150 years

TOWSON UNIVERSITY

2015 CAMPUS MASTER PLAN

Towson University

2015 Campus Master Plan

Approved by:

The University System of Maryland – Board of Regents on October 9, 2015

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Acknowledgements

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Towson University

Office of the President
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Student Affairs
Housing and Residence Life
Athletics
Student Government Association
University Relations/Advancement
TU Foundation
Division of Innovation and Applied Research
University of Marketing and Communications
Administration and Finance
Auxiliary Services
Human Resources
Fiscal Planning and Services
University Budget Office
Office of Technology Services
Office of Public Safety
Facilities Management
Event & Conference Services
Office of Sustainability
University Police
Parking & Transportation Services
Campus Open Forums

Community Stakeholders

Community Open Forums
Towson Community Relations Committee
Greater Towson Committee (GTC)
Greater Towson Council of Community Associations (GTCCA)
Aigburth Manor Association
Rodgers Forge Community Association
Southland Hills
Towson Chamber of Commerce
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- GBMC
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- Goucher College

State Highway Administration
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Bike Maryland - Bike Friendly University

Consultants

Ayers Saint Gross, Architects & Planners
Mahan Rykiel & Associates, Landscape Architecture
BioHabitats, Environmental
Sabra Wang, Transportation
Site Resources, Stormwater Management and Civil Engineering
Setty Associates, Site Utilities
SpeXsys, Information Technology
Forella Group, Cost Estimating

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Executive Summary

Introduction

Celebrating the 150th anniversary of its founding, Towson University is recognized among the nation's best regional universities, offering more than 100 degree programs at its 329 acre campus. With more than 22,000 students, Towson University is the second largest public university in Maryland. Towson plays a key role in the educational, economic, and cultural life of its surrounding community, the Baltimore metropolitan area, and the state of Maryland.

The Towson University Campus Master Plan establishes a long-term vision shared by the university and its community partners for the successful future development of the campus. The 2015 Campus Master Plan builds on the strong foundation of the 2003 and 2009 Campus Master Plans—a process which incorporated the views of more than 65 campus and community groups and more than 600 people, and required many hours of work by university staff and consultants.

As part of the 2015 plan process, the university met with numerous on-campus groups representing faculty, students, staff and alumni, as well as with off-campus constituents including adjacent homeowner's associations, Towson residential associations, local business groups, county and state government, adjacent institutions, and state and county legislators. Input from these meetings was incorporated into draft plans that were shared with these constituents for feedback that was subsequently incorporated into the final plan.

The resulting vision for Towson University addresses both University System of Maryland requirements and community needs. It sets forth a framework for development of academic and student life buildings, as well as roads, pedestrian pathways, parking, utilities and landscapes to connect and support these buildings. The plan also establishes guiding principles for improving the institutional image, creating a sense of arrival to campus, forming an identifiable campus that is connected to its larger community, and integrating man-made and natural environments.

The Campus Master Plan framework, principles and recommendations were developed to embody, support and advance the university's mission. However, the plan is more than that—it is an opportunity to create a better future for the students, faculty, staff, alumni, neighbors and partners of Towson University.

Program Overview

Excellence at Towson University begins with its commitment to a sound liberal arts education for every student. All students explore the historical development and interrelationships among the four central areas of knowledge — fine arts, humanities, science and mathematics, and social and behavioral sciences — and how each discipline addresses the world, investigates, reaches conclusions and presents findings—extending the reaches of human knowledge. The university assists all students in developing a range of intellectual skills that will continue to enrich and shape their lives long after their formal education has ended.
Towson University currently offers more than 100 bachelors, masters and doctoral degree programs in the liberal arts, sciences and applied professional fields. The university provides innovative graduate courses and programs that respond to specific state, regional and national work force demands. The university's six undergraduate colleges — the College of Business and Economics, the College of Education, the College of Fine Arts and Communication, the College of Health Professions, the College of Liberal Arts, and the Jess and Mildred Fisher College of Science and Mathematics — offer 64 undergraduate majors leading to the baccalaureate degree. The university also offers specialized programs, including minors, concentrations, tracks and double majors.

Towson University will continue to focus on program development that addresses critical work force needs, while continuing its commitment to its liberal arts foundation. Projected program growth in liberal arts, business, education, health professions, information technology, fine and performing arts, and interdisciplinary studies will provide for growth in areas that meet work force demand and focus on institutional strengths of the University. All new academic program initiatives will be developed in support and advancement of the university's mission.

Towson University Mission Statement

Towson University fosters intellectual inquiry and critical thinking preparing graduates who will serve as effective, ethical leaders and engaged citizens. Through a foundation in the liberal arts, an emphasis on rigorous academic standards, and the creation of small learning environments, we are committed to providing a collaborative, interdisciplinary and inter-professional atmosphere, excellence in teaching, leadership development, civic engagement, and applied and sponsored research opportunities at the undergraduate and graduate levels. Our graduates leave Towson University with the vision, creativity and adaptability to craft solutions that enrich the culture, society, economy, and environment of Maryland, the region, and beyond.

Strategic Plan and Enrollment Growth

In keeping with the University System of Maryland Strategic Plan and the Maryland State Plan for Higher Education, the university will pursue the following Towson University Strategic Plan goals:

TU2020 is the evolution of Towson University's two previous strategic plans, TU2010 and TU2016, and focuses their 46 action items on 10 institutional priorities. Each is aligned with potential funding opportunities from the state of Maryland, the University System of Maryland and the private sector. Rooted in the philosophy that a liberal arts education is the base for all undergraduate programs, the success of the 10 priorities is threaded through and dependent upon these underlying principles:

- Faculty teaching/scholarship/research/service and staff commitment and development
- Expanded interdisciplinary credit and noncredit experiences
- Undergraduate and graduate education
- Community outreach
- The contributions of Cook Library

About Towson's Enrollment Growth

Determining the impact of planned enrollment growth is critical to understanding the needs of the institution. Through the 2015 Master Plan, the university has examined the impact of increasing enrollment to 25,000 headcount students on the Towson campus within the next fifteen years. This growth is paired with a change in the campus demographics, which are trending toward a higher percentage of traditional students. For a campus grappling with significant space needs under current enrollment levels, accepting additional students creates a challenge, but also an opportunity to enhance the character of the existing campus while accommodating the new enrollment targets.

Towson University Growth, 2009-2029 (projected)

Category	*Historical* Fall 2009	*Current* Fall 2014	*Projected* Fall 2024	*Projected* Fall 2029
Headcount Enrollment - Institution [1]	21,177	22,285	25,034	27,193
Headcount Enrollment - Towson Campus	19,500	20,459	22,982	25,000
FTE Undergrad Enrollment - Institution [1]	15,986	17,188	20,432	20,974
FTE Undergrad Enrollment - Towson Campus	15,533	16,320	19,400	19,825
On-Campus Student Housing	4,385	4,972	7,760	7,930
On-Campus + Adjacent Student Housing [2]	5,495	6,082	8,870	9,040
Parking Spaces	7,279	7,776	9,290	9,490

Notes:

[1] *Institution includes: main Towson campus, satellite campuses, and online education*

[2] *TU Adjacent Student Housing includes: University Village (585 beds) and Towson Place (525 beds)*

TU 2020: A focused Vision for Towson University

Academic Excellence and Student Success

Towson University's top priority, Academic Excellence and Student Success, is dependent on the teaching and mentorship of faculty. We will continue to improve graduation completion and retention rates, close the achievement gap, ensure a seamless transfer process and prepare globally conscious students for an expanding workforce. Commitment to this priority includes academic transformation and course redesign.

Innovation in Teacher and Leader Preparation

Towson University's historic reputation in teacher education continues to lead the nation as an example of best practices in teacher preparation and school leadership. Excellence and innovation in STEM, arts integration and special education will transform the future of the pre-K through 12 academic model for the youth of Maryland and the nation.

STEM Workforce Development

Towson University is a major contributor to Maryland's STEM workforce. In addition to teacher preparation, we will reinforce and expand our contributions to workforce development in STEM disciplines such as cybersecurity and forensic chemistry.

Innovation, Entrepreneurship and Applied Research

Towson University's focus on innovation and entrepreneurship facilitates collaborations and strategic partnerships with the community and the state. We will continue to support our faculty, staff and student applied research endeavors and connect their work to teacher transformation, innovation and entrepreneurship. We will continue to promote economic and workforce development to keep the majority of Towson graduates working in Maryland.

Internships and Experiential Learning Opportunities

Towson University will expand its emphasis on internships and experiential learning, and significantly increase corporate, educational, government and health care partnerships to help provide these opportunities.

A Model for Leadership Development

Towson University is rooted in our strong commitment to civic engagement, civility and ethics. The university supports personal and professional growth by recognizing and developing positive leadership philosophies and styles. Our primary goal is to instill in our students the qualities essential for outstanding, lifelong leadership in all aspects of their lives. We are also committed to increasing credit and noncredit opportunities in leadership development for our faculty, staff and students.

A National and International Reputation for Arts and Arts Education

Towson University alumni and their work garner national recognition in the arts with Emmy, Grammy, Oscar and Tony nominations and awards. The university is well known for its cultivation of talented artists and communicators, and we will continue to expand our national and international reputation in arts and communication.

A Model for Campus Diversity

Towson University will further strengthen its commitment to diversity and continue to provide a safe, inclusive, welcoming and peaceful community respectful to all. The university will continue as a recognized national model for diversity and closing the achievement gap. Our institutional strategies will expand and continue to provide a forum for campus dialogue and action.

Student, Faculty, Staff and Community Well-Being

Towson University is a major educator of health professionals in our region. We are dedicated to continue to empower our campus and our greater community to make choices for lifelong well-being and effective stewardship of our natural resources.

Excellence in Athletics

Towson University is committed to a financially stable, gender-equitable and competitive athletics program. The university will continue to support these goals by placing academics first. We will support opportunities for all university students to participate in a range of sports activities and leadership opportunities that support physical well-being and personal excellence

Existing Facilities and Development Since 2009

The 2009 Master Plan developed a long-term vision for Towson University based on the effective use of land, a respect for the natural environment, connectivity and a clear civic presence. The 2015 Campus Master Plan follows this framework and refines the plan to meet the needs of the University's Strategic Plan and projected enrollment growth.

Development since 2009

Following the 2009 Campus Master Plan, a number of major facility projects have been completed, are under construction, or are in design on the Towson campus.

2010

- Campus gateway at Towsontown Boulevard

2011

- College of Liberal Arts Phase 2 added 193,000 GSF of academic space
- West Village Phase II added 647 beds.
- West Village Commons provided needed dining, retail, meeting, office space, and other student service spaces.
- West Village Parking Garage added 1,500 parking spaces

2012

- The Institute for Well-Being and WTMD at City Center in downtown Towson

2013

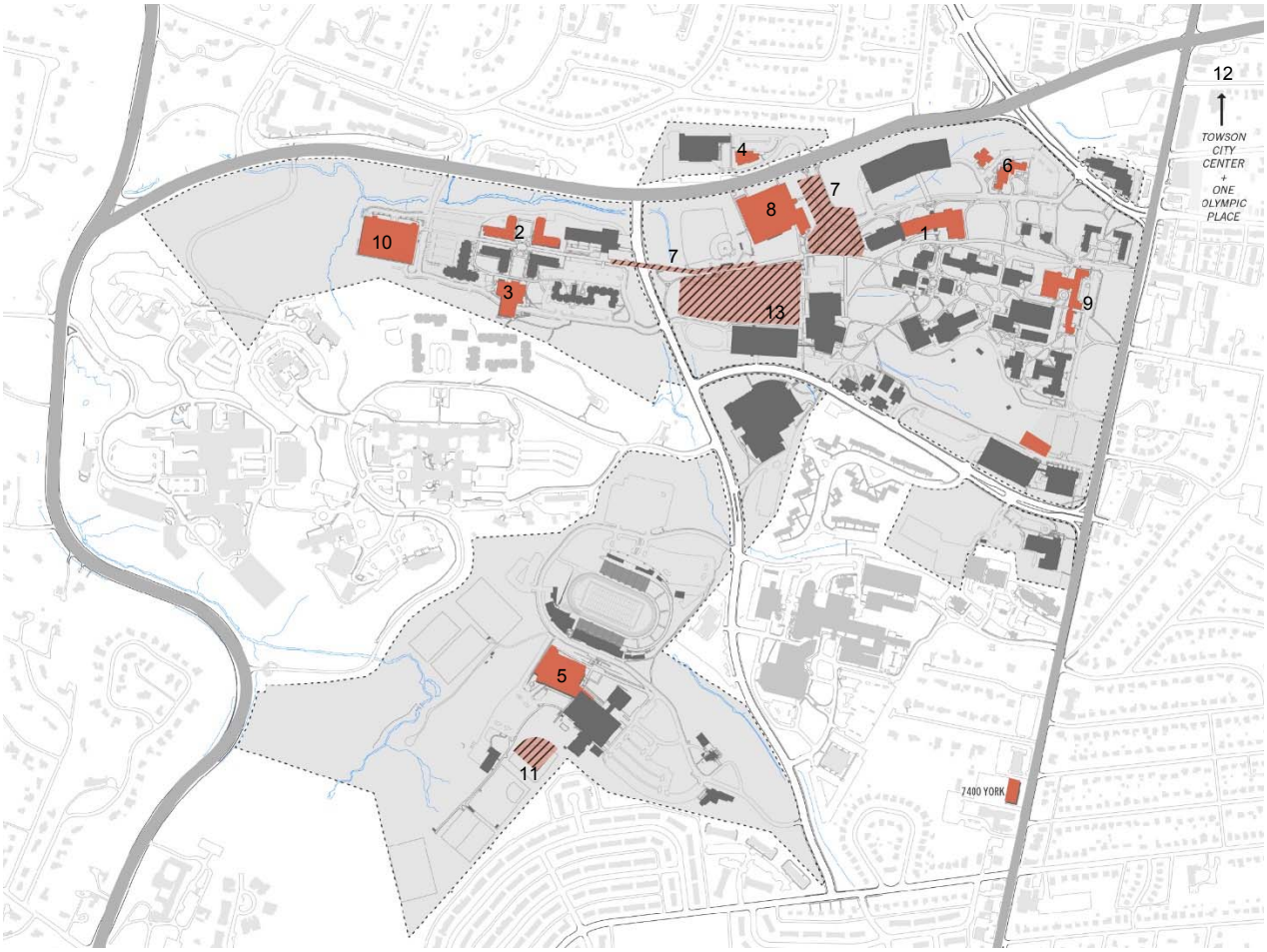
- Richmond and Newell Halls renovations housing for 315 beds
- SECU Arena added a state of the art 5,000 seat multipurpose arena to the campus
- Ward and West renovation and addition for counseling and health services
- Public Safety Building consolidated units in a new 20,000 GSF building

