
- Systematically identify and remedy leaks.
- Meter water use at each building.
- Decrease impervious land cover in the site development associated with new construction.
FUTURE LAND USE

The Campus Master Plan proposes a future campus that is invigorated by multiple-use districts and buildings, woven together through increased connectivity. The Campus Master Plan promotes flexibility and a mixing of programs, disciplines, and campus uses within neighborhoods and vertically within buildings. Campus neighborhoods will have a principal use, but will also contain other secondary uses to encourage a more diverse neighborhood population, as well as more activities and pedestrian life on the campus.

Core academic uses will continue to be clustered in and around the historic core, with expansion east of North Jordan Avenue and moving up North Woodlawn Avenue to the area north of East Tenth Street. Core academic uses will also include cultural and performance facilities, recreational uses, residence life, administrative functions, and special resources such as the Wells Library and the Indiana Memorial Union.

Residential neighborhoods are encouraged to incorporate more activity and learning environments, with classrooms integrated into neighborhoods and residential halls. Enhanced gathering spaces, student services, and amenities are also encouraged within campus neighborhoods.

Land in the north and northeast areas of campus will be principally used for athletics and recreational sports. These functions are proposed with secondary uses of classroom space, meeting space, retail, and gathering space.

Private and joint venture research and technology uses are proposed at the Research Park and on select sites along the SR 45/46 Bypass.

**LAND USE RECOMMENDATIONS**

- **Diversify uses inside the historic core with new residential, a repurposed Indiana Memorial Union, expanded recreation opportunities at Wildermuth Intramural Center, and informal study and gathering spaces within buildings.**
- **Restore the University Courts neighborhood to a predominantly residential neighborhood.**
- **Blend current on-campus residential zones with new academic, academic support, student services, and shared amenities.**
- **Improve Woodlawn Field and consolidate displaced recreational sports to a more centrally located area on campus, adjacent to the Student Recreational Sports Center.**
- **Establish new private technology and research company sites on the bypass.**
- **Consolidate the Athletics campus on the north side of campus.**
- **Pursue mixed-use, public/private partnerships on campus edges at North Indiana Avenue and on East Tenth Street at North Union Street.**
- **Enhance the East Seventh Street corridor as a combination of academic, cultural, recreational, and commercial uses at the heart of campus.**
FUTURE DENSITY AND FAR

A comfortable density, along with a mix of uses, creates vibrant campuses. The historic core of Indiana University Bloomington (IUB) has one of the highest Floor Area Ratios (FAR) of the campus districts, yet its collection of historic buildings and pockets of open space creates a unique and beautiful college campus. The Campus Master Plan minimizes new development in the historic core, with only a handful of sites targeted for additions and repurposing. The density of the historic core is used as a model for the development of new campus academic and residential neighborhoods.

New residential and academic buildings are proposed as infill to increase the density east and north of the campus core. New residential buildings planned with new quad and courtyard spaces are modeled after the tradition and scale of great residential quads of other universities.

DENSITY AND FAR RECOMMENDATIONS

- Complete limited building additions and select new construction within the historic core while maintaining its overall density.
- Develop a compact academic district north of East Tenth Street along North Woodlawn Avenue.
- Increase the variety of uses and density for the north and east areas of campus.
- Reflect the density and scale of East Kirkwood Avenue and North Indiana Avenue for new mixed-use development at the campus edges.
- Increase the density of the retail and commercial environment on East Tenth Street and North Union Street.
- Maintain a 4- to 6-story building height for the majority of campus (refer to the Architectural Guidelines).
Proposed FAR Density Summary

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<tr>
<th>District</th>
<th>Existing FAR</th>
<th>Proposed FAR</th>
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<td>Greek Housing</td>
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PROPOSED DENSITY

Scale: 0-1800 feet
CURRENT CAPITAL PROJECTS

Current capital projects include those projects that are under construction and projects in the planning and design stage at the time of this report. The range of current capital projects represents the University’s commitment and support to the sciences, arts and humanities, research, and enhanced student life. The University has almost 1 million GSF under construction or nearing completion, and another ½ million GSF in the planning, programming, or design stages. In addition, the University has requested funding to support approximately one new research facility every other year for the next 10 years for the Bloomington campus. At an average 200,000 GSF, that will amount to 1 million GSF of new science and research facilities within the programming horizon of this Campus Master Plan.

The following tables and map describe the approved projects under construction or in the planning and design process, their location, and size.

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<th>PROJECTS IN PLANNING AND DESIGN</th>
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503,000

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904,076
DEMOlITION CANDIDATES

There are four broad categories of demolition candidates proposed in the Campus Master Plan: the University School area east of the bypass; older residential buildings on North Union Street north of the tracks; demolition and repurposing of two garage sites in the academic core; and demolition of smaller structures to accommodate future academic expansion north of East Tenth Street along the North Woodlawn Avenue corridor.

Outdated residential buildings north of the railroad tracks are proposed to be removed over time in order to consolidate on-campus housing in neighborhoods closer to the academic core. Phasing of this demolition must be coordinated with construction of replacement housing units elsewhere on campus.

The following table and map show the location and size of each facility proposed for demolition.

## Academic and Support Demolition Candidates

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<th>IUB BLD. #</th>
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## Residential Demolition Candidates

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RENOVATION CANDIDATES

The University has evaluated the condition of its buildings and identified a range of facilities that are in need of minor, moderate, or major renovations. The majority of facilities that will need moderate or major remodeling are located within the historic core and include the Indiana Memorial Union, Swain Hall West, Owen Hall, Kirkwood Hall, Goodbody Hall, and Merrill Hall. The Geological Sciences building on East Tenth Street is another academic facility in need of major renovation. Retaining and renovating these campus assets and historic structures are key parts of the Campus Master Plan and part of the vision to reinvigorate the historic core. A second category of facilities will require remodeling to upgrade their adequacy for academic use, including Franklin Hall, Jordan Hall, and Ballantine Hall. Remodelling will be needed to convert Eigenmann Hall from residential to office, support, and research uses. In the long term (15-20 years), Tulip Tree Apartments are recommended for conversion and remodeling to office/mixed-use.

Facilities will always need to adapt to new trends in higher education. The Wells Library is an excellent example of how Indiana University has re-imagined the concept of a library for the 21st century. IUB has re-energized the Wells Library with interactive student spaces such as the Information Commons and the Research Commons, host to the new Institute for Digital Arts and Humanities. These areas form dynamic, collaborative environments that meet students’ technological and group study needs.

The University has also planned the renovation of several of its residential halls to transform them into more modern living arrangements. These include Briscoe, Forest, Read, and Teter residential halls.

The following table and map list the facilities proposed for renovation.

<table>
<thead>
<tr>
<th>Academic and Support Renovation Candidates</th>
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<tbody>
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<td><strong>Building Name</strong></td>
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<td>Lindley Hall</td>
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</tr>
<tr>
<td>Poplars</td>
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<tr>
<td>Forest</td>
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<td>Teter</td>
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<tr>
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<td>Eigenmann</td>
</tr>
<tr>
<td>Tulip Tree</td>
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<tr>
<td><strong>Total</strong></td>
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CAMPUS DEVELOPMENT

THE MASTER PLAN

RENOVATION CANDIDATES

- Residential Renovation Candidates
- Academic and Support Renovation Candidates

Legend:
- 0
- 01
- 02
- 03
- 04
- 05
- 06
- 07
- 08
- 09
- 10
- 11
- 12
- 13
- 14

- E 17th St
- E 10th St
- E 3rd St
- N Jordan Ave
- SR 45/46 Bypass
- E 3rd St
- N Fee Ln

Scale:
- 0
- 600
- 1200
- 1800
- Feet
FUTURE ACADEMIC AND SUPPORT GROWTH

The Campus Master Plan suggests a number of future building footprints to accommodate the proposed program for academic, academic support, auxiliary services, special uses, athletics, and recreational sports facilities. The plan represents over 4 million GSF of new development, additions, and replacement facilities. The majority of new development sites shown are south of the railroad tracks, to maintain a compact, walkable campus and fill in “character gaps” on underutilized parts of campus.

A future Assembly Hall replacement and all future Research Park development is shown on the plan, but not counted in the 4 million GSF of new development, additions, and replacement facilities.
RESIDENCE LIFE GROWTH

Indiana University has made a commitment to update its on-campus housing and residential life, in order to continue attracting and retaining students. The University has begun an aggressive campaign to convert older traditional dorm rooms into more modern suite-style units, and will add new apartments with amenities to bring its housing stock into better alignment with student and market demands.

Proposed On-Campus Housing Breakdown

<table>
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<tr>
<th>Housing Type</th>
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<tr>
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<tr>
<td>Suite-Style Units</td>
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<tr>
<td>Apartments</td>
<td>2,640</td>
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<td><strong>Grand Total</strong></td>
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Implementation of this mix will result in a decline of 1,820 traditional dorm beds, and an increase of 1,200 and 620 suite-style and apartment beds, respectively. The University has committed to maintaining 12,500 beds, or approximately 30 percent of its student population on campus.
As of this writing, the national average for residence halls is 333 GSF/bed. In general, traditional housing requires the least square footage per bed, falling in the range of 250-275 GSF/bed. Suite-style housing requires more space per student for common amenities and generally totals 300-325 GSF/bed. Finally, apartment-style units require the most space per student, totaling 400-plus GSF per bed.

For Campus Master Plan purposes, a median of 350-400 GSF per bed has been applied to the 2,050-bed demand. Translating the number and type of residential beds proposed in the Campus Master Plan into GSF of space results in a range of 717,500 to 820,000 GSF.

More Housing Choice on Campus
The Campus Master Plan proposes construction of more multi-age, multi-use neighborhoods closer to the academic core. More integrated living-learning environments (mixing residences with classroom space and services) and smaller scale housing for special interest groups are also part of the proposed mix. Goodbody, Memorial, Morrison, and Sycamore Halls (Wells Quad) are proposed for conversion back to residential use, bringing student life closer to the Indiana Memorial Union and the historic core.

A number of the apartment buildings north of East Law Lane on North Union Street are in need of major renovation or are designated to be replaced. It is recommended that these units be replaced and moved closer to the campus core over time in more complete neighborhoods, rather than renovated.