2014

- Campus Site and Safety Phase II including a new pedestrian and bicycle bridge across Osler Avenue connecting the West Village to the Core Campus
- 7400 York Road Renovation
- Burdick Hall renovated, 45,000 GSF

2015

- Softball Facility Improvements
- West Village Phase III & IV is under construction and will add 700 new beds by Fall 2016
- Burdick Hall Expansion, currently under construction, will add needed recreation space
- New Science Building is in design
- Residence Tower renovation is currently in design updating 450 beds
- Newell Dining renovation is currently in design

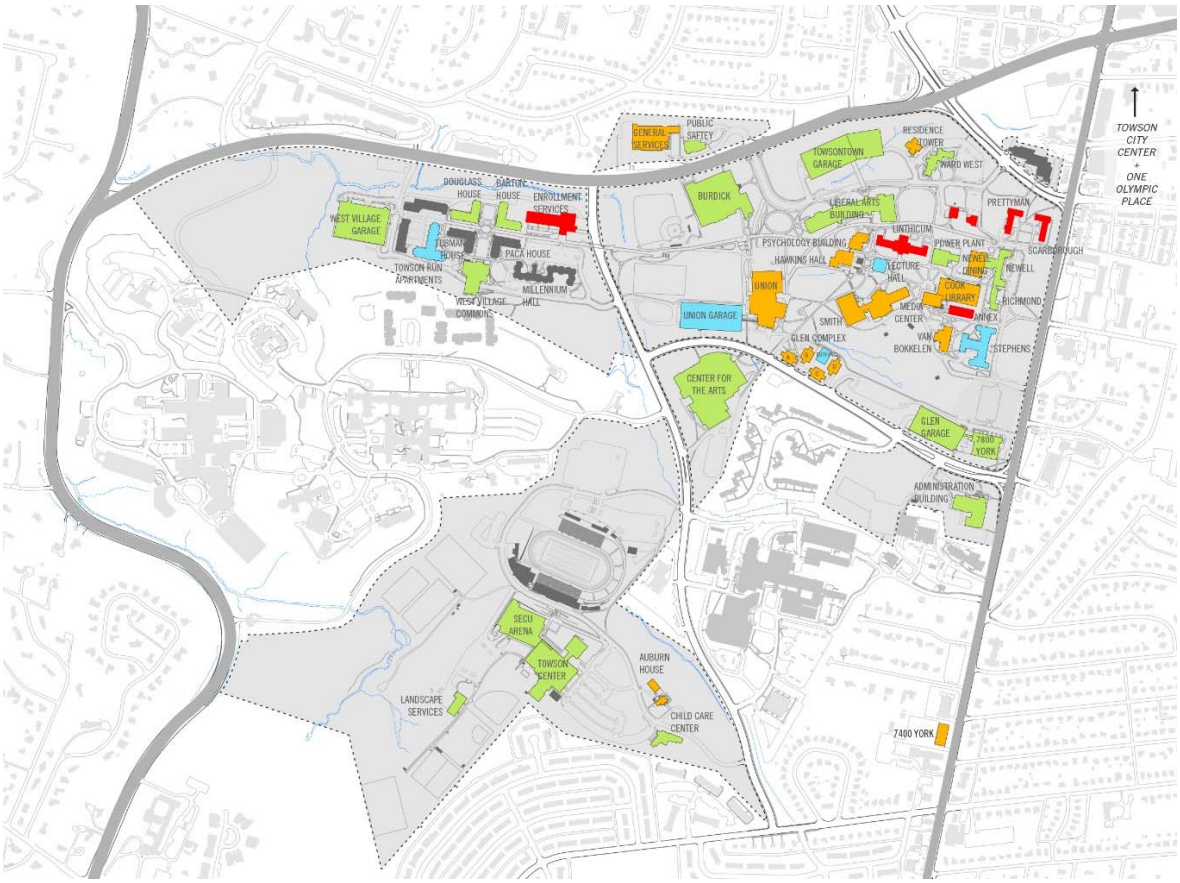


Projects Completed Since 2009

1. College of Liberal Arts Phase II
2. West Village Phase II
3. West Village Commons
4. Public Safety Building
5. SECU Arena
6. Ward and West Renovation
7. New Campus Gateway and Campus Site and Safety Phase II
8. Burdick Hall Phase III
9. Richmond and Newell Hall Renovations
10. West Village Parking Garage
11. Softball Facility Improvements
12. WTMD and Clinics at Olympic Place in downtown Towson
13. Burdick Field/ Campus Recreation turf fields

Existing Facilities

In addition to the pressures of increased enrollment, the physical condition of many existing buildings has deteriorated due to heavy use and age. Many facilities require major renovations to accommodate the evolving needs of education and to allow existing buildings to function more effectively and efficiently. Towson University's strategy to address the existing space deficit while modernizing existing facilities necessitates the need for a careful phasing of capital facility projects.



2015 Building Condition Summary

Good Condition
Suitable for continued use with normal maintenance. The estimated “renovation cost” of the building is less than 15 percent of the estimated “replacement cost” of the building.

Modernization
Requires restoration to present acceptable standards without major room use changes, alterations, or modernization. The estimated “renovation cost” is between 15 percent and 25 percent of the estimated “replacement cost” of the building.

Major Renovation
Requires major upgrading and/or modernization of the building. The estimated renovation “replacement cost” is between 26 percent and 50 percent of the estimated “replacement cost” of the building.

Potential Removal
Requires major remodeling and upgrading of the building. The estimated “renovation cost” is greater than 50 percent of the estimated “replacement cost” of the building.

Planning Principles

The 2015 Campus Master Plan combines the framework of the 2003 and 2009 Master Plans with the University's Strategic Plan goals through the following planning principles:

A. Support Academic Excellence and Student Success
B. Develop the campus to the responsible capacity of the land
C. Create a compact, connected and comprehensible campus
D. Develop a more sustainable campus
E. Define clear edges and centers

The five planning principles and their application to the 2009 Campus Master Plan in further detail:

A. Support Academic Excellence and Student Success

Towson University is located at the northern edge of the Baltimore metropolitan region, just south of Towson, the Baltimore County seat. The region is home to 22 colleges and universities, seven of which, including TU, lie on the Charles Street and York Road corridors. Towson University has the largest enrollment of these institutions.

The university property is located directly adjacent to Sheppard Pratt Health System, University of Maryland Saint Joseph Medical Center and the Greater Baltimore Medical Center, creating a 500-plus acre area bounded by strong residential neighborhoods and the southern edge of the Towson central business district. While the focus of this physical master plan is for the Towson campus, education at Towson University is not limited only to courses offered at this location. Towson University has established partnerships with 14 Maryland community colleges — including those in Harford County, Hagerstown, and Southern Maryland — to create seamless transfer opportunities between associate degree programs and Towson University baccalaureate and graduate degree programs.

Currently, 45 percent of Towson University's students arrive on campus as freshmen, 39 percent transfer to Towson University, and 16 percent begin their affiliation with the university as graduate students. Almost 82 percent of undergraduate students are from the state of Maryland and more than 62 percent of those undergraduates are women.

Due to a competitive application process, the caliber of admitted freshmen has increased in recent years, with SAT averages of 1626 and a grade-point-average of 3.61. In fall 2014, Towson University received 22,999 applications for only 4,698 seats.

With the university now attracting increasingly stronger students, the 2015 Plan serves as an important tool in providing the necessary resources and best possible facilities to enhance the academic, residential and recreational experiences of their collegiate career at Towson University.

B. Develop the Campus to the Responsible Capacity of the Land

Facilities Overview

The Towson University campus consists of 55 buildings comprising 5,612,095 gross square feet (GSF) (2,479,058 net assignable square feet (NASF)), of which 26 buildings are state funded totaling 2,215,218 GSF (1,332,531 NASF). Since 2009, institutional enrollment has grown nearly five percent.

Most of the academic buildings on campus have never been renovated, and those that have, were renovated over two decades ago. Many of these buildings are approaching or have reached the end of their useful life. The planned new Science Building will provide 316,000 GSF of new research and teaching space for life and physical sciences and allow the adaptive renovation of Smith Hall for Visual and Communication Arts. The planned College of Health Professions Building will provide 250,000 GSF to consolidate the college out of six current locations across campus.

The 2015 Campus Master Plan Capital Improvement Program includes recommendations for renovating a number of academic buildings, including Smith, Hawkins, Psychology, Stephens and Van Bokkelen Halls, and Cook Library. To supplement and provide expansion space for academic support and community outreach functions, the university leases 64,887 GSF in the City Center in downtown Towson. This location serves as the primary community outreach facility and includes Towson's public radio affiliate WTMD and the Institute if Well Being, which consists of The Hearing and Balance Center, The Hussman Center for Adults with Autism, The Occupational Therapy enter, and The Speech, Language and Hearing clinics.

Auxiliary facilities comprise the remaining 30 buildings totaling 3,397,547 GSF (1,137,702 NASF). This includes 15 residence halls, two dining halls, a student center, West Village Commons, five athletic facilities, four parking structures, a childcare center, and a conference center hotel. Currently the Towson Center and Burdick Hall provide opportunities for student recreation. An addition to Burdick Hall is currently under design and will provide needed additional recreational opportunities

In fall 2008, construction was completed on the first of five planned phases of housing in the West Village. Phase I and II added 1,315 new beds. The West Village Commons was completed in 2011 adding a mix of student services including dining, retail, meeting, office and other student service spaces which enhances the area's living and learning environment and serves as a central gathering space for current and future residential students. A 1,500 space parking garage was added to meet the parking needs of the West Village as well as the meeting facilities in the West Commons. The West Village build-out plan consists of one additional phase of housing, which will add 600 new beds once the Enrollment Services Building is replaced.

TU is currently adding 700 beds to the west end of the Village. This new housing will add enough capacity to the campus to facilitate the phased renovations of the Residence Tower and the Glen Towers over the next ten years. In addition, Newell Dining and Glen Dining Halls will be renovated at the same time.
One of the significant changes from the 2009 plan is a rethinking of the South Campus as a vibrant mixed use neighborhood with the addition of 1,000-1,200 new beds, dining, informal recreation, and parking. This new development will be primarily on the northern tip of the South Campus and connect to the Academic Core with a new bridge across Osler Drive. The new housing will be a unique neighborhood and could include approximately 300 beds of Greek themed housing with chapter rooms and student meeting space.

Space Needs Assessment

A space needs analysis was conducted to detail and identify current and projected space needs. According to the fall 2014 space data from the university's Space Guideline Application Process (SGAP) Report, the total space on campus is about 1.6 million NASF, excluding housing and parking facilities. Applying higher education guidelines to the identified space categories in Academic, Academic Support and Auxiliary Space reveals a deficit of 252,000 NASF as of fall 2014. Given the projected enrollment of 25,000 students, the space deficit is projected to grow to 613,000 NASF. Implementation of the planned facility projects proposed in the 2015 Plan will result in approximately 1.4 million GSF or about 800,000 NASF of additional space in these categories, thus offsetting existing and projected space deficits generated by projected enrollment growth.

Property Acquisition Plan

In 2011, the university acquired the 7400 York Road property, which serves interactive community outreach functions. In 2012 the University entered into a lease in the Olympic Place downtown Towson providing the Institute for Well-Being and Towson's public radio station WTMD.

New West Village Housing

C. Create a Compact, Connected and Comprehensible Campus

The 2015 Plan reflects the dramatic needs of the institution and the significant constraints of the campus setting. The needs of the campus for academic space and additional housing capacity create the opportunity to better organize and concentrate these functions on campus. The 2015 Plan organizes the campus into four areas: Academic Core, Student Life, West Village, and South Campus.

The Academic Core is centered around a new green space created at the entrance to Cook Library and is flanked by the proposed College of Health Professions Building and the College of Liberal Arts Building. In addition to anchoring the new space, these buildings functionally realign academic departments that are currently dispersed throughout campus. A building addition to Cook Library will provide additional space for collections and student study and research.

The new Science Building south of Stephens Hall will replace outdated research and teaching labs currently in Smith Hall which was built over 40 years ago. Once the new Science Building is complete, Smith Hall will be renovated to accommodate the visual and communications technology programs. Renovation of Stephens, Van Bokkelen, Burdick, Hawkins, and Psychology will help to consolidate academic space and complete the realignment of the academic functions and departments within the Academic Core.

More than 1,000,000 GSF of new building space has been identified in the Academic Core to accommodate additional academic and support buildings to sustain planned enrollment growth through 2029.

New Science Building South Plaza

Academic Core

A major goal of the 2015 Plan is to complete the functional realignment of academic and academic support departments currently dispersed throughout campus. In 2011, The College of Liberal Arts was consolidated in one building. Consolidation of the remaining University Colleges will be achieved through the following projects:

- The Fisher College of Science and Mathematics department of biology, chemistry, and physics will move into a new classroom, lab and research building south of Stephens Hall and adjacent to the computer science and mathematics departments in 7800 York Road.
- The College of Health Professions is scattered around campus in six locations — Towson Center, Stephens Annex, Linthicum Hall, Burdick Hall, Enrollment Services and Van Bokkelen Hall. The new building will provide 250,000 GSF of new classroom and lab space, while some program space in Burdick Hall and Towson Center will be maintained.
- The College of Fine Arts and Communication will gain space in a renovated Smith Hall for visual and communications technology.

Functional Realignment Diagram

College of Liberal Arts
Fisher College of Science & Math
College of Fine Arts
College of Health Professions
College of Education
College of Business & Economics

- The College of Business and Economics will utilize existing space in Stephens Hall and Van Bokkelen Hall for the foreseeable future.
- The College of Education, currently in Hawkins Hall, will expand into the adjoining Psychology Building.
- A building addition to Cook Library will add nearly 75,000 GSF which will accommodate new volumes and collections while providing collaborative study areas.
- Renovations of Stephens Hall and Smith Hall, as well as proposed future buildings will accommodate additional classroom space as needed.

Student Life

The area between West Village and the Academic Core serves as a focal point for student activity outside of the classroom. This area includes core student support services such as recreation, health, counseling and enrollment services.

Ward and West Halls were converted and expanded into the Counseling and Health Center, providing 31,000 GSF of student service space.

Burdick Hall and the University Union, along with adjacent recreation fields, currently form the bulk of the campus student life facilities. The fitness addition to Burdick Hall completed in 2014 has improved student recreation facilities and the planned expansion will bring the facility in balance with the projected enrollment. Three new artificial turf recreation fields were provided north of the Union parking garage to provide year round recreational field access.

The University Union was constructed in 1972 for student population of about 11,000. The building is the most heavily utilized facility on campus facility, but is overcrowded and does not have an adequate amount of space to serve the current student population. A complete renovation of the existing building is planned to address the building's aging infrastructure and an 80,000 GSF addition is planned to provide additional student spaces. The University Union renovation and addition project will provide much needed dining, retail, student service, and student group spaces to serve the current and future university needs.

To provide improved access for students and visitors, a new Enrollment Services Building is planned at the campus gateway, between Burdick Hall and the Towsontown Garage.

Burdick Hall Expansion (Currently Under Construction)

West Village
In 2014, a new pedestrian bridge nd bicycle bridge was built across Osler Drive providing a much safer and convenient connection of the West Village to the Academic Core.

On the west side of Osler Drive, the university is approaching the last phases of the build out the West Village. Construction of a new Enrollment Services Building near the Towsontown Garage will allow for additional housing to be developed on the land occupied by the current Enrollment Services Building.

South Campus
In the South Campus, the Childcare Center was completed in 2007. The Towson Center renovation and the new 5,000 seat SECU Arena were completed in 2013.

The 2015 plan converts the South Campus into a vibrant community with the addition of 1,000-1,200 beds of new student housing. The development could include accommodations for Greek housing as well as dining facilities. The South Campus will be connected with a new pedestrian and bicycle bridge which crosses Osler Drive. Additionally, new parking garage will accommodate students and visitors on campus for events at Johnny Unitas® Stadium and SECU Arena.

The Athletics facilities will be updated with new and improved competition and practice fields, a new field house with coaches' offices, stadium improvements, as well as a potential natatorium, ice rink, or indoor practice facility to benefit competitive and recreational sports.

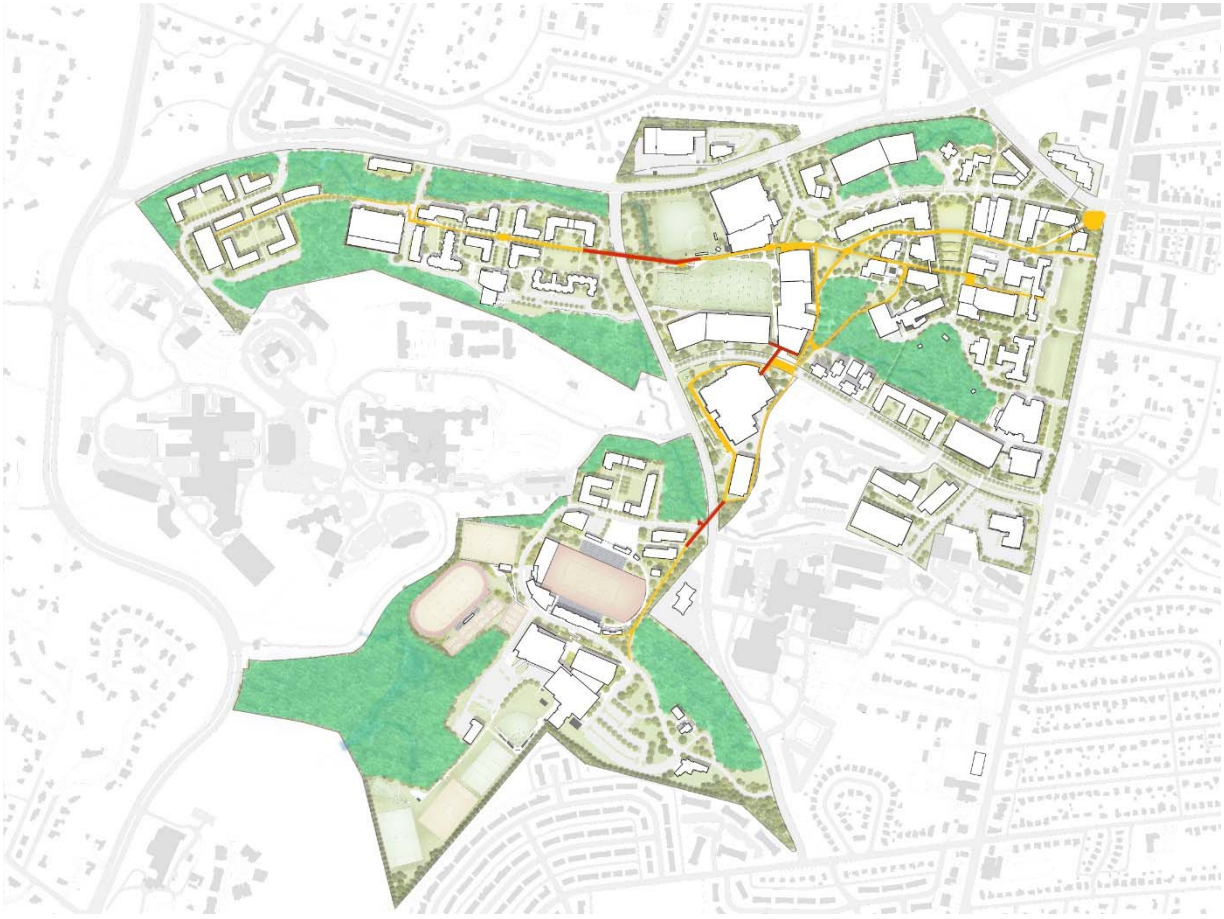
Proposed South Campus Plan

Landscape and Site Connections

The 2015 Plan proposes a landscape that establishes a cohesive open space environment to help the university function better as a place of study and social interaction while enhancing its environmental stewardship. The proposed open space system builds upon three primary landscape typologies—natural, cultivated and transitional landscapes, linked by streetscapes and pedestrian pathways.

The 2015 Plan proposes a hierarchy of pedestrian pathways, including primary/site service, secondary and tertiary paths, and trails. A key component of the 2015 Plan is to connect the campus from “hilltop to hilltop,” mitigating current topographical challenges through pedestrian bridges and landscape treatments, which will enhance the quality of walking to destinations across campus. Primary paths are significant circulation routes that clearly link different campus areas. A strong east-west link between the Academic and West Village Cores is proposed near Stephens Hall, past the University Union, across the Osler Drive pedestrian bridge, and toward West Village. A proposed north-south path links the Academic Core to the Athletics Core and is a pedestrian link to the Towson business area to the north, providing a safe and pleasant walking and biking path for the community. Secondary and tertiary paths link spaces and buildings within each Core with trails—used primarily as recreational paths for bikes and pedestrians—that serve the university, neighboring institutions and the surrounding community.

The Osler Drive pedestrian bridge has been instrumental in improving the connection and cohesiveness of the campus. Likewise the proposed bridge connecting the South Campus to the Academic Core will greatly reduce the perceived distance between these centers.



Proposed Open Space Plan

D. Develop a More Sustainable Campus

Towson University signed the American College and University Presidents Climate Commitment on August 30, 2007. In doing so, this placed the university among nearly 685 other leading institutions that have pledged to neutralize greenhouse gas emissions on their campuses. The university aims to achieve this goal by implementing a climate action plan integrating sustainability into the curriculum and taking the following immediate steps to reduce greenhouse gas emissions on campus:

- Amending its construction standards policy to recommends that all new campus construction is built to the U.S. Green Building Council's LEED Silver standard and/or IgCC Building Standards embracing low-impact design strategies.
- Providing access to — and encourage the use of — alternative transportation for all faculty, staff, students and visitors.
- Minimizing campus waste through soured reduction, recycling, composting, and additional material management.

Towson University has also pledged to reduce energy consumption. The university has embarked on the Department of Energy Better Buildings Challenge to reduce energy use by 20% by 2020. This can be achieved through proper building placement and design, development of efficient utility systems, and retrofitting existing buildings with new energy efficient systems. In addition to energy conservation, the university actively pursues the integration of renewable energy sources with each new capital project.

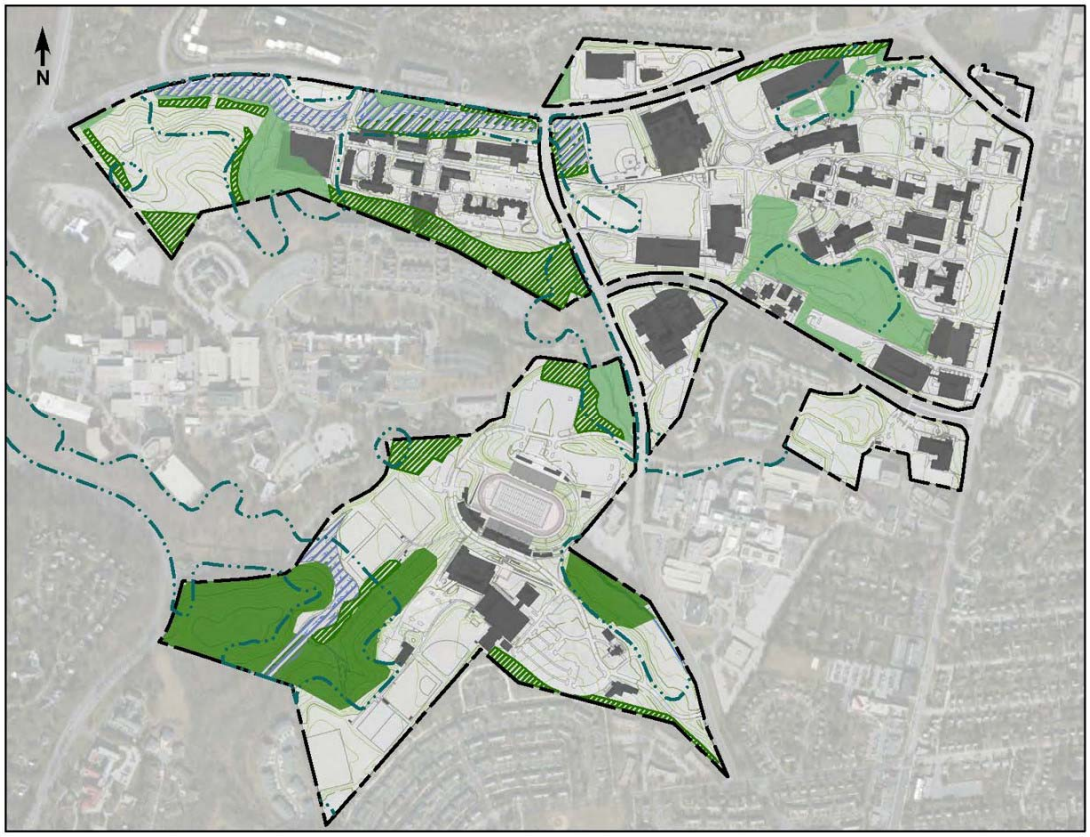
Utility Infrastructure and Energy Systems

Powering, heating and cooling of campus buildings currently generates 58 percent of the greenhouse gases emitted by the university. Therefore, a goal of the 2015 Plan is to improve energy efficiency, reduce carbon emissions, and provide operational redundancy within the Academic Core through expansion of the central utility loop. The first phase of the College of Liberal Arts and Campus Site and Safety projects expanded the central utility plant and developed a portion of the campus chilled water and steam loops. The 2015 Plan proposes an additional chiller, which is anticipated to be accommodated in the Smith Hall renovation, along with the completion of the central utility plant loop. An additional boiler is also planned for the central utility loop within the next 10 years. This additional chiller and boiler capacity is needed to support new buildings in the Academic Core and planned enrollment growth.