Depending on the density and final program of new residential units, the Campus Master Plan shows a reserve for future housing units/beds beyond the target year and count. Some of these locations could be developed as a public/private partnership.
**Residence Life Recommendations**

- Reduce the number of traditional dorm units and increase suite-style rooms and apartments on campus.
- Build new housing stock and a variety of housing types on North Walnut Grove and North Fee Lane to bring a more diverse mix of students to that neighborhood.
- Gradually relocate and remove out-of-date housing and apartments north of the Student Recreational Sports Center.
- Convert Wells Quad back to residential use in the historic core.
- Develop special interest or program houses as part of the new residential neighborhoods near Jones Avenue and South Rose Avenue.
- Develop a new living-learning community modeled after Collins Quad on North Woodlawn Avenue and East Eighth Street.
- Build new housing (possibly as a private partnership) on North Indiana Avenue north of East Tenth Street.
- Replace the traditional dorm housing east of North Sunrise Drive over the long term.

- Consider development of artists' studios and lofts with potential Fine Arts programs on the McCalla School site.
- Construct residential units (possibly as a private partnership) with new mixed-use projects on North Indiana Avenue and on East Tenth Street at North Union Street.
- Move residential beds out of Eigenmann Hall and repurpose it for office and research uses.
- Repurpose Tulip Tree Apartments in the long term for future office/mixed-use related to the Research Park.

**Future Residence Life**

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The Master Plan

Future Residence Life Growth

- Residential Buildings

Legend:

- 0 600 1200 1800 Feet

Legend:

- Residential Buildings

Legend:

- 0 600 1200 1800 Feet
ENHANCED GATHERING SPACES

“Coffee shops, bookstores, films, and little restaurants are as vital to the process of education and personal growth as labs and exams. Without them, the university is not a complete educational milieu.”

— Christopher Alexander, A Pattern Language

At the campus level, there are special use and recreational facilities that act as gathering spaces for the whole campus community, such as the Indiana Memorial Union (IMU), Wells Library, and the Student Recreational Sports Center. These facilities already provide a variety of activities, food service, and social spaces. The next tier of organized social spaces with activity and food options are the dining halls within individual residence buildings, serving the population of that building or residence quad. A middle layer is missing, which can provide social and gathering spaces at the neighborhood level. These neighborhood spaces will create opportunities for residents, students, faculty, researchers, and staff from the neighborhood to cross paths and interact.

The program for the IUB campus calls for 40,000 GSF of additional retail and enhanced gathering spaces on campus. These changes will meet two objectives: (1) reinforce the heart of campus, and (2) strengthen campus neighborhoods and connect them to the campus core.

Reinforce the Heart of Campus
The main focus for a critical mass of gathering spaces and amenities should be located near and in the IMU. As the highest traffic area of campus, the IMU is where the greatest concentration and diversity of campus users currently intermingle. The East Seventh Street corridor from the IMU to the Auditorium is the nexus of student, visitor, and cultural life on campus, akin to an “academic Main Street.” Wherever possible, these uses should be strategically located for visibility, comfort, and convenience, with outdoor terraces and seating, in an open, pedestrian-friendly streetscape environment.

Campus “Neighborhood” Opportunities
The Campus Master Plan organizes the campus as a series of interlocking neighborhoods defined loosely by a 5-minute walking radius from the center of the neighborhood. Each neighborhood will also contain a neighborhood “commons,” with a range of food offerings, coffee, possible retail, student services, and recreational activities. Neighborhood commons are proposed at roughly the geographic center of each neighborhood, and are located on primary pedestrian routes that lead back to the campus core.

As a third tier of amenities, social spaces within major academic buildings that provide informal seating and small food carts or kiosks will also enhance interaction among undergraduates, graduates, and faculty, and encourage interaction between departments. Programming smaller initiatives that bring people together will also build stronger ties to the campus and its neighborhoods.

As the University evaluates its approach to food service and amenities on campus, consideration should be given to expanding the current on-campus offerings by including businesses run by local, independent operators with a history of quality and success. An expanded use of meal points and campus access card discount systems will support such local businesses and allow greater flexibility and a higher quality experience for students.

ENHANCED GATHERING SPACE RECOMMENDATIONS
• Renovate the IMU and its immediate environs, and add up to 18,000 to 24,000 square feet of more accessible, visible retail and gathering spaces.
• Develop neighborhood commons for each campus neighborhood, with a range of services, retail, and food options, up to a collective total of approximately 16,000 square feet.
• Redevelop the commercial and retail center at East Tenth Street and North Union Street into a more urban, mixed-use and retail environment.
CAMPUS DEVELOPMENT

THE MASTER PLAN

CAMPUS GATHERING SPACES

- New Gathering Space Opportunities
- Existing Gathering Space

5-minute walking radius

Outdoor Gathering Space
LANDSCAPE CHARACTER

“I hope our alumni will always insist upon retention of our precious islands of green and serenity—our most important physical asset, transcending even classrooms, libraries, and laboratories in their ability to inspire students to dream long dreams of future usefulness and achievement—dreams that are an important and essential part of the undergraduate experience.”
—Herman B Wells, Address to the Alumni, 1962

The IUB campus provides a unique opportunity to work with quality natural systems and memorable outdoor spaces. Based on the planning principles, the Campus Master Plan calls for the preservation and sustainable management of natural features; the restoration of riparian corridors on campus; the creation of new memorable spaces; improvements to campus edges and gateways; and the enhancement of the pedestrian realm.

CAMPUS LANDSCAPE AND OPEN SPACE

At the largest scale, the campus can be viewed as an arboretum; it is a “green matrix” that forms the environmental framework of the campus and ties it to the larger region. As part of a regional ecosystem, the landscape should read as one coherent landscape unit across campus, with a diversity of human and natural micro-habitats within. As an ecological arboretum, the campus landscape should reflect a greater biodiversity of tree and herbaceous species on campus, improved woodland management, and restoration of degraded landscapes. The campus arboretum can also provide student learning and research opportunities, offering an immense educational value in support of the University’s sustainability goals for environmental quality and land use.

The current percentage of tree canopy to land area is 20 percent within the SR 45/46 Bypass. The Campus Master Plan recommends doubling the percentage of tree cover on campus to 40 percent. At this level and density of tree cover, the campus will reap numerous environmental benefits. Air pollution removal will increase from 19,720 pounds per year to 41,414 pounds per year. Carbon storage and sequestration will more than double, increasing from 9,333 total tons stored annually to 19,600 tons stored, and from 73 total tons sequestered annually to 153 total tons sequestered. Stormwater runoff will be reduced, decreasing the amount of silt and pollutants that enter into the Jordan River and Cascade Creek. In fact, doubling the tree canopy on campus will save $2.3 million that would be spent building alternatively necessary stormwater detention facilities. Increasing the tree canopy on campus is a long-term investment in the future, and depending on the availability and pace of funding, may take 20 years or more to accomplish. As part of this investment, additional resources and staff (including urban foresters) will be needed to maintain and sustain tree growth and health on campus.

The IUB campus has a historic landscape structure and specific elements that were established by Fritz Loonsten in the 20th century. Many of these landscape plantings have passed their peak maturity and condition, and need a
strategy for replacement. It is recommended that the University conduct a more detailed landscape master plan and maintenance plan to guide the quality of future landscape design and its long-term care and succession.

New tree canopy along the Jordan River will connect the woodland habitats of Dunn’s Woods and Bryan Hollow through campus to the East Seventeenth Street woods and beyond, creating a continuous wildlife corridor connected to the woods and natural environment of Griffy Lake. Expansion of the East Seventeenth Street woods and improved forest management to eradicate invasive species will also provide additional habitat.

**Campus Landscape and Open Space Recommendations**

- Increase the tree cover from 20 percent to 40 percent on campus within the bypass.
- Establish source funding to support additional staff for tree maintenance and woodland management required to maintain increased tree cover.
- Increase tree plantings along the riparian corridors on campus.
- Increase tree plantings in future and renovated campus open spaces and quads.
- Increase tree plantings in street rights-of-way and parking lots.
- Expand existing woodland boundaries, and plant smaller trees and whips of similar species composition within woodland expansion zones.
- Establish a broader no-mow zone to define the woodland expansion zone, and plant with a native seed mix to gradually replace existing lawn.
- Implement an invasive species eradication plan for existing woods.
- Reduce the amount of open, mowed lawn in select areas of low pedestrian traffic and plant native seed mixes.
- In areas with full or partial tree canopy over existing grass, utilize native species as ground cover for those sections with minimal pedestrian traffic.
- Implement a landscape maintenance and tree management plan for the IUB campus.
EXISTING TREE CANOPY: 20.4%  

PROPOSED TREE CANOPY: 40.0%
LANDSCAPE CHARACTER

142

RIPARIAN CORRIDORS

Preservation and restoration of the Jordan River and other riparian corridors on campus has been a key theme of the Campus Master Plan and is one of the nine planning principles. The 2008 Campus Sustainability Report recommends improvements to the Jordan River corridor as part of the watershed protection projects. The Campus Master Plan proposes improvements and interventions along the Jordan River and riparian corridors in order to better slow and handle storm events and treat water quality, including the creation of new wetlands in line and adjacent to the streams.

A vegetated buffer of trees, shrubs, and native herbaceous plants is proposed along both sides of the Jordan River and Cascade Creek to slow the flow of surface runoff and to trap pollutants, silt, and nutrients. The buffers will also contain small impoundments and wetlands for additional water storage, filtration, and groundwater recharge, while providing habitat for wildlife. Slowing runoff, planting, and regrading stream banks will also reduce bank sloughing and erosion.

RIPARIAN CORRIDOR RECOMMENDATIONS

- Establish a 50-foot-wide riparian buffer on each side of the stream, planted with native species of trees, shrubs, and herbaceous plants to filter runoff. Prohibit mowing in this zone.
- Plant trees to establish a consistent canopy and shade over stream banks, within and at the edges of the riparian buffer zone.
- Regrade stream banks within the buffer zones to a more gradual slope to reduce erosion.
- Utilize stone and bioengineering techniques such as deep-rooted plants, live stakings, logs, and other techniques to stabilize the toe of slope.
- Create areas of impoundment and new wetlands within the riparian buffer zone through a series of check dams across the streams.
- Create a lower channel within the stream cross-section and check dams to maintain stream flow in low water conditions.
- Plant constructed wetlands with appropriate, native plants and shrubs, and include tree snags, stumps, logs, etc., for habitat.
- Create access points and overlook areas along the stream corridor to allow visual and physical access to the river at carefully designed locations.
- Implement a consistent riparian corridor landscape and management plan for all streams and springs on campus.
Jordan River Stream Flow in Low Water Condition

Jordan River Restoration Impoundments in High Water Condition

Proposed Jordan River Check Dam
NEW MEMORABLE SPACES

“A place made of many smaller places, the heart of the campus has been created as a series of courtyards, some formal, some open. The campus is not seen from any one place but reveals itself gradually as a progression of changing outlooks, leading through narrowing and widening vistas that attract the eye and soothe the spirit.”