Natural Resources

Protection of natural resources such as wetlands, streams and floodplains, rare threatened and endangered species habitat, forests and specimen trees, and steep slopes are a high priority.

The university is situated within the fragile Chesapeake Bay watershed, along the western edge of the Jones Falls watershed. The campus retains components of the naturally-occurring forested character created by woodland stands along steeply sloping hills and riparian floodplain woodlands along streams. Portions of the Towson Run sub-watershed and its tributary channels are within the university property. Protecting the Jones Falls and enhancing campus streams through restoration is an important objective for Towson University. The university has placed a high priority on the restoration of the Glen and the remaining restoration of Towson Run.



Forest conservation easement | Forest stand | Forest restoration | Stream buffer | Flood plain

The campus is composed of 329 acres but is constrained by topography, forest conservation zones, reforestation areas, flood zones, and stream valleys. These elements add to the natural beauty of the campus and must be maintained.

Transportation and Parking Strategy

According to the greenhouse gas inventory, transportation accounted for 32 percent of the greenhouse gas emitted from the university. With this in mind, the 2015 Plan includes transportation-related capital improvement projects, recommendations for operational changes, and proposed policy changes that are synchronized with the goals, land use and growth forecasts already presented. The combined effect of these recommendations is intended to promote sustainable solutions and create a transportation network for the campus that benefits Towson University, its neighbor institutions and local residents.

The most significant impact on the transportation system will be the university's desire to build more on-campus housing. Planned enrollment growth combined with additional new housing in the West Village and South Campus will result in a higher percentage of students living on campus and, therefore, walking or biking rather than driving to class on a daily basis.

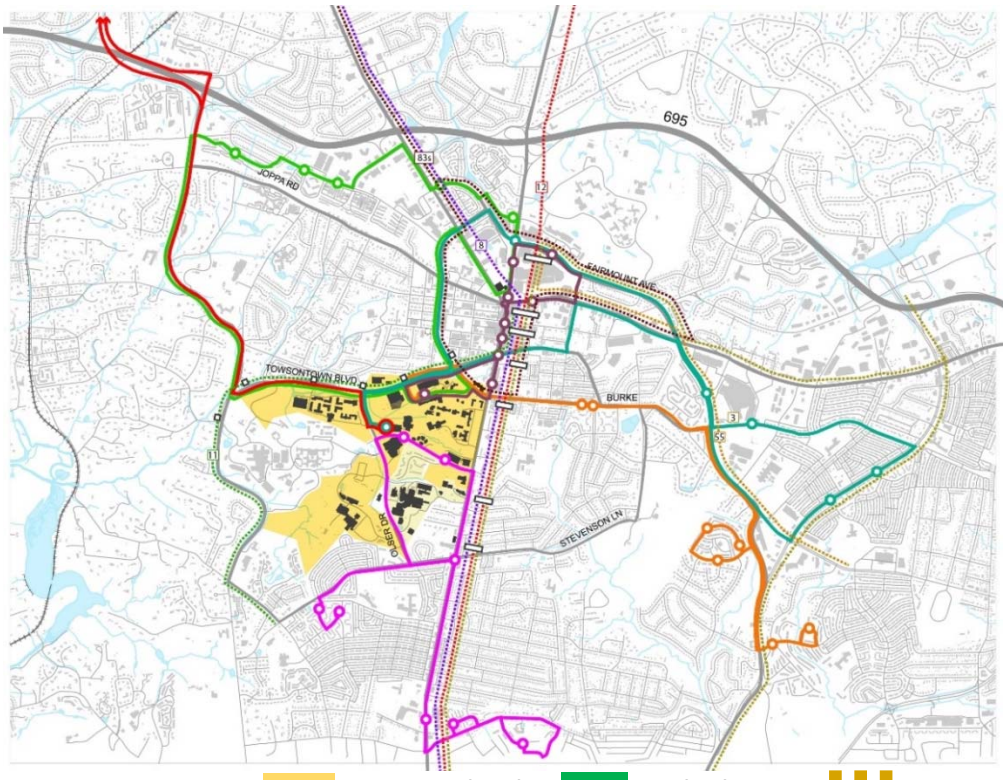
The primary transportation goals of the 2015 Plan are to:

- Create a "Park Once, Pedestrian-Oriented" campus through improved walking paths, pedestrian bridges and green spaces which connect and enrich the pedestrian experience.
- Provide alternative means of transportation to reduce parking demand:
  on and off-campus shuttles, park and ride lots, carpooling and ridesharing incentives, doubling the number of on-campus bike racks, subsidized transit passes, and continue to increase access to Zip Cars.

Shuttle Routes

In an effort to better serve the campus community, the university operates six on- and off-campus shuttle routes. Two on-campus shuttle routes serve the primary destinations around the Academic, South, and West Village.

Six off-campus shuttle routes serve students, faculty and staff living in apartments or residential areas near stops along Kenilworth Drive, Goucher Boulevard, and the Timonium and Cockeysville areas. This service has significantly reduced the traffic count on and around campus, resulting in an increase of off-campus shuttle ridership to 300,000 riders within one academic year, as well as an increased use of intercept parking.



2015 Shuttle Routes

Towson University… *TU Shuttle Routes* *MTA Bus Routes*

Parking

The primary objective of the parking policy recommendations is to create additional incentives for parking outside the Academic Core, using the on- and off-campus shuttle routes and promoting a higher utilization of parking garages.

The proposed plan would bring the total number of parking spaces on the campus to about 9,490, an increase of about 1,700 net spaces over the existing count. The phasing plan for parking also allows a periodic reassessment and refinement of parking demand as each garage enters the design phase; at this stage the capacity could be increased or decreased to correspond to changes in campus population, travel behavior, or university policy that may occur over the next ten years.

In addition to the positive results from expanded shuttle routes, the incorporation of Transportation Demand Management (TDM) measures has also resulted in a relatively flattened demand for parking permits and an average of more than 750 available on-campus parking spaces daily during peak demand.

The university anticipates both facilities and enrollment growth and will provide adequate parking. Since 2009, TDM strategies resulted in parking demand rising modestly to 6,900, with 7,766 parking spaces available on campus. More aggressive TDM measures over the upcoming years will result in a minimal increase in demand, despite the expected enrollment growth.

The 2015 Plan includes two additional parking garages: one west of the Administration Building and the other in the South Campus which will increase the on-campus parking supply to about 9,490 in the next fifteen years to accommodate projected demand.

Major Road Systems

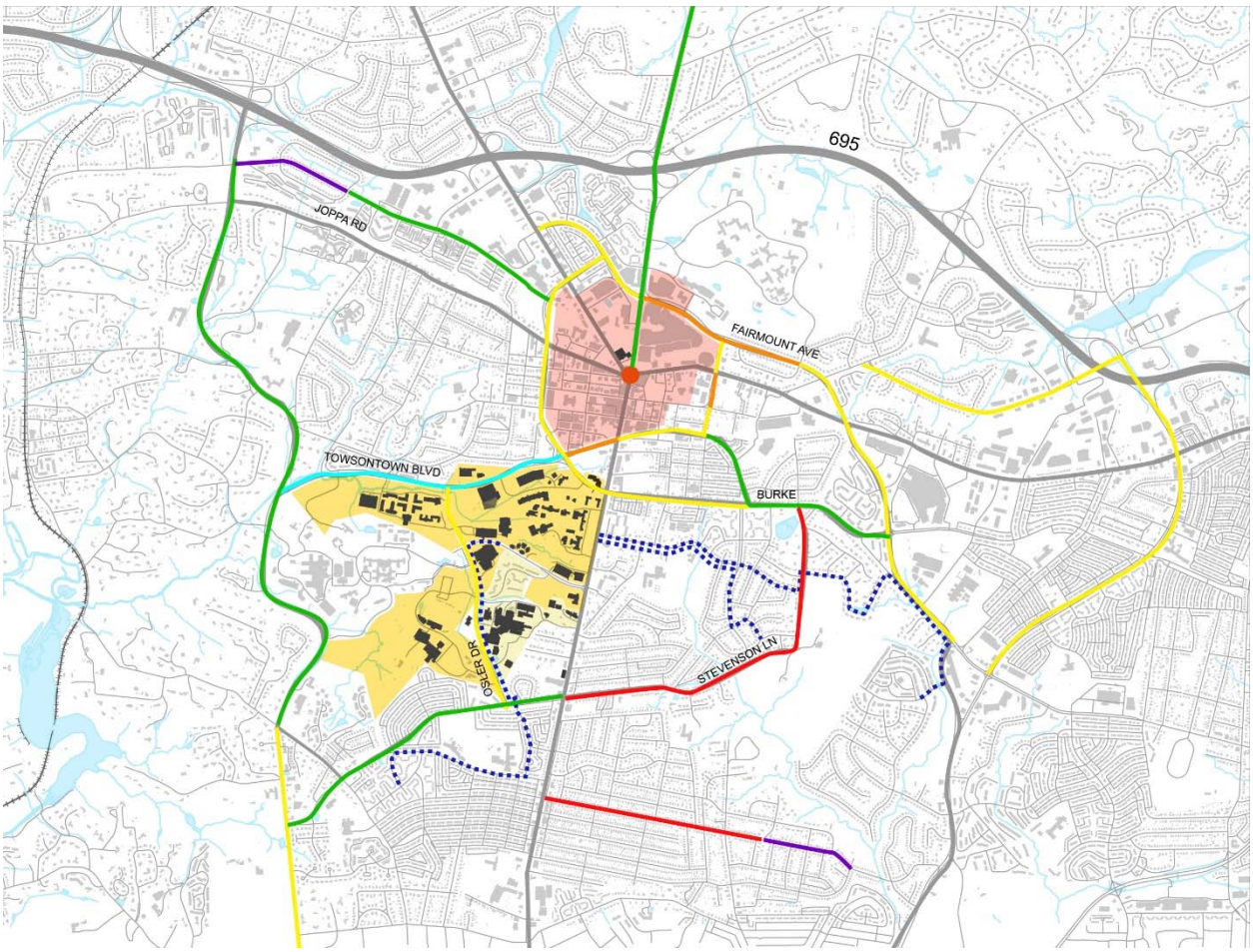
Recommendations include:

- Working with Baltimore County and adjacent institutions to assess current and projected traffic demand on adjacent roadways.
- Construction of an exclusive right-turn lane along eastbound Towsontown Boulevard at Osler Drive.
- Remove merge lanes and create traditional right turn lanes at the Towsontown Boulevard and Burke, York Road and Burke, and Cross Campus Drive and York Road intersections.

Proposed Intersection Pedestrian and Bicycle Safety Improvements

Pedestrian and Bike Circulation

The Towson Spokes bicycle plan has begun the transformation of Towson into a much more bike friendly community. The 2015 plan builds upon this framework with the development of a "bike beltway" around the campus perimeter. The new shared bike and pedestrian path will be built along Towsontown Boulevard, York Road, Cross Campus Drive, and Osler Drive. In addition to the new bike lanes, additional bike racks are proposed indoors and out to accommodate bike commuters and residents alike.



Baltimore County Bicycle Master Plan

TU Recommended Bike Paths

The following pedestrian and bike improvements are recommended to better connect the Academic Core to the surrounding activity centers:

- Provide a stairway, path and lighting to connect Towson Place Apartments with the walkway along the east side of the Center for the Arts.
- Construct new sidewalks along the west side of Osler Drive.
- Construct a pedestrian bridge over Cross Campus Drive with future University Union expansion.
- Construct a pedestrian bridge over Osler Drive from the Center for the Arts to the South Campus.
- Provide bike lanes on appropriate new campus walkways and bridges.
- Develop a new bike and pedestrian "beltway" around the campus perimeter streets.
- Add bike racks in key areas of campus. Reassess locations and quantity on an annual basis.
- Increase bike storage and amenities.