— Islands of Green and Serenity: The Courtyards of Indiana University

The Campus Master Plan identifies a number of new memorable spaces that will be created over time. Large campus open spaces and new or renovated quads are proposed to address the current “character gaps” in the landscape fabric. Future outdoor social and gathering spaces are proposed at important pedestrian crossroads, intended as active public spaces that flow seamlessly between buildings and the outdoors.

Future landscape design should reflect and harmonize with existing natural features and character. New development should be sensitive to existing topography and vegetation, allowing the natural landscape to shape the aesthetic experience.

The Godfrey Graduate and Executive Education Center enjoys a newer landscaped quad with several of these qualities. Multidisciplinary Science Building II completes the quad’s fourth side, making it an enclosed space. The quad has a number of different entry points, although the length of some portals are much longer than entry portals for Wells or Collins Quads. Its spatial proportion is 1:2 of vertical height to width of space. It lacks the mature landscape and topographic relief that gives Wells Quad so much of its landscape character, a quality that will be improved over time.
NEW MEMORABLE SPACES

One-of-a-Kind Places
1. New Campus Green
2. Woodland Arboretum + Cascade Lake
3. Woodlawn Corridor + Alumni Walk

Quads
4. Research Park Quad
5. Academic Quads
6. Residential Quads
7. Renovated Quads

Social Spaces
8. Alumni Plaza
9. Union Plaza
10. Jordan River Terrace
11. Tenth Street Plaza
The design of future outdoor spaces should model the principles of spatial enclosure, proportion, and materiality derived from the positive attributes of existing quality spaces on campus. The successful quads and courtyards, such as Collins and Wells Quads, share common attributes, including:

- Semi-enclosed space (enclosed on at least three sides), but with many entry points.
- Subtly dramatic entry sequences and change in scale, where one enters through a narrow portal into a broad open space.
- Strong sense of spatial definition (typically a range of 1:2 to 1:4 proportion of architectural height to horizontal width of the space).
- The use of topographic relief to break up views and create a series of smaller terraces within the bigger space.
- Orientation of major building entrances toward the quad.
- Consistent use of stone and hardscape compatible with the surrounding architectural design and use of limestone.
- A mature and simple landscape palette of canopy trees, native understory trees, and a restrained use of shrubs and ground cover, planted in a naturalistic pattern.

**NEW MEMORABLE SPACE RECOMMENDATIONS**

- Consider the scale and proportion of the space in relation to adjacent architectural development.
- Provide changes in scale to emphasize passage between different spaces on campus.
- Use topography, stone, native deciduous trees, and plant material as the basic landscape palette.
- Create reflections of architectural character in the design of landscaped spaces (including art, materials, and form).
- Maintain clear views and visual connectivity for security and ease of navigation.
CAMPUS EDGES AND SETBACKS
Much of the perceived character of the IUB campus is derived from the quality of its landscape setbacks and edges. To maintain and improve the aesthetic value of outer parts of campus, consistent landscape setbacks or build-to lines should be established.

CAMPUS EDGES AND SETBACK DESIGN PRINCIPLES
• Establish consistent setbacks and landscape treatment for all major vehicular corridors and campus edges.
• Choose a majority of native, deciduous trees and plant material to maintain the sense of a “campus in the woods” for landscape setbacks.
• Use conifers sparingly, in informal groups, and to screen service or loading areas from view.
• Preserve an informal, park-like landscape along North Jordan Avenue to maintain views to focal points and cultural facilities.

CAMPUS EDGES AND SETBACK RECOMMENDATIONS
• East Third Street: Match the existing setback west of North Jordan Avenue (90 feet) for new development east of North Jordan Avenue on East Third Street.
• North Indiana Avenue: For blocks between East Third and East Seventh Streets, establish a common build-to line on the west side of North Indiana Avenue matching the block between East Fourth Street and East Kirkwood Avenue.
• North Indiana Avenue and East Seventeenth Street: Establish a consistent landscape setback of 25 feet back of curb, bounded by a low, dry laid stone wall on the west and north sides of Woodlawn Arboretum.
• East Seventeenth Street: Preserve the street’s wooded landscape character.
• North Dunn Street and the SR 45/46 Bypass: Establish a consistent landscape setback with a natural landscape character incorporating vegetated swales as needed to screen parking around athletics facilities.
• North Fee Lane: Enhance the existing setback with a stronger landscape definition and design on North Fee Lane.
• SR 45/46 Bypass: Maintain a wooded landscape setback with filtered views along the bypass.
• East Tenth Street, North Indiana Avenue to North Jordan Avenue: Maintain the existing setback (from North Woodlawn Avenue to North Walnut Grove) north of East Tenth Street, and the existing setback and stone wall south of North Tenth Street.
• East Tenth Street, North Jordan to North Union Street: Narrow the setback north of East Tenth Street at North Union Street for an urban build-to line.
• East Tenth Street east of the SR 45/46 Bypass: Maintain a 125-foot landscape setback measured from back of curb from North Range Road to the bypass. Provide screening for service areas or surface parking.
• North Jordan Avenue: Follow the proposed landscape setback dimensions shown for North Jordan Avenue south of East Tenth Street.
• North Jordan Avenue: Improve the landscape setback on North Jordan Avenue north of East Law Lane, and remove angled parking.
• East Seventh Street west of North Jordan Avenue: Maintain a setback of 75 feet from the curb, from the IMU to the Fine Arts Plaza. Reduce the setback across from Ernie Pyle Hall for a sense of gateway.
• Union Street: Provide landscape setback and screening for parking lots at the perimeter.
CAMPUS EDGES AND SETBACKS

1. North Jordan Avenue  
   Building Face to Building Face - 250’
2. North Jordan Avenue  
   Building Face to Building Face - 550’
3. North Jordan Avenue  
   Building Face to Building Face - 450’
4. East Third Street  
   North Setback from Curb - 90’
5. North Indiana Avenue  
   Urban Setback from Curb - 15’  
   Campus Setback from Curb - 25’
6. North Woodlawn Avenue  
   East Setback from Curb - 70’  
   West Setback from Curb - 90’
7. North Fee Lane  
   Building Face to Building Face - 175’  
   Campus Setback from Curb - 45’
8. East Tenth Street  
   Campus Setback from Curb - 50’
9. East Tenth Street  
   Urban Setback from Curb - 25’
10. East Tenth Street  
    North Side of East Tenth Street at Bypass - 125’
11. Jordan River  
    Corridor Setback - 50’ (Each Side)
12. SR 45/46 Bypass  
    Corridor Setback - 300’
13. East Seventh Street  
    Campus Setback from the Curb - 75’
CAMPUS GATEWAYS
Campus gateways are the primary routes into and out of campus, and should enhance the arrival experience. Visitors, students, and staff should be directed to parking, drop-offs, and/or destinations through a straightforward wayfinding and signage system. Multiple campus gateways are proposed at a hierarchy of scale to serve vehicular, combined, and pedestrian arrivals.

GATEWAY DESIGN PRINCIPLES
- Develop a consistent palette of lighting, signage, and landscape materials that reflect the character of the campus.
- Design gateways in scale with their surrounding context and their function as either vehicular, combined, or pedestrian gateways.
- Develop pedestrian-scaled gateways using a consistent material palette of limestone as established on campus.
- Keep the landscape for gateways simple, appropriate, and compatible with the larger, surrounding landscape context.

GATEWAY RECOMMENDATIONS
- Develop vehicular-scaled entrances on the SR 45/46 Bypass at East Tenth Street, East Seventeenth Street, North Fee Lane, and North Dunn Street; and on East Seventeenth Street at North Dunn Street.
- Develop combined vehicular and pedestrian arrival gateways for East Third Street at North Union Avenue, North Jordan Avenue, and North Indiana Avenue; for North Indiana Avenue at East Seventh Street and East Fourteenth Street; and North Dunn Street at East Tenth Street.
- Develop pedestrian-scaled gateways at key areas of pedestrian arrivals onto and within campus.
PEDESTRIAN REALM

The Campus Master Plan seeks to improve the overall walkability and pedestrian connectivity of the campus. Future pedestrian walks are proposed to enhance and expand the network of pedestrian routes already present in the academic core. New pedestrian routes, an improved streetscape character, and a pedestrian realm with updated campus lighting will enrich the pedestrian experience. New outdoor public spaces are proposed along major walks, located at important pedestrian crossroads, to help activate the campus. The “100 percent corner” of campus, on East Seventh Street at North Forrest Avenue, is re-imagined as a major campus green and open space, activated by the flow of students passing through this space. Among many walk improvements proposed, “The March,” a popular walk from east residential dorms into the core of campus, will be aligned to follow the Jordan River and its enhanced natural environment.

Campus Crosswalks

Several pedestrian routes require crossing campus or city streets. Not all are at signalized intersections. The Campus Master Plan recommends a number of new pedestrian intersections and mid-block crossings to improve pedestrian safety. New intersections and mid-block crossings should include clearly marked and consistent designs to alert motorists to yield to pedestrians. More detailed traffic studies should be conducted for certain corridors, including East Third Street, East Tenth Street, and North Jordan Avenue. Traffic calming on certain roadways, such as North Jordan Avenue, should also be considered.

PEDESTRIAN REALM RECOMMENDATIONS

- Realign The March to follow the Jordan River corridor into the academic core.
- Enhance other pedestrian routes along the Jordan River corridor.
- Improve the service drive between the Wildermuth Intramural Center and the Art Museum as a major pedestrian walk that can also accommodate service vehicles.
- Create a new Campus Green at the campus 100 percent corner with pedestrian walks, amenities, and active and passive spaces on the existing parking lot adjacent to the IMU.
- Provide a grade-separated and protected pedestrian crossing from the Student Recreational Sports Center to proposed development on the south side of the railroad tracks.
- Enhance the pedestrian walks along North Woodlawn Avenue from East Seventh Street to East Seventeenth Street, including a new “Alumni Walk” to connect academic expansion north of East Tenth Street along North Woodlawn Avenue to the historic core.
- Develop a network of paths to serve the new campus park and arboretum on North Woodlawn Avenue between East Thirteenth and East Seventeenth Streets.
- Provide traffic calming and clearly defined pedestrian mid-block crossings on East Third Street, East Tenth Street, North Jordan Avenue, North Fee Lane, and other locations identified on the Future Pedestrian Circulation plan on page 153.
- Develop safe pedestrian crossings to access the Research Park across the bypass at controlled, signalized intersections.
- Develop a multi-use recreational trail for pedestrian use along the bypass.
- Eliminate unsafe at-grade pedestrian crossings at the railroad.
- Provide pedestrian paths on East Seventeenth Street and from the North Fee Lane neighborhood east to the proposed recreational sports complex.

Develop a network of paths to serve the new campus park and arboretum on North Woodlawn Avenue between East Thirteenth and East Seventeenth Streets.

Bryan Hollow
1. Alumni Walk
2. Arboretum Walk
3. Wildermuth Walk
4. The March
5. Bryan Hollow Walk
6. Kirkwood Walk
STREETSCAPE CHARACTER
The streetscape character for the IUB campus follows the same history as its development. Streets and sidewalks in the more historic part of campus are planted with a lawn panel and street trees behind the curb, with the sidewalk set back behind the lawn panel. A low, dry laid or mortared stone wall frequently edges the sidewalk on the campus property side of the street, such as on East Third Street, East Seventh Street, and North Indiana Avenue.

As the campus expanded after World War II, the nomenclature for campus walks and streetscapes changed. New roads and development created sidewalks immediately adjacent to the curb, with a landscape buffer behind the walk to the building edge. This has resulted in a more utilitarian quality to the pedestrian environment, with fewer street trees and pedestrians exposed to the street traffic. The majority of streetscapes on campus are of this prototype.

The Campus Master Plan recommends that as campus roadways and infrastructure are re-built, a prototype based on the historic streetscape qualities be implemented, with sidewalks set back from the roadway and buffered by a landscape zone with street trees. This will provide a more inviting pedestrian experience on campus, buffer pedestrians from adjacent traffic, and increase the tree canopy.

The width of the landscape zone behind the curb varies as a function of the total width of the landscape setback. It should be a minimum of 6 feet in width. Sidewalks along streets should be a minimum of 8 feet in width. Drought-tolerant, native deciduous tree species should be used for street trees. In more urban streetscapes (such as those fronting proposed mixed-use developments on North Indiana Avenue), street trees can be placed in individual tree planters or in tree grates to provide more circulation space for pedestrians. As much as possible, porous paving should be used on all campus sidewalks and streetscapes.

The conceptual cross-sections on the following pages describe the proposed typical streetscape character and minimum dimensions for local campus streets. They includes two 10- to 12-foot-wide travel lanes and a minimum 6-foot-wide landscape edge to plant trees and create separation for the sidewalk. Sidewalks should be a minimum of 8 feet wide, but can be wider depending on pedestrian volumes. A setback/landscape zone between a sidewalk and building should feature primarily herbaceous planting, canopy trees, understory trees, and shrubs.
STREETSCAPE CHARACTER

1. Campus Typical
2. Residential Typical
3. Campus Edge
4. Urban Edge Street
5. Jordan Avenue
6. Seventh Street
7. Bypass
8. Fee Lane
9. Tenth Street A
10. Tenth Street B
11. Woodlawn A
12. Woodlawn B
The following conceptual sections describe preferred streetscape elements and proportions for campus streetscapes as outlined in the streetscape character diagram on the previous page.

Campus Typical
- Two 10- to 12-foot-wide travel lanes
- Minimum 6-foot landscape edge to plant trees and create separation for the sidewalk
- Sidewalks 8 feet wide minimum, but can be wider depending on pedestrian volume
- Setback/landscape zone between the sidewalk and building features primarily herbaceous planting, canopy trees, understory trees, and shrubs

Residential Typical
- Two 10- to 12-foot-wide travel lanes
- On-street parking where road dimensions allow
- Minimum 6-foot landscape edge to plant trees and create separation for the sidewalk
- Sidewalks 6 feet wide minimum
- Setback/landscape zone between the sidewalk and building façade/front porch shall be uniform in dimension
STREETSCAPE CHARACTER

3. CAMPUS EDGE

- Streetscape character shall build upon the existing streetscape condition along East Third Street
- Minimum 6-foot landscape edge to plant trees, allow for lighting, signage, and banners, and create separation for the sidewalk
- Sidewalks 8 feet wide minimum, but can be wider depending on pedestrian volume
- Low stone wall to provide unifying element along sidewalk
- Setback/landscape zone between the sidewalk and building shall match existing setback
- Landscape setback features primarily herbaceous planting, canopy trees, understory trees, and shrubs

STREETSCAPE CHARACTER

4. URBAN EDGE STREET

- Streetscape character shall build upon the existing urban streetscape condition along North Indiana Avenue
- 8-foot-wide on-street parallel parking where road dimensions allow
- Urban sidewalk 12 to 14 feet wide minimum, to allow for in-grate tree planting, street lights, banners, seating, planters, and accessible retail frontage
5. JORDAN AVENUE

- One to two travel lanes and bike lane in each direction; a final design to be determined
- Minimum 10-foot landscape edge for trees and other plant materials
- Sidewalks 8 feet wide minimum, but can be wider depending on pedestrian volume
- Minimum 4-foot-wide on-street bike lane

6. SEVENTH STREET

- Minimum 6-foot landscape edge to plant trees and create separation for the sidewalk
- Sidewalks 8 feet wide minimum, but can be wider depending on pedestrian volume
7. BYPASS

Bypass
- Two 12-foot-wide travel lanes in each direction, separated by a landscape median
- Generous landscape edge to plant trees and other plant materials
- Multi-use bike/walking path 10 feet wide minimum, but can be wider depending on volume, for campus side of bypass
- Setback/landscape zone on either side of the road and within the landscape median features primarily herbaceous planting, and canopy trees that create a natural setting

8. FEE LANE

Fee Lane
- Minimum 6-foot landscape edge to plant trees
- Sidewalks 8 feet wide minimum
- Minimum 4-foot-wide on-street bike lanes
9. Tenth Street A, West of the Railroad Tracks

- Minimum 6-foot landscape edge to plant trees, allow for lighting, signage, and banners, and to separate sidewalk from road
- Landscape edge varies to create a more natural setting east of the railroad tracks
- Sidewalks 8 to 10 feet minimum, but can be wider depending on pedestrian volume
- Maintain low stone wall as unifying element
- Two-way bike path on south side of East Tenth Street west of the railroad tracks
- Setback/landscape zone between the sidewalk and building to feature canopy trees, understory trees, and shrubs
- Selective groupings of conifers for screening
- Combined pedestrian walk and bike path on the north side of East Tenth Street east of the railroad tracks

10. Tenth Street B, East of the Railroad Tracks

- Varies (4) 10-12’ lanes + turning lane
- Varies 10’ min.
11. WOODLAWN A, NORTH OF TENTH STREET

Woodlawn
- Minimum 6-foot landscape edge to plant trees, allow for lighting, signage, and banners, and create separation for the sidewalk
- Alumni Walk 10 feet wide minimum, but can be wider depending on pedestrian volume
- Uniform setback to be 70 feet from back of curb to building façade along the Alumni Walk on the east side of North Woodlawn Avenue, and 50 feet on the west side of North Woodlawn Avenue
- Sidewalks 8 to 10 feet minimum on the west side of North Woodlawn Avenue
- Low stone wall to provide unifying element within setback
- Setback/landscape zone between the sidewalk and building features primarily herbaceous planting, canopy trees, understory trees, and shrubs
CAMPUS LIGHTING
There are several types of site and roadway lighting on campus, ranging from a retro-historic pedestrian-scale fixture in Dunn’s Woods to a more “Modern” mid to late 20th century light fixture on other parts of campus. The type of light source varies as well. A consistent design and hierarchy of pedestrian and street lighting should be developed and implemented over time to achieve a more unified and safe campus. As the University pursues implementation of the Campus Master Plan, a detailed campus lighting and wayfinding study should be conducted.

CAMPUS LIGHTING DESIGN PRINCIPLES
• Campus lighting should be part of a unified family of site elements that visually organize the campus setting and improve its function, visibility, safety, and security.

CAMPUS LIGHTING RECOMMENDATIONS
• Install pedestrian lighting of a different style and scale from roadway and parking lot lighting.
• Design campus lighting so that the illumination, intensity, quality, and distribution of light responds to the site characteristics and patterns of use.
• Use fixtures that direct light downward and minimize light pollution.
• Utilize light sources for energy efficiency, color rendition, and visibility of pedestrians on campus.
• Conceal the source of illumination on pedestrian fixtures.
Typical Campus Lighting Fixtures on the Indiana University Bloomington Campus
CIRCULATION AND PARKING

ROADS AND VEHICULAR TRAFFIC
The Campus Master Plan updates the campus transportation network through a multi-modal approach that encourages walking and biking while improving vehicular and transit movement. Improvements to the campus road network aim to create a connected, hierarchical system to accommodate a variety of modes of travel, ease congestion, and facilitate cross-campus connections. The Campus Master Plan proposes new east-west connections along an expanded East Law Lane to East Fourteenth Street to ease traffic congestion on East Tenth Street. New north-south connections on campus will also facilitate movement and increase options for drivers. North Woodlawn Avenue is proposed as a new street and a transit-oriented roadway connecting the IMU with the Athletics campus and remote parking via a new crossing proposed at the railroad.

ROADS AND VEHICULAR TRAFFIC DESIGN PRINCIPLES
- Improve campus circulation for better mobility for all modes.
- Create a hierarchy of access and circulation.
- Provide alternative east-west routes through campus to reduce congestion on campus streets.
- Simplify north-south movement on campus.