Off-Road Bike Boulevard On-Road Bike Route Bike Path

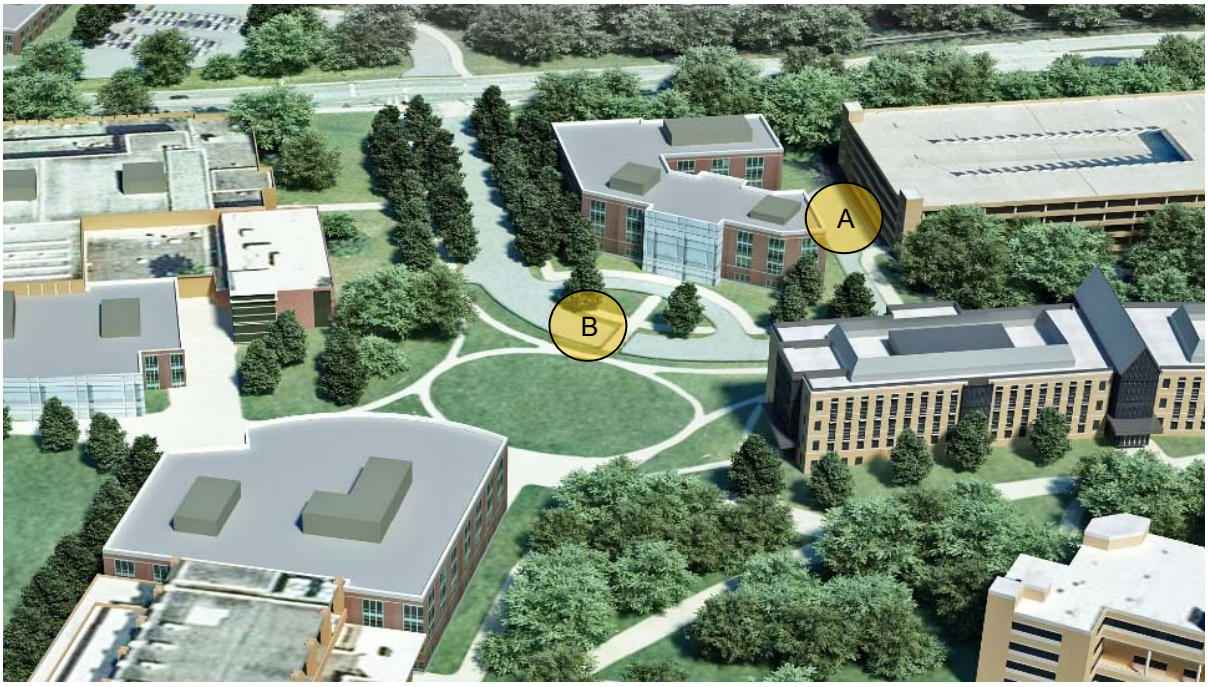
Proposed Bike Beltway

E. Define Clear Edges and Centers

While the historic frontage of Stephens Hall along York Road is the most recognizable edge of Towson University, the surrounding edges of campus are rather unclear to visitors. The existing campus lacks identifiable “gateways” and other secondary entrances that give it a “sense of place” and signal to an unfamiliar driver that they have arrived on campus. The university would benefit from an improved wayfinding system that allows visitors to easily access parking and buildings, either by foot or in a vehicle. The new brick piers and signage at Towsontown and University Avenue create a strong gateway into this portion of the campus, but the other edges are undefined. Using the new gateway elements, campus edges and secondary gateways can be defined.

The campus landscape also plays an important role in identifying and distinguishing campus gateways. Gateways are located at each end of University and Burke Avenues and serve to identify visitor entrances. Visitor parking will be accommodated in campus garages, surface lots and by street parking. The future Enrollment Services (A) building will be located adjacent to the Towsontown Garage, with a convenient drop-off circle near the new main gateway (B).

The 2015 Plan was created with a goal of welcoming the community onto campus for cultural, educational, athletic, entertainment, and recreation opportunities. Campus venues such as the Center for the Arts, the University Union, Unitas Stadium and the SECU Arena are key to facilitating this connection between the community and the campus, and future construction will strive to foster this relationship.



Towsontown Boulevard Campus Entrance

2015 Campus Master Plan

The 2009 Campus Master Plan provided a strong foundation for the development and growth of the University. As part of the 2015 Campus Master Plan process, the University Facilities team and Ayers Saint Gross were tasked with exploring the ramifications of student enrollment growth over the next 10 years. In addition to planning for this increase, the university is also undergoing a transformation from a local institution with a large commuter population to a traditional four-year college with regional stature. The change in the nature of the institution combined with the potential for significant growth suggests the need to rethink the current campus context and experience. The 2015 Plan illustrates planned building for the next fifteen years to accommodate enrollment growth to 25,000 students and long-term development opportunities for the campus.

Towson University will add about 800,000 GSF of new academic and academic support space, 200,000 GSF of auxiliary and student services space, 90,000 GSF of recreation space, and approximately 400,000 GSF of new on-campus housing over the next decade. Construction of new facilities will be balanced with a comprehensive initiative to renovate existing buildings to support past and future enrollment growth and address deferred maintenance backlogs.

The Campus Master Plan also includes an assessment of the long-term building opportunities that define the responsible capacity of the land. Based on this assessment, the campus can accommodate a future 200,000 GSF of academic and academic support space, over 125,000 GSF of athletics space and over 1,000,000 GSF of housing—primarily in the area west of West Village.

Aerial View of Proposed Campus Plan

Proposed Long-Term Master Plan

Existing Towson University Building Proposed Building

STATE-SUPPORTED PROJECTS

1. New Science Building
2. New College of Health Professions Building
3. Visual Communications Technology - Smith Hall Adaptive Reuse
4. Hawkins Hall and Psychology Building Renovation
5. Cook Library Expansion and Renovation
6. Future Academic Building
7. New Enrollment Services Building
8. Campus Pedestrian and Bicycle Beltway
9. Stephens Hall Renovation
10. Van Bokkelen Hall Renovation
11. General Services Building Expansion
12. Power Plant Updates
13. Future Buildings

SYSTEM-FUNDED PROJECTS

14. New West Village Housing Phase III and IV
15. Burdick Expansion
16. Newell Dining Hall Renovation
17. University Union Addition and Renovation
18. Union Garage Expansion
19. Residence Tower Renovation
20. New South Campus Housing, Parking, and Pedestrian Bridge
21. Glen Towers and Dining Hall Renovation
22. New Glen Housing, Parking, and Pedestrian Bridge
23. Athletics Complex Improvements
24. Competition and Practice Field Improvements
25. West of West Neighborhood
26. Administration Garage
27. Center for the Arts Garage
28. New Residence Hall
29. New West Village Housing Phase V
30. New West Village Housing Phase VI
31. Future Athletics Support

Capital Improvement Program

A summary of capital projects that are recommended as part of the 2015 Plan have been included as a table on the adjacent page. These projects have been developed and prioritized to support and advance major university objectives for enrollment growth, addressing deferred maintenance backlogs through renovation and reinvestment in existing buildings, and physically reorganizing the campus to promote more effective and efficient use of the physical plant.

Beyond the campus boundaries, the institution will continue to address its impact on the state and the community in which it is situated. As a major generator of the educated workforce in Maryland, Towson University will need to respond to the changing conditions of the state economy and maintain its core mission to provide a solid undergraduate education.

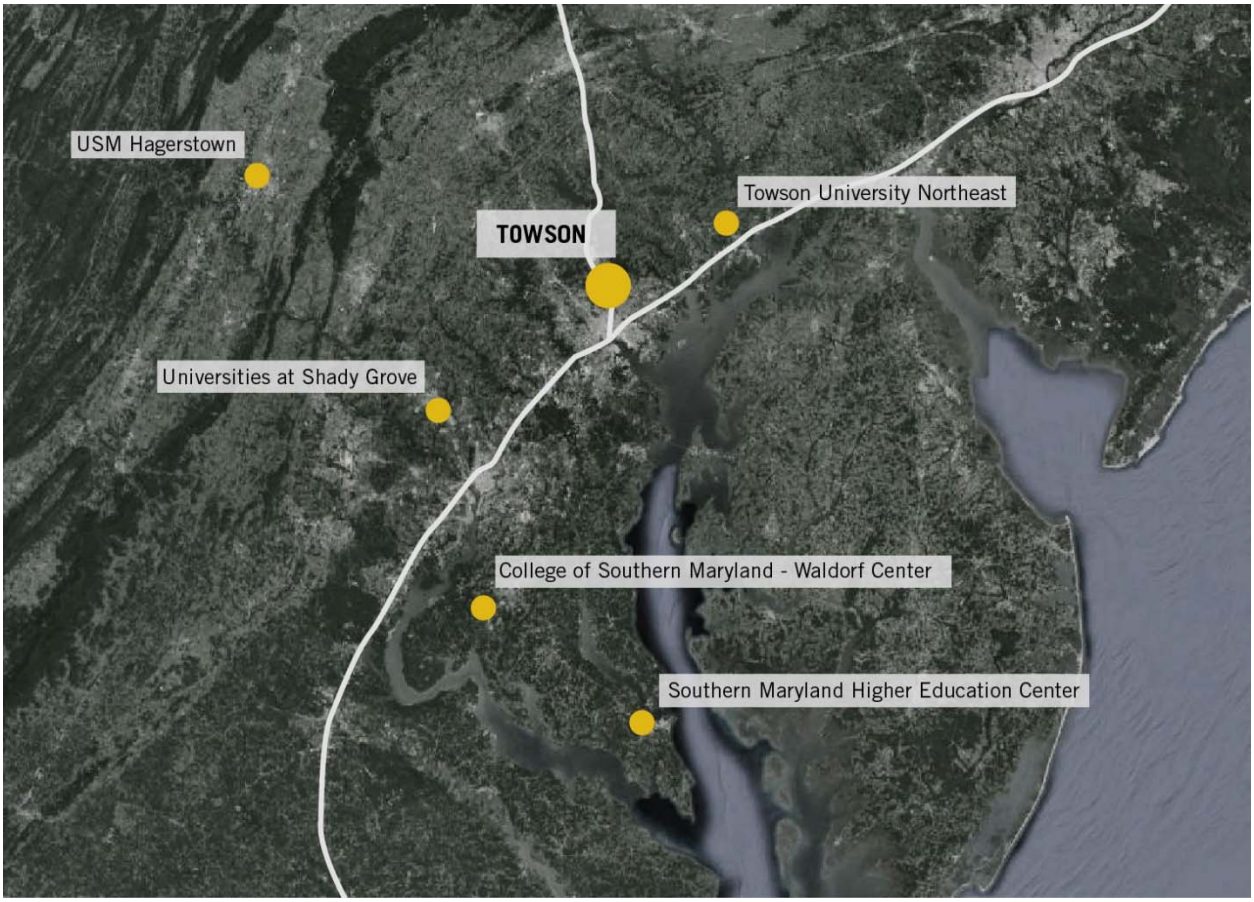
Proposed Building Use Diagram

- Academic & Academic Support
- On Campus Student Housing
- Adjacent Student Housing
- Athletics
- Auxiliary & Student Life
- Parking Lot/Garage
- Community Outreach

Proposed Capital Projects

Project	GSF Construction	GSF Renovation	Type
New Science Building	316,000		Academic
New College of Health Professions	250,000		Academic
Visual Communications Technology		220,245	Academic
Smith Hall Adaptive Reuse			
Hawkins Hall and Psychology Renovations		125,000	Academic
Cook Library Expansion and Renovation	75,000	180,356	Academic
Future Building	228,000		Academic
New Enrollment Services Building	90,000		Academic
Pedestrian and Bike Beltway			
Stephens Hall Renovation		91,414	Academic
Van Bokkelen Hall Renovation		31,026	Academic
General Services Building Expansion	10,000		Academic
Power Plant Updates			Academic
Future Building	156,000		Academic
Future Buildings	216,000		Academic
West Village Housing Phase III/IV (700 beds)	240,000		Auxiliary
Burdick Addition	90,000		Auxiliary
Newell Hall and Dining Renovations		103,000	Auxiliary
University Union Addition	80,000		Auxiliary
Union Garage Expansion (450 parking spaces)			Auxiliary
Residence Tower Renovation		102,000	Auxiliary
South Campus Housing, Parking, & Bridge (1,200 beds, 1,000 parking spaces)	450,000		Auxiliary
Glen Towers and Dining Hall Renovation		430,980	Auxiliary
New Glen Housing, Parking, & Bridge (700 beds, 400 parking spaces)	280,000		Auxiliary
Athletics Complex Improvements	60,000		Auxiliary
Competition and Practice Field Improvements			Auxiliary
West of West Neighborhood			Auxiliary
Administration Garage (900 parking spaces)			Auxiliary
Center for the Arts Garage (260 parking spaces)			Auxiliary
New Residence Hall (360 beds)	135,000		Auxiliary
New West Village Housing V (500 beds)	225,000		Auxiliary
Future Athletics Support Facilities	90,000		Auxiliary

* The total GSF area listed for parking garages includes the ground level only.



Towson University's Campuses

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Section 1: Master Plan Purpose and Process

1.1 Introduction

Development of a new Campus Master Plan was undertaken to plan for the future of the institution as it faces major challenges over the next decade, including exploring the ramifications of accepting significant enrollment growth. In addition to planning for this enrollment increase, over the last decade, the university has undergoing a transformation in its nature from a local institution with a large commuter population to a traditional four-year college with regional stature. This change in the nature of the institution, combined with the potential for significant enrollment growth, suggest the need to rethink the current campus context and plan for the needs of the university in an increasingly competitive market.