ROADS AND VEHICULAR TRAFFIC RECOMMENDATIONS
- Complete East Law Lane between North Dunn Street and East Tenth Street for a new east-west corridor.
- Align East Law Lane with East Fourteenth Street past North Fee Lane for connection to North College Avenue and North Walnut Street.
- Reduce automobile traffic and congestion, and enhance transit on East Tenth Street.
- Supply a new, controlled at-grade railroad crossing on North Woodlawn Avenue for direct vehicular and transit access between the academic core and the Athletics campus.
- Replace the at-grade crossing at North Walnut Grove with the crossing at North Woodlawn Avenue.
- Realign sections of North Walnut Grove, East Thirteenth Street, and East Fourteenth Street north of the railroad to improve intersection design.
- Realign North Dunn Street and North Indiana Avenue at East Seventeenth Street for better connection to the North Indiana Avenue underpass at the railroad.
- Explore the feasibility of a new railroad crossing at North Dunn Street.
- Extend North Range Road north of the Research Park to a signaled intersection at the SR 45/46 Bypass, and connect with East Tenth Street.
- Reconfigure and/or remove internal streets within the Research Park and add a new north-south street from East Tenth Street to North Range Road.
- Reconfigure the East Tenth Street intersections with East Law Lane and North Jefferson Street to improve the underpass at the railroad.
• Explore the feasibility of a new underpass for East Tenth Street and re-use of the existing underpass for pedestrian and bike only use.
• Realign North Union Street north of the railroad to allow for future recreational sports fields and expansion.
• Eliminate East Lingelbach Lane’s direct connection to East Seventeenth Street to preserve the woodland area.
• Reconfigure and/or remove parts of East Twelfth Street at North Woodlawn and North Walnut Grove to create larger development parcels.
• Create a boulevard on North Jordan Avenue south of the Jordan River to East Third Street.
Little change is expected in the campus population over the time frame of the Campus Master Plan, and parking demands are not expected to change significantly. Implementation of the Campus Master Plan, the location of future facilities, and the relocation of new housing will displace some existing parking lots and garages. New development and changes in campus population will also shift and redistribute parking demand in the future.

The recommendations regarding parking in the Campus Master Plan focus on locations for replacing parking facilities that are displaced by development. Proposed parking, primarily in decks, is located to continue serving the density of the academic core, for both the daily campus population and campus visitors. One or two new parking decks south of the railroad will accommodate additional density proposed for the areas around the campus core and replace parking displaced by new development. Additional future deck locations are shown as part of the long-term planning in the Campus Master Plan.

These locations should only be considered after implementation of Transportation Demand Management strategies and as demand justifies their construction.

The Athletics Master Plan, conducted separately, recommended the addition of over 1,500 spaces to the Athletics campus. Improved transit connections, bike paths, and pedestrian walks are proposed to better utilize the supply of remote parking in the Athletics campus.

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**Total All Parking**

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**Long-Term Opportunities**

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### Future Research Park Parking

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### Parking Structures
- Existing Parking Decks
- Planned Parking Structures
- Future and Research Park Parking Opportunities
TRANSPORTATION DEMAND MANAGEMENT (TDM)

In order to reduce the need to construct more garages and make parking more readily available, it is recommended that the university implement a Transportation Demand Management (TDM) strategy. This will provide incentives for students, faculty, and staff to use alternative transportation rather than single-occupancy vehicular travel.

TDM strategies include the following:

- Review current parking pricing policies and implement changes that can help reduce demand.
- Establish a bicycle-sharing program.
- Provide subsidies for transit and bicycle usage.
- Increase marketing of the carpooling program, including reserving more spaces in high quality locations and implementing a matching service.
- Increase marketing of the Guaranteed Ride Home Program.
- Establish a car-sharing program on campus.

TDM DESIGN PRINCIPLES

- Distribute parking to serve the majority of campus within a 5-minute walk of campus destinations.
- Develop parking garages rather than surface lots in strategic locations to better utilize land in the academic core.
- Promote better utilization of existing decks south of East Third Street.
- Locate future decks closer to the direction of arrival, to reduce traffic volumes on and across campus.
- Promote better utilization of remote parking for regular campus use.
- Link parking facilities to transit and bicycle facilities.
- Enhance the sustainable design of parking facilities.

TDM RECOMMENDATIONS

- Implement TDM measures.
- Remove the structured parking east of Ballantine Hall for the future academic building site, and reallocate spaces to existing decks south of East Third Street.
- Develop a new parking deck east of North Jordan Avenue between the railroad and East Tenth Street to replace parking from the Wells Library lot. Provide primary ingress and egress off of North Jordan Avenue.
- Remove most of the surface parking at the IMU and the lot north of East Seventh Street at North Woodlawn Avenue for new development and a new Campus Green. Maintain some visitor and ADA parking at the IMU hotel drop-off.
- Develop new underground structured parking to serve the IMU at North Woodlawn Avenue at East Seventh and East Eighth Streets, with a transit stop and bicycle parking.
• Reserve the site on North Dunn Street between East Kirkwood Avenue and East Seventh Street as a future parking deck to serve future mixed-use development, new student services building, conferencing, and events at the IMU.
• Redevelop the 2-story deck on North Jordan Avenue south of East Seventh Street as a smaller footprint with new academic development.
• Provide limited, small-scale surface lots within the academic core to serve short-term parking needs.
• Retrofit surface lots with porous pavement and additional landscape.
**TRANSIT**

Transit recommendations within the Campus Master Plan involve simplification of the existing routes combined with altering routes to take advantage of the proposed North Woodlawn Avenue corridor and to serve the east side via the extension of North Range Road across the SR 45/46 Bypass. To improve campus mobility, it is recommended that a number of campus transit routes be simplified to more direct, out and back, east-west, and north-south connectors, with a few transfer stops at key campus locations. Plans also recommend the establishment of a high-quality loop shuttle with multiple transfer options to connect the east-west and north-south routes.

The express shuttle from the remote parking at the Athletics campus is recommended to take advantage of the proposed North Woodlawn Avenue corridor and new railroad crossing. Future underground parking at the intersection of North Woodlawn Avenue and East Seventh Street is proposed as a multi-modal stop at the terminus of the North Woodlawn Avenue express shuttle and other campus routes.

In the long term, if rail passenger service is established, the Campus Master Plan has identified a location near the intersection of North Woodlawn Avenue and the railroad tracks to serve as the potential site of a future station.

**TRANSIT DESIGN PRINCIPLES**

- Simplify transit runs to out and back routes.
- Increase connectivity and areas of service.
- Create transfer stops to reduce redundant loop routes.
- Connect transit stops to parking reserves, decks, and major campus destinations.
- Integrate bike parking, transit stops, and parking garages where possible to encourage ridership.

**TRANSIT RECOMMENDATIONS**

- Create a simple north-south transit run on North Woodlawn Avenue from East Seventh Street to the SR 45/46 Bypass within the Athletics campus, utilizing the proposed rail crossing.
- Create an internal bus transit route within the Athletics campus to serve the commuter lots and off-campus apartments, utilizing the proposed North Woodlawn Avenue pedestrian mall north of East Seventeenth Street.
- Develop a combined transit stop, varsity team shop, possible bookstore, and coffee shop at the south end of the stadium.
- Create a new east-west bus route that connects the Research Park to the central campus.
- Simplify bus routes to more direct runs and reduce redundant loops around campus.
- Create a series of bus transfer points on campus to facilitate transit links.
- Work with the City to develop a bus transit route on East Seventh Street from downtown to the IMU.
BICYCLE CIRCULATION

Improvements to bicycle circulation on campus involve strengthening north-south and east-west connections as well as the creation of new bike lanes, off-street paths, and bike-friendly streets. New roadways such as East Law Lane and North Woodlawn Avenue should contain bike lanes. The Campus Master Plan also recommends a bike station on campus and a possible bicycle-sharing program. Bicycle circulation on campus will benefit from general improvements in the transportation network. With traffic refocused on certain routes, streets such as East Tenth Street become friendly to bicyclists and pedestrians.

BICYCLE CIRCULATION DESIGN PRINCIPLES
• Make bicycle transportation easier and more convenient to increase bike use and reduce reliance on automobiles to and around campus.
• Connect the campus bike system to regional resources.
• Design new roadways to encourage on-street bike lanes.
• Utilize off-street paths for mix of bike and pedestrian use.
• Develop multi-modal centers in conjunction with bus transit and parking.

BICYCLE CIRCULATION RECOMMENDATIONS
• Develop designated on-street bike lanes for East Law Lane and North Woodlawn Avenue, a minimum 5-foot width, on both sides of the street.
• Develop connected off-street multi-use bike paths across campus.
• Develop a multi-use recreational trail along the SR 45/46 Bypass, and create bike- and pedestrian-safe crossings at signalized intersections at East Tenth Street and the proposed North Range Road extension.
• Develop bike-friendly streets on campus secondary roads with wide vehicle lanes and traffic calming to accommodate occasional bike use.
• Add more bike parking and storage near major campus classrooms and destinations, including the IMU, dining, and housing locations.
• Where feasible, include covered bike parking within parking decks and major destinations.
• Where feasible, incorporate showers and lockers.
• Explore the development of a bike repair shop on campus.
• Develop a bike-sharing program.

Dunn Meadow
Existing Bicycle Circulation
On-Street Bike Lane
Off-Street Bike Path
Bike-Friendly Street

FUTURE BICYCLE CIRCULATION

- Existing Bicycle Circulation
- On-Street Bike Lane
- Off-Street Bike Path
- Bike-Friendly Street
CAMPUS INFRASTRUCTURE

CHILLED WATER SYSTEM

The capacity shortfall due to the addition of Multidisciplinary Science Building II will be addressed with the addition of cooling capacity at the Central Chilled Water Plant (CCWP). An addition to the system of 2,500 tons of capacity is planned. The initial project cost for the first chiller addition is $11.2 million. Including this first 2,500-ton addition, the existing CCWP is capable of accommodating a total expansion capacity of 7,500 tons. The following areas will present future demands for chilled water in support of the Campus Master Plan.

Building construction anticipated by the Campus Master Plan in the historic core are good candidates for connection to the campus chilled water system. There is a limitation in the chilled water system distribution that will require study to determine when an upgrade is necessary. New cooling capacity can be installed to serve new construction in this area at the CCWP, or a satellite chilled water plant can be included with the Ballantine Hall renovation.

The building expansion in the area east of North Jordan Avenue is dominated by residence halls. The campus chilled water system has hydraulic limitations in this area. A feasible solution to the hydraulic limitation is to build in a chilled water loop around the buildings as they are constructed. Additional chiller capacity will be needed by a combination of new CCWP capacity and connection to the Ashton Satellite Chilled Water Facility, which is currently in design.