Beyond the campus, the institution must address its impact on the state and the community in which it is situated. As a major generator of the educated workforce statewide, Towson University has a responsibility to respond to the changing needs of the state economy and maintain its core mission to provide a solid undergraduate educational opportunity to the state. The institution also has a responsibility to understand and address its impact on the surrounding residential and business communities within Towson, particularly as the student body evolves over the next two decades. Analyzing and addressing the impact of the institution on the state and the community is critical to maintaining a viable educational facility.

1.2 Purpose of the Campus Master Plan

The primary purpose of a Campus Master Plan is the development of a comprehensive planning document that establishes a long-term vision, shared by the university and its community partners and constituents, that serves as a framework and guide for the future physical development of campus. The intended outcome of implementing the Campus Master Plan is the advancement of the university mission, and achievement of its strategic goals and objectives.

Towson's Campus Master Plan also addresses both University System of Maryland requirements and community concerns. Further, the plan sets forth principles and guidelines for: creating an appropriate and consistent institutional image; forming an identifiable campus that is connected to the larger community; and integration of manmade and natural environments in developing a safe, aesthetically pleasing and functional campus that best reflects the institutional ethos.

The new Campus Master Plan is more than a document – it is a unique opportunity to create a better future for the students, faculty, staff, alumni, neighbors and community partners of Towson University.

1.3 Master Planning Process

In the past, the university has been guided by Master Plans that focused inward, resulting in disjointed campus development that was disconnected from the larger Towson community. Heeding this history, the university took steps in developing the 2003 Master Plan to ensure that the process undertaken to arrive at this Master Plan update was comprehensive, collegial and included participation and input of on-campus and community stakeholders. This effort was successful – the plan took into consideration the views of faculty, administrators, students and staff on campus as well as our neighboring community groups, state legislators, local government, state administrators, our adjacent institutions, and the Towson business community. The 2009 master plan followed the same process to great success.

Towson University engaged the firm of Ayers Saint Gross, an architecture, landscape and planning firm from Baltimore, Maryland specializing in higher education work to assist in the facilitation and development of a this Campus Master Plan update. Ayers/Saint/Gross, in conjunction with a team of specialists in landscape architecture, transportation planning, space needs analysis, and campus infrastructure planning, provided technical and administrative support to the university throughout the development of the plan. Ayers Saint Gross also developed the 2003 and 2009 Campus Master Plans which this update is based upon.

During the development of the Campus Master Plan, a Steering Committee was formed, consisting of the University's Vice Presidents and Athletic Director. The Steering Committee provided guidance, oversight and key decision-making during each major step of the planning process.

The planning process was undertaken in a series of phases, beginning with a period of data gathering and analysis. Through a series of meetings and workshops, the needs of the campus and the surrounding community were updated to understand key issues facing the university. The meetings included extensive interviews with neighborhood associations, business organizations, county government officials, state government officials, as well as students, faculty, administration and staff. The community meetings engaged the Greater Towson Council of Community Associations (GTCCA), the neighborhood associations adjacent to the campus individually, and two open forums. .

Following the data-gathering phase, the planning principles were updated and conceptual development plan scenarios were developed and presented to the Steering Committee. The update reviewed the capacity of the Master Plan and compared it to the projected needs for space such as academic, administrative, student life, athletics and recreation, campus support and student housing. This review confirmed the overall structure of the 2009 campus plan and began to identify potential uses for the proposed buildings. Adjustments were made in the size of the buildings shown to reflect current plans and needs as well as incorporate new thinking about improving connections to downtown Towson.

The plan was refined and presented to the Steering Committee then presented to neighborhood groups as well as in open forums to all on-campus and off-campus constituencies. Following these workshops, the updated plan was drafted and presented to the University System of Maryland (USM), Board of Regents for final review and comment.

1.4 2009 Campus Master Plan Schedule

Phase 1: Review and Analysis

December 2014	Kick Off Meeting with Steering Committee
Jan 2015	Collect new base data
Jan – February	Internal Focus Group Interviews
Jan – March	External Focus Group interviews
Jan - March	Space Utilization Update
April	Update Steering Committee
April	Post summary of phase 1 input on University website

Phase 2: Master Plan Update

April - May	Develop draft update plan based on internal and external input
May - June	Review draft plan in open forums with interested parties
July	Post summary of phase 2 on website and seek comments

Phase 3: Final Plan

June-Aug	Incorporate constituent feedback into final plan update
September	Board of Regents Presentation
October	Incorporate feedback into final plan update document
November	Post final plan summary on university website

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Section 2: Institutional Profile and Needs Summary

2.1 Introduction

Towson University is a member of the University System of Maryland (USM), which comprises 12 campuses, about 70 centers and institutes and three research and public service institutes. A Board of Regents, consisting of 17 regents appointed by the governor, has oversight over the USM campuses and institutes. Each USM institution has a president and his or her designees are responsible for the day-to-day governance and operation of the university. The University Senate and its committees develop university policies and procedures, with the senate also serving in an advisory capacity to the university president.

2.2 Summary Mission Statement

Towson University fosters intellectual inquiry and critical thinking preparing graduates who will serve as effective, ethical leaders and engaged citizens. Through a foundation in the liberal arts, an emphasis on rigorous academic standards, and the creation of small learning environments, we are committed to providing a collaborative, interdisciplinary and inter-professional atmosphere, excellence in teaching, leadership development, civic engagement, and applied and sponsored research opportunities at the undergraduate and graduate levels. Our graduates leave Towson University with the vision, creativity and adaptability to craft solutions that enrich the culture, society, economy, and environment of Maryland, the region, and beyond.

2.3 Strategic Plan: TU 2020 A Focused Vision for Towson University

Towson University has established a new strategic plan which addresses key themes across the University:

Academic Excellence and Student Success

Towson University's top priority, Academic Excellence and Student Success, is dependent on the teaching and mentorship of faculty. We will continue to improve graduation completion and retention rates, close the achievement gap, ensure a seamless transfer process and prepare globally conscious students for an expanding workforce. Commitment to this priority includes academic transformation and course redesign.

Innovation in Teacher and Leader Preparation

Towson University's historic reputation in teacher education continues to lead the nation as an example of best practices in teacher preparation and school leadership. Excellence and innovation in STEM, arts integration and special education will transform the future of the pre-K through 12 academic model for the youth of Maryland and the nation.

STEM Workforce Development

Towson University is a major contributor to Maryland's STEM workforce. In addition to teacher preparation, we will reinforce and expand our contributions to workforce development in STEM disciplines such as cybersecurity and forensic chemistry.

Innovation, Entrepreneurship and Applied Research

Towson University's focus on innovation and entrepreneurship facilitates collaborations and strategic partnerships with the community and the state. We will continue to support our faculty, staff and student applied research endeavors and connect their work to teacher transformation, innovation and entrepreneurship. We will continue to promote economic and workforce development to keep the majority of Towson graduates working in Maryland.

Internships and Experiential Learning Opportunities

Towson University will expand its emphasis on internships and experiential learning, and significantly increase corporate, educational, government and health care partnerships to help provide these opportunities.

A Model for Leadership Development

Towson University is rooted in our strong commitment to civic engagement, civility and ethics. The university supports personal and professional growth by recognizing and developing positive leadership philosophies and styles. Our primary goal is to instill in our students the qualities essential for outstanding, lifelong leadership in all aspects of their lives. We are also committed to increasing credit and noncredit opportunities in leadership development for our faculty, staff and students.

A National and International Reputation for Arts and Arts Education

Towson University alumni and their work garner national recognition in the arts with Emmy, Grammy, Oscar and Tony nominations and awards. The university is well known for its cultivation of talented artists and communicators, and we will continue to expand our national and international reputation in arts and communication

A Model for Campus Diversity

Towson University will further strengthen its commitment to diversity and continue to provide a safe, inclusive, welcoming and peaceful community respectful to all. The university will continue as a recognized national model for diversity and closing the achievement gap. Our institutional strategies will expand and continue to provide a forum for campus dialogue and action.

Student, Faculty, Staff and Community Well-Being

Towson University is a major educator of health professionals in our region. We are dedicated to continue to empower our campus and our greater community to make choices for lifelong well-being and effective stewardship of our natural resources.

Excellence in Athletics

Towson University is committed to a financially stable, gender-equitable and competitive athletics program. The university will continue to support these goals by placing academics first. We will support opportunities for all university students to participate in a range of sports activities and leadership opportunities that support physical well-being and personal excellence

2.4 University Profile

By Carnegie Classification, Towson University is a Master (Comprehensive) University I. Towson University has achieved national prominence as a premier metropolitan comprehensive university by offering a wide range of excellent graduate and undergraduate degree programs and by increasing its regional and national reputation through its focus on student learning and its innovative programs and pedagogies, faculty creativity and scholarship, applied and sponsored research, community service, and cultural outreach to business, education and health care professions.

Excellence at Towson University begins with its commitment to a sound liberal arts education for every student. All students explore the historical development and interrelationships among the four central areas of knowledge (fine arts, humanities, science and mathematics, and social and behavioral sciences), and how each of them addresses the world, investigates, reaches conclusions, and presents findings -- extending the reaches of human knowledge. The university helps all students develop a range of intellectual skills that will continue to enrich and shape their lives long after their formal education has ended.

Towson University takes pride in the breadth and depth of its undergraduate academic programs. Students acquire a broad background in the liberal arts and sciences based on the General Education (GenEd) requirements, upon which they build concentrated study in one subject, their major field of study. They may select courses ranging from the traditional to the contemporary. This undergraduate foundation prepares them to take their place in the professional world or in graduate studies.
The university's six undergraduate colleges – the College of Business and Economics, the College of Education, the College of Fine Arts and Communication, the College of Health Professions, the College of Liberal Arts, and the Fisher College of Science and Mathematics – offer more than 64 undergraduate majors leading to the baccalaureate degree. The university also offers specialized programs, including minors, concentrations, tracks and double majors.

Towson University currently offers more than 72 graduate programs at the certificate, masters and doctoral levels. The university provides innovative graduate courses and programs that respond to specific state, regional and national workforce demands. Moreover, many enrolled graduate students are working full-time, so graduate courses are offered at convenient times and at off-campus sites, as well as at the main campus.

Towson University Honors College is designed for students who have demonstrated superior academic performance in high school, and who wish to pursue unique academic and social opportunities while

attending the university. Students may major in any field at Towson University and be part of the Honors College. At Towson, the Honors College is a true community of scholars. Honor students are encouraged to seek intellectual excellence and leadership through opportunities that go beyond the routine college experience.

Towson University offers many opportunities for close student-faculty contact and promotes a supportive environment that encourages exploration and personal growth. A student-faculty ratio of approximately 17:1 allows students to interact frequently with their professors. Nearly seventy-nine percent of the full-time faculty has earned the highest degree of academic preparation expected in their fields. On the merits of their expertise, the importance of their published works, and the honors they have received, many of the 788 full-time instructors are recognized nationally and internationally. Small classes and the tradition that all instructors (including most full professors) teach introductory courses, helps to enhance the strength of Towson's faculty as well as their dedication to excellent teaching.

2.5 Institutional History

In the decades following the Revolution, Americans began to clamor for free public schooling for their children. Maryland's elected officials and others who valued a literate citizenry also recognized that public school systems would require qualified and dedicated teachers. They pressed for a systematic, reliable means of producing teachers, and in 1865 – the last year of the Civil War – the legislature allocated funds for Maryland's first teacher-training school. In 1866 the State Normal School opened in rented quarters in Baltimore with a principal, M.A. Newell, 11 students and a faculty of three. ("Normal school" is the English translation of Ecole Normale, the term used by the French teacher-training schools that served as models for U.S. educators.)

At a time when those first aspiring teachers took their places in a small lecture hall, only 3 percent of America's seven million elementary-school age children ever got beyond the eighth-grade level. But even in a relatively new nation that celebrated the "self-made man," it was increasingly clear that formal education held the key to a better future. The founding of Maryland's first normal school reflected a growing national demand for better education: state-supported teacher-training schools, free public schools and state-mandated standards.

After occupying two rented sites in Baltimore between 1866 and 1876, the State Normal School's 10-member faculty and its 206 students moved to the first building constructed specifically for them at the corner of Carrollton and Lafayette avenues. In 1910, Principal Sarah Richmond began asking the school's alumni and friends to join her campaign for a suburban campus where Maryland's future teachers could live and learn in a more appropriate environment.

Her efforts paid off in 1912, when the General Assembly passed a $600,000 bond issue to finance a move. The state purchased 80 acres in Towson, and construction subsequently began on the Administration Building (now Stephens Hall). The architect, Douglas H. Thomas Jr., modeled the imposing Jacobean-style building on Blickling Hall, an English manor house once home to Anne Boleyn, the second of Henry VIII's wives.

The new State Normal School campus, comprising the Administration Building, Newell Hall and the Power Plant, was dedicated in November 1915. Sarah Richmond moved into Glen Esk, an existing turn-of-the-century house that would serve as a presidential residence for more than 50 years.

The first of three name changes occurred in 1935 during the administration of Principal Lida Lee Tall. The state now required new public school teachers to have baccalaureate degrees instead of two-year teaching certificates, and the 80-year-old school retooled its curriculum and changed its name to State Teachers College at Towson.

Other changes followed in response to societal and educational needs. In 1963, the State Teachers College – now with expanded offerings in the arts and sciences and a fledgling graduate program – became Towson State College. The baby boom generation began to flock to college campuses in 1964, and during the next decade Towson State's enrollment leaped from 3,537 to 13,399. To accommodate the explosive growth and build additional facilities, the college purchased more than 200 acres of land from the adjacent Sheppard and Enoch Pratt Hospital between 1964 and 1971.

The '60s and '70s saw the construction of the Center for the Arts, the University Union, the Residence Tower, Hawkins Hall, the Towson Center, Cook Library and Minnegan Stadium. Under the energetic leadership of President James L. Fisher, course offerings and programs also expanded to meet new needs. The state took note and in 1976 bestowed a new name: Towson State University.

The University Union is a central component of campus life.

In 1988, the university became part of the newly established University System of Maryland. In 1997, another name change -- to Towson University -- reflected its evolution from a state-supported to a state-assisted institution during the administration of President Hoke L. Smith.

In 2001, Mark L. Perkins became the 11th president in a tradition of leadership that traces its roots to 1866. In 2003 Robert L. Caret assumed the presidency and immediately launched a new vision of the institution as Maryland's Metropolitan University. Under his leadership, Towson University is combining research-based learning with practical application, as well as pursuing interdisciplinary partnerships with public and private organizations to resolve complex regional problems.

Maravene Loeschke became Towson University's 13th president in January 2012. A Baltimore native and Towson alumna, Loeschke spent more than three decades on campus, earning two degrees and climbing the faculty ranks to become dean of the university's College of Fine Arts and Communication. She returned to her alma mater after serving as president of Mansfield University in Pennsylvania. The

breadth and depth of her knowledge, acquired in different roles and honed by decades of experience, made her uniquely qualified to lead Towson University.

From its unpretentious beginnings as a small teacher's school in downtown Baltimore, Towson University has grown to become Maryland's second-largest public institution of higher education. As of fall 2015, over 22,284 undergraduate and graduate students were enrolled in more than 100 degree programs in the liberal arts and sciences, and applied professional fields.

2.6 Academic Programs and Initiatives

Current Curriculum

The university is currently comprised of seven colleges: the College of Business and Economics, the College of Education, the College of Fine Arts and Communication, the College of Health Professions, the College of Liberal Arts, the College of Science and Mathematics, and the College of Graduate Education and Research. Once students have determined a program of study, they become a member of, and graduate from, the academic college administering the program.

College of Business and Economics

The mission of the College of Business and Economics (CBE) is to provide successful graduates with Knowledge, Skills, and Attitudes (KSAs) that employers want. Dynamic partnerships with business, government and nonprofit organizations enhance the academic program. The Accounting and Business Administration programs are accredited by The Association of Advance Collegiate Schools of Business (AACSB) International. Students earn degrees in accounting, business administration, electronic business and economics. Within the business administration major, students choose among concentrations in international business, finance, management or marketing, or tracks in economics, human resource management or legal studies.

College of Education

The mission of teacher education at Towson University is to inspire, educate, and prepare educators as facilitators of active learning for diverse and inclusive populations in environments that are technologically advanced. The teacher education unit is accredited by the National Council for Accreditation of Teacher Education.

Today, the College of Education has a nationwide reputation as a leader in teacher education. Programs of study lead to the baccalaureate degree in education with certification to teach Early Childhood Education, Elementary Education, and Special Education. In addition, the college offers programs that lead to teacher certification in secondary education and K-12 education for students enrolled in other colleges of the university.

College of Fine Arts and Communication

Recognized as a fine arts center for Maryland, the College of Fine Arts and Communication trains talented men and women to pursue careers in the arts and communication. Additionally, the college offers all TU students the opportunity to participate in both academic and artistic experiences in these areas.

Because the creative process involves close dialogue between teacher and student, programs are structured to allow for individual attention. All programs provide a broad liberal education as well as specialized professional training.

College of Health Professions

The departments of the College of Health Professions have the common goal of preparing students to provide human services designed to improve the quality of life. The college is composed of the departments of Audiology, Speech-Language Pathology and Deaf Studies, Health Science, Interprofessional Health Studies, Kinesiology, Nursing, and Occupational Therapy and Occupational Science. Graduates of the baccalaureate programs in Nursing and Occupational Therapy and Occupational Science are eligible to sit for their respective certification examinations.

A major in the College of Health Professions can prepare students for one of many health care and sport-related careers. Some examples include community health education, speech and language pathology, hospital management, teaching, medical technology, athletic training, professional coaching, sports information, recreation leadership, research, and government service.

College of Liberal Arts

A liberal arts education produces an individual who can analyze and interpret information and arrive at informed judgments about complex issues. The College of Liberal Arts offers courses that are designed to assist students in developing these abilities.

Approximately 2,400 undergraduates major in liberal arts programs at TU. More than 500 graduate students are pursuing master's degrees in the college. The College of Liberal Arts emphasizes excellent teaching, scholarship and creativity. Its students and faculty contribute actively to the intellectual and cultural life of the community.

The liberal arts provide an excellent preparation for many careers as well as for graduate students. Graduates can seek careers in such diverse areas as teaching, law, journalism, counseling, museum work, urban planning, and publishing, among others.

College of Science and Mathematics

The principal goal of the College of Science and Mathematics is to provide students with technological/scientific dimension to their liberal education. Courses are offered in all the rational physical, mathematical, and life sciences disciplines. Programs are vigorous, yet highly flexible. Students may choose a traditional science major or may elect cross-disciplinary majors, such as Environmental Science and Studies. Another option is the major in Science and/or Mathematics Teaching at the secondary or elementary level.

Office of Graduate Studies

The Office of Graduate Education and Research has expanded programs and streamlined administrative processes to accommodate a graduate student population, which has grown to more than 3,000 students. The mission of the Graduate School at Towson University is to provide programs of study that will allow individuals to advance their knowledge, increase their practical skills, and develop leadership abilities in a broad spectrum of professions. The Office of Graduate Education and Research also aims to help students enhance knowledge of their disciplines through collaboration on research projects with faculty; to

be actively engaged in the process of improving the quality of life for others and themselves; and to develop the desire in each individual to become a continuous life-long learner. The college currently administers 4 doctorates, 4 certificates of advance study, 41 master's degree and 23 certificate programs.

A hallmark of graduate education at Towson is the emphasis on applied programs that provide the skills and knowledge needed by career professionals. Faculty and student research is closely related to the graduate education and advances the college's mission as well as that of Towson University.

Section 3: Building and Grounds Analysis

3.1 Campus Setting

Regional Context

Investigation of the campus began at a broad scale in order to better understand the context in which the institution is set. This context includes a complex metropolitan environment involving a major urban center, smaller surrounding communities and multiple institutions. The natural environment adds additional complexity to the campus context including significant topography, multiple watersheds and forest areas.

Baltimore Metropolitan Region

Towson University is located at the northern edge of the Baltimore metropolitan region, seven miles from downtown Baltimore, and a half-mile south of Towson, Baltimore's northern edge city. The region is home to 22 colleges and universities, seven of which, including Towson, lie on the Charles / York corridor. These institutions include the University of Maryland, Baltimore and The Johns Hopkins University to the south as well as Goucher College just north of Towson University. Towson University has nearly three times the student body of any of these institutions.

As both a regional and local institution, the impact of Towson University can be viewed as a combination of a traditional four-year college and a commuter oriented college. Students have access to the living and entertainment opportunities of Baltimore and Towson, including a rich mix of commercial, cultural and athletic venues.

Jones Falls Watershed

Towson University is situated within the Chesapeake Bay watershed. The Chesapeake Bay basin is comprised of approximately 66,388 square miles and drains parts of six states: New York, Pennsylvania, Delaware, Maryland, Virginia and West Virginia as well as Washington D.C. The Towson University campus is located along the western edge of the Jones Falls watershed, a sub-basin of the Chesapeake Bay watershed. The Jones Falls watershed contains 58 square miles extending from central Baltimore County south to the confluence of Jones Falls with the Patapsco River in Baltimore's Inner Harbor.

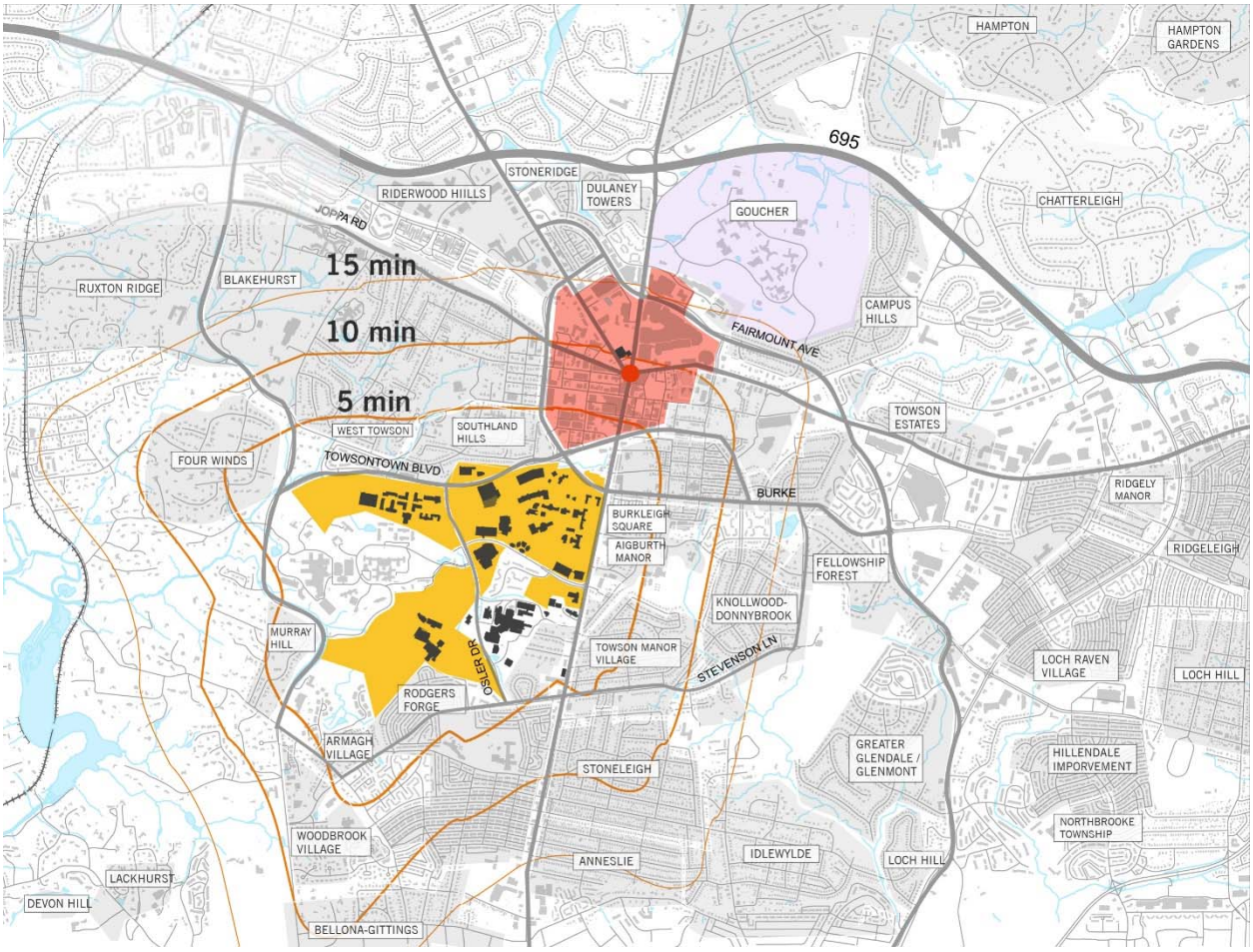
The Jones Falls watershed is composed of ten recognized sub-watersheds. The campus includes portions of the Towson Run sub-watershed and its tributary channels. Approximately 70% of the Jones Falls watershed is under urban land use and 35.4 % of the area is composed of impervious surfaces. Approximately 37% of the watershed is forested; however 58% of the riparian area is un-forested stream buffer.

There is a high degree of attention on the Jones Falls watershed from state and local resource agencies and environmental organizations including the Jones Falls Watershed Association. Interest has been focused on the protection of existing resources, avoidance of further degradation, and the restoration of

aquatic resources. The area has natural resource protection significance including a naturally reproducing trout population within many headwater tributaries. However, lower in the watershed there are stream impairment problems including stormwater run-off and associated erosion impacts, elevated pollutant inputs, altered habitats, and flooding issues.

Towson & Adjacent Neighborhoods

The campus is situated directly south of the Towson business district between York Road and Charles Street. The university property is directly adjacent to Sheppard Pratt Health System, Saint Joseph Medical Center and the Greater Baltimore Medical Center creating a 500-acre plus campus bounded by residential neighborhoods and the southern edge of the Towson business district.



Relationship of Towson University with downtown Towson and Adjacent Neighborhoods with walk times

Downtown Towson

Towson is an unincorporated area that serves as the county seat for Baltimore County. Baltimore County encompasses the east, north and west boundaries of Baltimore City, with 599 square miles extending to the border of Pennsylvania. The county is home to over 827,000 residents according to the U.S. Census Bureau 2014 population estimate.