The existing buildings in the Research Park area have inefficient HVAC systems. A feasible solution would be to serve the planned new buildings with a satellite chilled water plant and to add the existing buildings to the system. Their addition to the system would improve energy efficiency (reduce university operating cost). This area is a viable candidate for a heat recovery chiller application to further reduce operating costs.

The North Fee Lane area has a history of poor chilled water distribution, and future building construction will aggravate the issue. The Briscoe Quad renovation has a new satellite chilled water plant in the design. The renovation is scheduled for completion in late 2010, and the new chiller plant will have space for additional capacity to serve new buildings on the north side of the neighborhood. In addition, a new 20-inch distribution bridge is necessary from North Woodlawn Avenue to North Fee Lane. It is reasonable to consider connecting this chilled water plant to the campus distribution system. Such a connection to the system should improve conditions and allow new construction in the southern portion of the neighborhood to connect to the CCWP.

New buildings located in the North Jordan Avenue area cannot be served on the campus chilled water system without a chilled water distribution expansion. The chilled water distribution loop can be created by extending the 24-inch mains in the Jacobs School of Music area to Forest Quad. New capacity can be added to the CCWP.

New buildings located in the North Woodlawn Avenue and East Tenth Street area can be served on the campus chilled water system with a
chilled water distribution expansion from North Woodlawn Avenue. New capacity can be added to the CCWP.

**Chilled Water Utility Service - Legend Notes**

**General Notes:** Existing CCWP is fully utilized. New building construction will require expanded cooling capacity. Satellite chilled water plants provide improved redundancy when connected to campus chilled water (CHW) distribution.

1. A new satellite CHW plant serving Briscoe Quad and surrounding buildings is currently in planning. A new CHW main effectively closing a loop between North Woodlawn Avenue and North Fee Lane will maximize the effectiveness of this plant.

2. Connect historic core to North Jordan Avenue leg of CHW distribution. Improves distribution limitations to support new building growth.

3. Residence CHW loop – supports new building growth east of North Jordan Avenue.

4. Connect Ashton CHW plant to main chilled water loop. Utilize a planned CHW plant capacity on campus system.

5. New CCWP to support the Research Park. Incorporate a more efficient means of cooling the Research Park area.

6. North Woodlawn Avenue and East Tenth Street CHW distribution extension – supports new building growth west of North Woodlawn Avenue.
STEAM AND CONDENSATE SYSTEM

The existing 8-inch pipe along North Fee Lane will need to be replaced to support the additional heating load for the proposed residence halls for that site.

The new research buildings at the Research Park are currently under construction and will be served by the existing 10-inch 150-psig (pound-force per square inch gauge) steam line. As new buildings are added, steam service to this area will need to be upgraded. Replacement of the existing steam line from the Central Heating Plant may prove to be prohibitively expensive. As an alternative, a stand-alone satellite heating plant to serve this area may be considered.

To support the heating load for the proposed residence halls in the southeast portion of campus, new steam piping will need to be installed. The existing steam line, which is routed along North Campbell Street and is subsequently extended to the south side of campus, is already at capacity. The new piping could be installed alongside the existing pipe. A detailed steam model is required to determine the best routing and sizing for this new piping.

The distribution system has capacity for most of the proposed academic buildings with the exception of the group of buildings located east of North Jordan Avenue between East Third Street and East Tenth Street. This area is currently served by the same distribution piping that would serve the new residence halls running south along North Campbell Street and then extending to the south side of campus. A major upgrade of the service along this corridor will be required to serve all of the proposed buildings in this area. A detailed steam model is required to determine the best solution to serving the needs of these proposed academic buildings as well as the proposed residence halls on the southeast side of campus.

Improvement of the campus condensate return system should remain an important priority. Improvement of this system will result in very substantial energy savings and reduction in the consumption of make-up water.

STEAM UTILITY SERVICE - LEGEND NOTES

1. New piping required to serve the new academic and housing units planned for this area. This would originate at the Central Heating Plant and replace existing piping.
2. The existing 12-inch and 10-inch steam piping that currently feeds the Research Park will eventually need to be replaced as buildings are added in this area. Condensate return should be added as well.
3. A satellite heating plant connected to the Research Park distribution system may prove to be a viable alternative to replacing the steam piping that currently serves the area, as described in #2 above.
4. The new piping that is installed for the academic and housing units planned for the North Woodlawn Avenue area should be connected to form a loop to ease the load on the distribution piping farther east.
5. Eigenmann Hall will be switched from 150-psig steam to 40-psig steam.
6. The existing piping in the historic part of campus is old cast iron piping with screwed fittings. This is a safety concern. This piping
should be replaced in accordance with current codes (ASME B31.1).

7. The existing piping along this corridor will need extensive work to serve the new buildings proposed for this area. This piping can be replaced with larger piping, or new piping can be added along this corridor.

8. The distribution piping serving the North Fee Lane area should be replaced and extended to serve the new buildings.
**ELECTRICAL SYSTEM**

Space planning must account for the Switching Center to physically double the present quantity of distribution circuit switches in the next 5 years in order to accommodate the projected long-term future loads. Each individual switch will be added as needed to support growth over the next 5 to 10 years. The Distribution Center will not be considered a feasible source of power for future growth. New circuits from the Switching Center should be installed to Substation C and Substation D to increase loop redundancy. In order to meet the projected site loads, the Switching Center growth must be a priority to complete first.

The 12.47kV switchgear at Substation D should be expanded to include double-ended 12.47kV gear. The 5kV switchgear at Substation D should be phased out as buildings are demolished.

All new development along the University Edge area shall be served from Duke Energy. Duke Energy will play a major role in feeding new development to areas west of North Woodlawn Avenue and East Tenth Street and at the intercollegiate athletics area.

Much planning will be needed to ensure growth along and parallel to the railroad in the northeast area and the east of North Jordan Avenue area to meet requirements for proximity to live overhead wires. Relocation of the overhead lines to underground routes is an option to be considered; however, this option carries a substantial cost.

The CCWP must have additional service from Duke Energy to allow for the planned chilled water capacity increases. The addition of satellite chilled water plants, needed to increase capacity and flow throughout the campus, should be anticipated as new 15kV circuits are routed throughout the campus.

Many new duct banks will be needed to support future growth and improve existing capacity. Most of the new duct banks will be in the North Fee Lane area, North Woodlawn Avenue and East Tenth Street area, and the North Jordan Avenue area. There are duct banks in the East Seventh Street area that may need to be relocated in order to support new growth. There are existing duct banks in the Historic Core area that must be replaced due to physical size and age of conductors.

Duke Energy circuits from the Meadow Park substation are not reliable for consideration of academic and research expansion along the SR 45/46 Bypass and at the Research Park area. The new Data Center located at the Research Park area has the potential to be the largest single point of electrical power consumption growth at IUB. Duke Energy is installing a new 12.47kV feed (Circuit 1230) from the North Dunn Street substation to support the new Data Center. A second source of power to the new Data Center is desired to ensure a full capacity redundant source. The second source could be the new 69kV substation or a new co-generation plant. Duke Energy estimates the cost of a new 69kV substation and 12.47kV circuits located near the Research Park area to be $2.5 million. This cost does not include the cost of land for the substation or easement required for the tower structures and distribution from the substations to the loads.

**ELECTRIC UTILITY SERVICE - LEGEND NOTES**

1. Existing duct banks may require relocation to support new structures. Add new 15kV circuits from Switching Center to serve new structures east of North Woodlawn Avenue. Structures west of North Woodlawn Avenue will be served by Duke Energy.
2. New development along the University Edge will be served by Duke Energy.
3. Substation C will power the North Jordan Avenue area. Existing Substation C may require relocation to support new structures. Add new 15kV circuits to Substation C from Substation D and the Switching Center to improve system reliability and support future growth.
4. Add new 15kV circuits from the Switching Center and Substation C to serve new growth in the East of North Jordan area. Proposed new structures located parallel to
the railroad may impact the clearances on the existing 69kV and 15kV circuits.

5. North Woodlawn Avenue and East Tenth Street area growth will require adding new 15kV circuits from the Switching Center. Growth of the CCWP will require additional service from Duke Energy.

6. New duct bank cable will replace existing circuit from the Distribution Center to Morrison Hall.

7. Substation D will feed Northeast Area growth. Expand Substation D 15kV switchgear to main tie-main. Migrate away from 5kV distribution from Substation D. Proposed new pedestrian railroad crossing may impact the clearances on the existing 69kV and 15kV circuits located parallel to the railroad.

8. Existing service to the Research Park is adequate. Data Center expansion requires full redundancy. New circuits will be required for this redundancy, which may include a large on-site standby generation capacity. Coordination with Duke Energy will be necessary.
TELECOMMUNICATIONS SYSTEM

Future telecommunication to new facilities will exclusively consist of fiber optic cabling for voice and data communication with a small 50- to 100-pair copper voice cable for emergency phone services. The IUB network architecture is currently being redistributed in a redundant ring design. This configuration provides redundancy to each building’s network system by connecting each building to both network nodes. Strategically located duct bank expansions are required in order to provide these fiber optic loops throughout the campus.

There are four phases of expansion planned to complete the telecom fiber infrastructure construction. Phase I includes placing a 432-strand SM fiber cable between the School of Health, Physical Education and Recreation (HPER) building and the new Data Center, and dropping off 24 fibers to large campus buildings in the area bounded by North Jordan Avenue, East Third Street, North Indiana Avenue, and East Tenth Street (excluding Wells Library). These buildings then have 12 new fibers running to HPER and 12 new fibers running to the Data Center through separate outside routes to provide diversity to key buildings in the core. This phase is currently in construction. Phase II uses diverse routes from the HPER building and the new Data Center, adding new fiber capacity to non-Greek buildings north of East Tenth Street including the Wells Library. Phase III uses diverse routes from the HPER building and the new Data Center, adding new fiber capacity to the residence hall buildings south of East Tenth Street. Phase IV will add fiber to Greek housing. To minimize cost, diverse routing is generally not planned.

TELECOMMUNICATIONS UTILITY SERVICE - LEGEND NOTES

General Notes: With the neighborhood concept as it relates to the Campus Master Plan for new facilities, there will be collateral modifications to each neighborhood’s telecom infrastructure to accommodate new buildings. The looping concept will require some modification along with the possible replacement of specific maintenance structures and duct bank systems being rerouted.

1. (6) 4-inch conduit duct bank to be routed down East Seventeenth Street from North Jordan Avenue maintenance structure to maintenance structure BR-5 on North Fee Lane.

2. (6) 4-inch conduit duct bank to be routed down North Walnut Grove from maintenance structure BR-5-1 at East Seventeenth Street and North Walnut Grove to maintenance structure HN-2-1-10-5 on North Walnut Grove.

3. (6) 4-inch conduit duct bank to be routed down East Law Lane from maintenance structure BR-2-3 on North Foster Drive to...
maintenance structure CV-2-3 on East Law Lane.

4. (6) 4-inch conduit duct bank to be routed from maintenance structure HN-2-2 on Cottage Grove Avenue down North Woodlawn Avenue to maintenance structure HW-3 at East Seventh Street.

5. (6) 4-inch conduit duct bank to be routed down North Indiana Avenue from maintenance structure HW-4-1 at East Seventh Street and North Indiana Avenue to south of East Sixth Street.

6. (6) 4-inch conduit duct bank to be routed from maintenance structure HE-2-4-1 near Ballantine Hall to maintenance structure RE-6 just south of Musical Arts.

7. (6) 4-inch conduit duct bank to be extended from tunnel between Rawles and Myers Halls to maintenance structure RA-1 south of East Third Street.

8. (6) 4-inch conduit added to existing duct bank from BR-1 to HN-3-1.

9. (6) 4-inch conduit duct to be added to existing duct bank.

10. Add (6) 4-inch duct bank.
ENERGY AND WATER USE
Over the next 10 years, the IUB campus will add and replace nearly 4.2 million square feet of building. This growth could increase the campus greenhouse gas emissions (GHG) and potable water consumption. By embracing sustainable design strategies, the campus can grow while reducing its resource impacts. The Energy and Water Use section of the Campus Master Plan estimates the GHG emissions and potable water consumption associated with the existing IUB campus and predicts the energy and water use of the proposed development based on current campus building standards. It also demonstrates how sustainable design strategies can be applied to all new development, as well as how sustainable renovation, retrofit, and improvements to the existing building stock can significantly reduce the carbon footprint and water consumption of the IUB campus.

The American College and University Presidents Climate Commitment (ACUPCC) establishes a goal of reducing campus GHG emissions by 80 percent by the year 2050, which equates to a 23 percent reduction target by the year 2020. Similarly, the Association for the Advancement of Sustainability in Higher Education’s (AASHE) Sustainability Tracking Assessment and Rating System (STARS) establishes campus water conservation goals reducing potable non-irrigation water consumption by 10 percent, 25 percent, and 50 percent, using water consumption per square foot of building as the unit for comparison. While Indiana University has not committed to the ACUPCC goal, a series of sustainable design practices have been proposed for both the planned and existing building stock in order to demonstrate a path towards meeting similar targets to the ACUPCC and STARS goals.

Carbon Emission Reduction Recommendations
The colored wedges in the chart on the facing page represent the emissions reduction potential associated with a series of strategies proposed to reduce the predicted campus carbon emissions from buildings. No one strategy or “wedge” alone can reach this reduction, but the cumulative effect of combined strategies can reach and even exceed the target amount.

Wedges 1a and 1b demonstrate the impact from requiring all new construction to meet energy use reduction thresholds prescribed in the United States Green Building Council’s Leadership in Energy and Environmental Design (LEED®) Green Building Rating System™. Wedges 2-6 demonstrate the impacts from retrofitting existing campus buildings to embrace more sustainable design practices. Wedges 7 and 8 examine the impacts of improving the campus energy distribution system. If all of the measures from wedges 1-8 are implemented, the strategies...
combined will result in a GHG emissions reduction of 113,980 MtCO₂e (metric tons carbon dioxide equivalent). IUB can grow by over 25 percent while reducing its GHG emissions by over 30 percent. This 30 percent reduction would put the campus well on track to reach a goal of an 80 percent reduction of GHG emissions by the year 2050.

**Water Use Reduction Recommendations**

Using wedge analyses like those discussed in the previous paragraph, the chart to the right represents the water use reduction potential associated with a series of proposed strategies. Wedges 1, 3, and 5 examine the impacts of conservation measures applied to new campus buildings, while wedges 2 and 4 demonstrate the impacts from retrofitting existing campus buildings to embrace water conservation. If all of these measures are implemented, the strategies combined will result in a potable water savings of 277.8 million gallons a year. The strategies result in a 48.3 percent reduction in water use from the baseline master planned campus.
STORMWATER

Campuses across the country are creatively incorporating stormwater management techniques into traditional campus environments. According to staff in the IUB Utilities Division, all campus design guidelines comply with Indiana Department of Environmental Management (IDEM) Rule 5 for stormwater quality. IUB has no formal stormwater quantity regulations; it is understood that any proposed project cannot increase the amount of stormwater runoff that currently drains to a water course. This section will outline the steps that were taken to develop the sizing criteria for both stormwater quality events and stormwater quantity events to accomplish these goals.

Rainfall data was obtained from the Utah Climate Center (UCC) for the city of Bloomington for the years 1900 to 2005. From this data, it was determined that the average annual rainfall is 43.72 inches. Runoff coefficients were calculated for the Jordan River and Cascade Creek watersheds. Each watershed was divided into categories based on surface conditions, and Table 1 presents the runoff coefficients for both watersheds.

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Table 1: Runoff Coefficients for Jordan River and Cascade Creek Watersheds
type: existing and proposed buildings, existing and proposed parking lots, other paved areas (roads, walks, drives, etc.), and lawn/woods. Each of these categories was then assigned a specific runoff coefficient according to its use. The weighted average was then determined for each watershed (see Table 1). As the areas change from the existing to proposed conditions, the runoff coefficients are updated. When the average annual rainfall is multiplied by the runoff coefficient and the watershed area, the Average Annual Runoff (AAR) is calculated.

The quality of stormwater leaving a watershed is at its highest when the land is in its pre-developed state. Treating stormwater to bring it back to pre-development runoff levels and quality is an important action for the long term health of regional streams and rivers. IUB should strive to reduce future average annual runoff rates back to that of the pre-developed condition. In order to do this, several strategies, described below, are woven into the Campus Master Plan to improve stormwater treatment at IUB.

**Detention Basins**
Detention basins help to manage large storm events by providing added capacity to a drainage system. Underground chambers are effective under large open areas such as parking lots or recreation fields, while aboveground basins can be a visual amenity to the campus while still solving the stormwater needs. A detention basin works by creating a restriction to stormwater flows. The restriction creates the need for an area to store the water that is being detained, but the benefit is realized downstream from the basin by the reduction in the flow rate of the stormwater runoff. Since space is very limited on campus, locations and volumes of stormwater detention will be determined according to what is feasible and calculations regarding rainfall events that would occur without creating flooding.

**Rain Gardens**
Rain gardens, infiltration planters, bioswales, and constructed wetlands are examples of infiltration facilities that help to filter stormwater from small rainfall events. By encouraging and assisting infiltration, these facilities enhance water quality, reduce runoff rates, recharge the groundwater system, and create habitat. If there are existing impervious soils, the stormwater will still flow into the storm sewer conveyance system; however, there will still be a benefit from the infiltration facility, since the runoff will be slowed down and cleaned.
Pervious Pavements
Pervious pavements allow the infiltration of stormwater in areas that would normally be impervious. They also enhance groundwater recharge through increased percolation of rainwater into the soil underneath paved areas. Pervious pavements can be applied to walks, parking lots, roads, and driveways in the form of pervious asphalt, pervious concrete, or pervious pavers. Similarly to rain gardens, if local soils are not sufficient to infiltrate the stormwater into the ground water system, underdrains can be included to take the stormwater to the storm sewer system after it has been cleaned and delayed.

Green Roofs
Green roofs, while relatively new to the United States, have proven effective at managing small rain events while slowing runoff for large rain events. Including natural surfaces to what would normally be impervious allows stormwater from small rain events to be absorbed and used by plants rather than running into the stormwater system. This scenario more accurately mimics the conditions that would have occurred prior to the development of the site.

Stormwater Recommendations
Stormwater Quality
- Design treatment facilities to treat the 1-year, 24-hour storm, accounting for 99.1 percent of all rainfall events, which will reduce the AAR for the proposed condition back to that of the pre-developed condition by doing the following:
  - Utilize pervious paving or infiltration trenches for all existing and proposed parking lots (upgrade existing lots as useful life ends).
  - Design 90 percent of proposed buildings in the Jordan River watershed and 50 percent of proposed buildings in the Cascade Creek watershed to include infiltration facilities.
  - Retrofit 75 percent of the existing buildings in the Jordan River watershed and 50 percent of the existing buildings in the Cascade Creek watershed with infiltration facilities.
- Treat stormwater quality for existing roads. Target 33 percent of all existing roads in both watersheds for infiltration facilities, in the form of pervious paving when roadway pavement is in need of replacement or infiltration trenches if right-of-way is available.

Stormwater Quantity
- Due to limited space on campus, eight feasible locations for stormwater detention have been located to detain the 25-year, 24-hour rainfall event.
- Implement stream bank stabilization measures by planting native, wood vegetation along the banks to restore stream quality.
- Plant in-line detention basins with wetland species in order to act as natural buffer zones. The buffer zones should not be maintained (no mowing or chemical application) in order to filter the water and provide wildlife habitat.
- Springs within the system should be protected to prevent pollution inputs in their recharge areas.
SANITARY SEWER SYSTEM
The sanitary sewer system of the University and Bloomington is a gravity-fed system that roughly follows the same drainage patterns as the stormwater. The City maintains the sewer lines within the street rights-of-way and the University maintains the sewers from the buildings connecting to the city’s sewer system. The north portion of campus drains north and eventually ends at the Blucher Poole Waste Water Treatment Facility, which is located approximately 5 miles north of campus. The south portion of campus drains south to be treated at the Dillman Waste Water Treatment Facility, which is located approximately 5 miles south of campus. There are three main lines that exit campus to tie into the city’s sanitary sewer system (Outlets 1, 2, and 3).

Outlet 1
Outlet 1 is a 24-inch main that exits campus to the southwest between East Kirkwood Avenue and East Sixth street and eventually drains to the Blucher Poole Waste Water Treatment Facility. The sewer lines that drain to this outlet roughly follow the Jordan River watershed drainage pattern.

Outlet 2
Outlet 2 is a 12-inch main that exits campus to the northwest at North Dunn Street and eventually drains to the Blucher Poole Waste Water Treatment Facility. The sewer lines that drain to this outlet roughly follow the Cascade Creek watershed drainage pattern.

Outlet 3
Outlet 3 is a 10-inch main that exits campus to the east at East Tenth Street. This outlet also drains to the Dillman Waste Water Treatment Facility. The sewer lines that drain to this outlet roughly follow the Jackson Creek drainage pattern. According to IUB Utilities Division staff, Outlet 3 currently experiences capacity challenges.

OVERALL SANITARY SEWER RECOMMENDATIONS
• Reroute sewers that currently interfere with the stream channel.
• Schedule major underground infrastructure projects in conjunction with one another to avoid repeat work.
• Establish a sanitary sewer infrastructure maintenance program in order to monitor all drainage systems and plan for future development.
• Communicate and coordinate between the City and the University to ensure a consistent quality of maintenance and monitoring of the drainage system.

The Campus Master Plan includes plans to construct several new buildings as well as to demolish several existing buildings. The expansion of campus will be completed in 10-year and 20-year build-out phases. The addition of building area will correspondingly

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Grand Total 7,251,636, 305,796, 1,767,146, 530,144, 1,362,964, 285,125, 50,000, 45,000, 10,431,746, 1,166,065

Note: Academic Buildings 82 gpd/1,000 sf; Research Buildings 300 gpd/1,000 sf; Residential Buildings 225 gpd/1,000 sf (gpd = gallons per day)
result in increases to the sanitary sewer system. The following recommendations outline the increases that will occur in each of the three main sewer lines.

**Outlet 1: Recommendations**
- Twenty-nine buildings planned for demolition will be disconnected from the drainage system (202,680 gpd decrease in sanitary load).
- Fifty-eight buildings and a net gain of an estimated 600,544 gpd (0.93 cfs) of sewage will be added to Outlet 1 at full build-out.

**Outlet 2: Recommendations**
- No buildings will be disconnected from the drainage system contributing to Outlet 2 due to demolition.
- Ten buildings and a net gain of an estimated 143,087 gpd (0.22 cfs) of sewage will be added to Outlet 2 at full build-out.

**Outlet 3: Recommendations**
- Seven buildings planned for demolition will be disconnected from the drainage system (87,567 gpd decrease in sanitary load).
- Twelve buildings and a net gain of an estimated 422,433 gpd (0.65 cfs) of sewage will be added to Outlet 3 at full build-out.
ARCHITECTURAL GUIDELINES

The architectural guidelines comprise both broad design initiatives applicable to the IUB campus as a whole, as well as specific formal and functional objectives adapted to each neighborhood of the campus. The guidelines reinforce the IUB planning principles, which include:

- Respect the character of the historic core.
- Restore the Jordan River corridor.
- Define and enhance neighborhood edges.
- Create a compact, walkable campus.
- Increase and enhance gathering spaces.
- Introduce vertical integration.
- Preserve natural features and memorable open spaces.
- Sustainably manage physical and natural resources.
- Provide the infrastructure necessary to support campus growth and change.

The campus is comprised of a network of distinctive neighborhoods anchored by the historic core. Each neighborhood is defined by distinguishable places, function, character, and activity. The physical nature and architectural character of each neighborhood is unique and identifiable. Uniqueness is to be leveraged and strengthened as new structures are developed and added to the building inventory. Differences between neighborhoods should be accentuated while maintaining a consistent unified image for the Bloomington campus.

This deliberate distinctiveness is meant to augment the effectiveness of the historic core, not dilute it with new designs conceived as stylistic reproductions of the original structures. Implementing derivations of the original designs would undermine the significance and poignancy of the originals. While the architectural character of each neighborhood is meant to be distinct, many of the planning principles, attitudes toward landscape, topography, fenestration, and materiality will remain consistent across all neighborhoods.
The historic core possesses a memorable collection of distinguished iconic structures organized by the mature woodland quad of Dunn’s Woods. This distinctive area blends romantic architecture styles with picturesque landscape topography in a manner that is to be emulated in developing parts of the campus. The structures of this neighborhood vary stylistically and include exceptional examples of Victorian, Romanesque, Collegiate Gothic, Greco Deco, WPA Moderne, and Brutalist Modern. The strong lasting impression created by the neighborhood’s powerful imagery provides a clear and unique identity that has come to represent the enduring values of Indiana University. The outlying neighborhoods radiating from the historic core contain varying collections of traditional and non-traditional academic and infrastructure buildings. The quality and elegance of the building inventory across these neighborhoods varies widely, further accentuating the distinguished architectural presence of the historic core.

The architectural guidelines facilitate the development and implementation of new structures to enhance the existing campus context by sympathetically embracing established design principles. While the general perception is that the Bloomington campus uniformly exemplifies the Collegiate Gothic architectural style, many architectural styles are also prominent. The variety found in the historic core represents numerous significant periods of American architectural history, with each design embodying a spirit and stylistic character of its time. Continuing this tradition, new structures on the Bloomington campus need not be stylistically specific, but rather intellectually informed by current cultural, technological, and architectural aesthetic paradigms. This “au court” approach is not intended to give license to designs that disregard or compete with the established aesthetic context. Rather, it is intended to encourage designs that are unique and forward thinking while also stylistically harmonizing with the rich architectural setting. Nowhere is this stylistic harmonization more important than in and around the historic core.

Reflecting on hiring Eggers & Higgins as the University architects/planners in 1939, Herman B Wells later said, “It was our plan from the start to try to preserve the traditional style of architecture on the old campus with as little modification as possible but, as we moved outward, to allow the buildings to conform with architectural styles currently in vogue.”

—Being Lucky,
The autobiography of Herman B Wells, Indiana University President 1937-1962
The campus development methodology encourages diversity amongst its districts and programs. While each building should reflect its own time and place, it should also reflect the enduring values of Indiana University: quality, durability, elegance, and commitment to academic excellence. Each building design should contribute to the identity of the campus while enhancing the architectural and landscape pattern of its individual neighborhood.

**Campus Edges**
The edges that define the limits of campus and the city of Bloomington must present the impression of a dignified world-class institution. The established North Indiana Avenue and East Third Street edges that define the boundary of the historic core are the most powerful and effective to this end. All new edge-of-campus structures must possess a compatible coherent memorable impression of the University. Gateway buildings must further reinforce this ideal and provide significant architectural features that respond to primary campus circulation paths, nodes, and open spaces. Architectural features that enhance and support wayfinding are encouraged.

**Materiality**
The IUB campus has a rich tradition of building materials that is critical to the effectiveness of its lasting memorable impression. The quality, durability, and timelessness of these materials express Indiana University’s distinguished heritage and commitment to excellence. The predominant façade building material on campus is variegated Indiana limestone in either random ashlar or panelized form. Sloped roofs are Vermont slate with a minimum slope of 1:11. New structures within the historic core must utilize variegated Indiana limestone and Vermont slate if sloped roofs are deemed appropriate.

Limestone façades are encouraged outside of the historic core, but limestone need not be the predominant building material. Façades may include combinations of precast concrete and veneer brick. If limestone is not the primary building material, limestone accents must be
incorporated around or near main entrances and important building features including site walls.

Building façades must demonstrate a coherent architectural composition that assimilates into the established campus context. Designs must have a single unifying vocabulary of forms, details, and materials. New building façades should maintain the general neutral color of the historic core’s material palette and emulate its attention to detail.

Scale
Large buildings should incorporate design features to reduce their perceived mass, promoting a human scale for the campus. Such features may include changes in the plane of façades, changes in vertical height, and/or incorporating a variety of materials.

Entrances
Building entrances must be monumental and considered a major design feature emblematic of the building’s occupants. Entrances must be located along prominent open spaces or primary pedestrian and vehicular circulation paths and sited to maximize visibility and identity. Entrances must be designed to create a place of interaction directly adjacent to their location to encourage casual gathering.

Ground Levels
Building development will both enhance established campus spaces and maximize opportunities to create new active campus spaces. Building forms must be configured to define appropriately-scaled campus spaces as defined in the Campus Master Plan. Ground level interiors facing a campus space or street should house functions with a high degree of activity and should be transparent and visually accessible. Canopies, colonnades, and other ground level articulations, such as projecting or recessed entryways, are encouraged. Ground level spaces in designated districts should include predetermined high-quality retail establishments.

Height/Density
Opportunities for integration of functions should be taken full advantage of, mixing
to solar angles and wind direction to reduce energy consumption. Appropriate shading options should be incorporated including architectural and landscape elements. Measures to optimize natural airflow and ventilation must be considered.

Orientation/Topography
Indiana University’s rich tradition of architectural engagement with the landscape must be embraced and emulated in all new structures. Existing site topography must be carefully preserved and left in its natural state as much as possible without radical regrading or earth retention. Building orientations and development densities must be sensitive to both topographic features and environmental orientation. Buildings should be oriented and designed in response to the landscape as much as possible.
Program

Campus buildings regularly outlive their initial programmed uses and occupants. Building designs must provide for flexibility as programs and program requirements change while maintaining the outward visual expression of the University’s ideals and values. Fixed elements must be minimized, and internal partitions should be easily changed. Floor-to-floor heights should anticipate a range of present and future infrastructure requirements. Net building area to gross building area ratios must be carefully established to ensure that adequate unprogrammed casual/communal spaces are conducive to informal, unstructured interaction.

Service Points

Building service points and discrete connections to utilities must be carefully integrated into a building’s design without compromising visual integrity. Loading docks must be fully enclosed or visually screened and accessible from predefined service corridors. Exterior rooftop equipment must be fully concealed with integral architectural building elements. Pad-mounted equipment at grade must be similarly screened.

All exterior equipment on grade must be located in a designated service yard area and must be visually screened architecturally or with landscaping. Screening must be continuous on all sides and extend to the top of the equipment. Alternate screening configurations that include landscape and/or topography may be considered.

Sustainability

All new building and renovation projects must embrace sustainable design and building practices. Indiana University is committed to achieving LEED® Silver certification for all projects as defined by the United States Green Building Council.