The Towson business district contains a significant amount of retail space, including several malls, two grocery stores and a theater, although many of the streets are major thoroughfares and are not pedestrian oriented. Streetscape improvements have been undertaken to begin changing the nature of the business district. There is a significant amount of office space available within the core area, but a relatively small number of residential units. This will begin to change over the next few years with the construction of the Towson Row development and the potential 101 York project which will add market rate and student housing within the Towson downtown core.

The campus is located a couple of blocks south of the Towson business district on York Road, however the block directly north of campus between Burke Avenue and Towsontown Boulevard is unattractive, poorly lit and contains little of interest to students, making it a deterrent to pedestrian traffic between campus and the town. There is a desire by the business community to improve utilization of local businesses by Towson University students.

In June 2006, Tomorrow's Towson initiated an Urban Development Assistance Team (UDAT) workshop which involved the greater Towson community in visioning the future potential development of the Towson business district. Its findings can be found on the World Wide Web at: *http://www.baltimorecountymd.gov/Agencies/community/towsonudat/index.html*

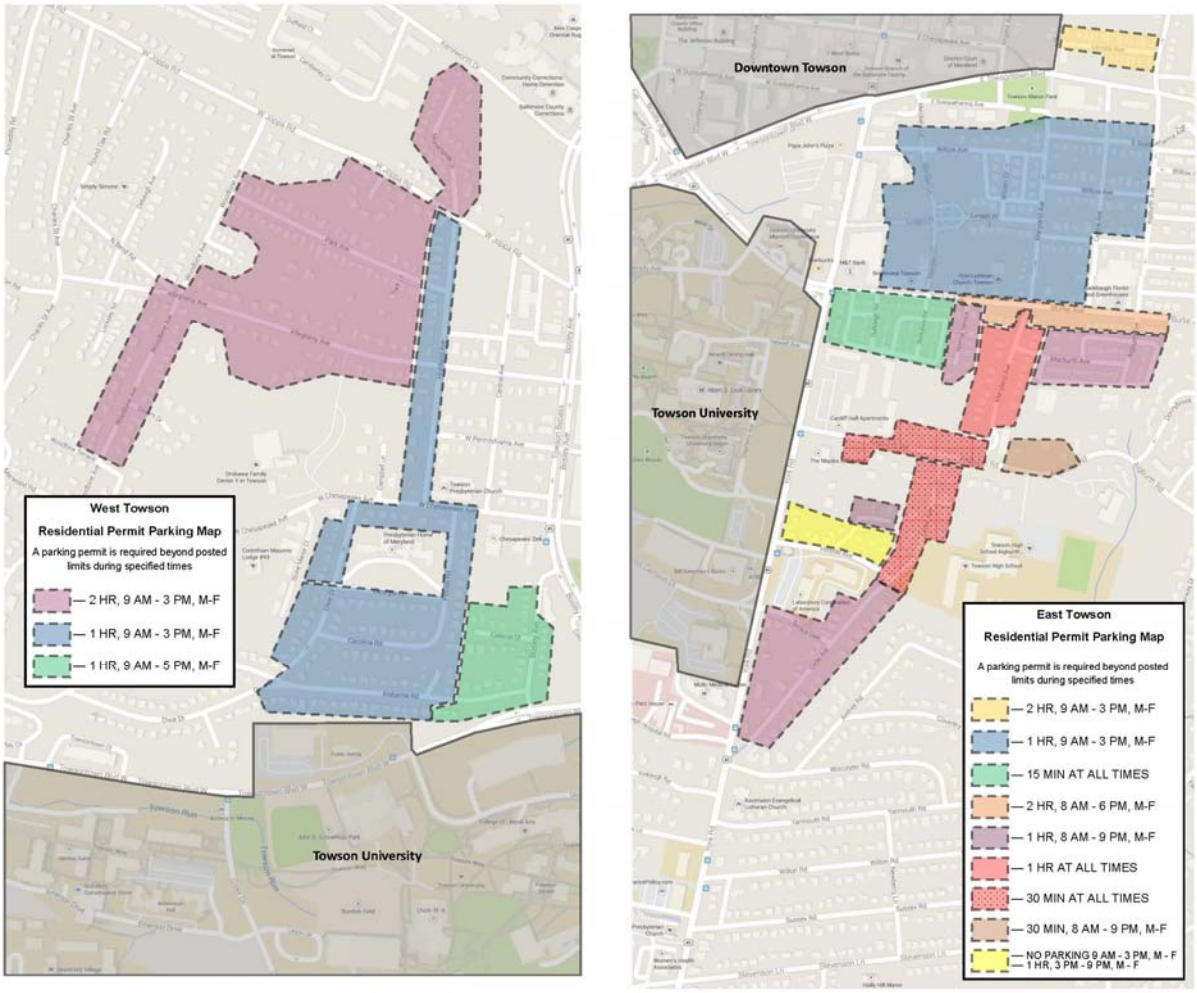
The plan called for improvements to the streetscape, traffic circulation, a more robust mix of retail office, government and residential within the business district as well as redeveloping the triangular property bounded by York Road, Towsontown Boulevard and Burke Road. The result was a "new vision for Towson which emphasizes the need for new housing, pedestrian pathways and highly accessible public spaces that celebrate Towson's rich cultural fabric." The team also suggested the development of an overlay district offering a governance structure, which would be more economically conducive to redevelopment.

Following the June 2006 UDAT workshop, Baltimore County Executive James Smith sponsored a Walkable Towson Workshop in June 2007 which built on many of the ideas expressed in the UDAT Workshop. The Walkable Towson report can be found on the World Wide Web at: *http://www.baltimorecountymd.gov/Agencies/walkabletowson/index.html*

The proposals included improvements to the road network, transit systems, incorporating more bicycle accessibility and active uses on the ground floor. Like the UDAT plan, the Walkable Towson proposal called for redevelopment of the "triangle" bounded by York Road, Towsontown Boulevard and Burke Road. Together, these two plans suggested a more direct connection between the Towson business district and Towson University which could benefit both as well as the adjacent communities.

Adjacent Neighborhoods

The university and its student population have impacted the neighborhoods adjacent to the campus in a variety of ways. Many of these neighborhoods are affluent and as such have land and property values that do not make student housing viable. However, these neighborhoods do experience problems with daily parking, particularly those on the east side of York Road, or with event parking problems, particularly Rodgers Forge, which is in close proximity to the athletic venues in that campus precinct. This area creates additional issues for Rodgers Forge during events, when noise and lighting can be seen from parts of the neighborhood. While the streets surrounding the campus are public right-of ways, most of the adjacent neighborhoods have instituted resident permit parking to restrict institutional parking. This has greatly reduced incidents of students and event patrons from parking on the adjacent streets.



Permit Parking in Adjacent Neighborhoods

In some neighborhoods around the campus students and full-time residents happily co-exist. However, some neighborhoods closer to the Towson precinct, particularly Burkleigh Square, have experienced many more behavior problems with students living within their neighborhood. Although Baltimore County regulations prohibit more than two unrelated people from residing in a single apartment, enforcement is difficult and in many cases is left to neighborhoods. The university has instituted policies to educate students regarding off campus housing and escorts Baltimore County police to calls for disruptive behavior by its students however, the university has no legal authority in the neighborhoods.

Baltimore County enacted a Rental Housing Licensing Program which states “all buildings or a portion of a building that contain one to six dwelling units intended or designated as rental units must register and be licensed with Baltimore County on or before January 1, 2009.” This law gives the Baltimore County Zoning Enforcement Authority the ability to monitor rental properties and more effectively enforce existing rental housing laws. While this is not a cure-all for inappropriate rentals within neighborhoods, it provides a first step in regulating rental property. The university will continue to work with the neighborhoods and the County in reinforcing behavior standards and appropriate student housing options.

One constant issue for all these neighborhoods is the traffic impact on the local road network. Towson University is in a residential community and a destination for educational, cultural and athletic activities. Together with St. Joseph’s Hospital, Sheppard Pratt and GBMC, Towson University is a major center for employment. The four institutions generate a significant amount of traffic, particularly in the afternoon during hospital shift changes. This traffic impacts residents using the same road network for their daily activities.

Baltimore County completed an intersection level of service (LOS) review of most of the intersections surrounding the Towson University campus. The findings indicated that nearly all of the intersections were within an acceptable level of service with the exception of York and Burke Road. The County is exploring design options to mitigate the traffic situation. In addition, the County is in the process of implementing improvements to the Osler Drive and Towsontown Boulevard intersection to improve sight lines and turn lanes.

Residents of the adjoining neighborhoods do not currently take full advantage of the resources available within the university. Although numerous summer camps, children’s dance programs and other children’s activities held on the campus are well known and attended, athletic, cultural and educational programs are less well publicized and attended. Neighboring communities, particularly Rodgers Forge, desire access to the campus for passive recreation, walking, biking and connecting to businesses in Towson.

To foster communication between the University and the adjacent neighborhood associations, Towson University initiated in 2009 the University Relations Committee which meets monthly to discuss upcoming events, projects, shared concerns and issues. This committee has greatly improved the level of communication and resolution of issues which affect the university and the community.

Adjacent Institutions

In 2003, Towson University and its three neighboring institutions formed a strategic working group referred to as The Towson Four. Each of the adjacent institutions is facing a problem similar to that of Towson University; significant growth with limited land resources. The Towson Four encompass over 500 acres of land and employ approximately 9,000 workers in two of the most rapidly growing precincts of the economy: healthcare and higher education. Each institution has a finite supply of land and is in need of expansion over the next decade. In this regard, the institutions have formulated a working group to coordinate their upcoming growth plans and other strategic initiatives as determined to be mutually beneficial.

Campus Property

The campus is divided into three precincts: the Academic Core, The West Village and the South Campus. The Academic Core is bounded by St. Joseph Medical Center on the south, Osler Drive on the west, Towsontown Boulevard on the north and York Road on the east. Two parcels lie across these

boundaries, the Burkshire Conference center on Burke Avenue, which is connected by a pedestrian bridge and the General Services Building and Public Safety Building, which are set across Towsontown Boulevard. Towson Place Apartments, Cross Campus Drive and the Glen act to isolate the Center for the Arts and the Administration building from the body of campus.

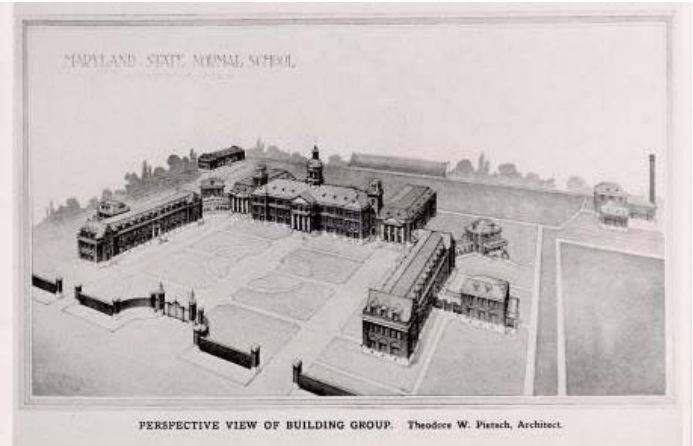
The West Village contains the largest piece of developable land remaining on campus. The precinct is bounded on the south by Sheppard Pratt, the University Village complex and GBMC, by Towsontown Boulevard on the north and Osler Drive on the East. The Towson Run Main Branch is set in a wooded area adjacent to Towsontown Boulevard along the north edge of the precinct. The first of five phases of housing was completed in 2008 and delivered 660 new beds. Since that time four additional phases of housing have been added to the West Village adding 1,300 on-campus beds. Seven hundred new beds are currently under construction and will be complete by fall 2016. One additional housing site remains but will require the relocation of the administrative functions in the existing Enrollment Services Building before the site will become available for redevelopment. A new pedestrian bridge has been completed which crosses Osler Drive connecting the West Village with the Academic Core. With the completion of the Burdick Hall addition, the bridge will smoothly connect the two campus centers. The West Village Commons provides food service, retail, and event and meeting spaces. The western portion of the precinct is a steeply sloping field improved with an access road to the Gilchrist Center at GBMC. This area, called West of West, has the long-term potential to increase on-campus housing for upper division students, graduate students, and junior faculty and staff.

The South Campus extends from Osler Drive on the east to Charles Street on the west and is bounded by Sheppard Pratt on the north and the Rodgers Forge neighborhood on the south. Much of this area has significant slopes, streambeds, wetlands and large stands of trees. Access to this precinct is limited to Auburn Drive, which forms a loop road off of Osler Drive. The 5,000 seat SECU Arena provides space for athletic events, local high school graduation ceremonies, entertainment for the overall community, and a gathering place for the university.

Land use on the Towson campus is in many ways driven by the availability of land due to the natural constraints. The total land holdings of the university cover 329 acres. Areas considered difficult to build, including steep slopes, wetlands, floodplains, and riparian corridors, comprise 34% of the current campus land holdings. Parking facilities and athletic facilities occupy another 23% of the Towson campus. Buildings occupy 8% of the land and open spaces, including roads, walkways, and service areas comprise the remaining 35% of the campus.

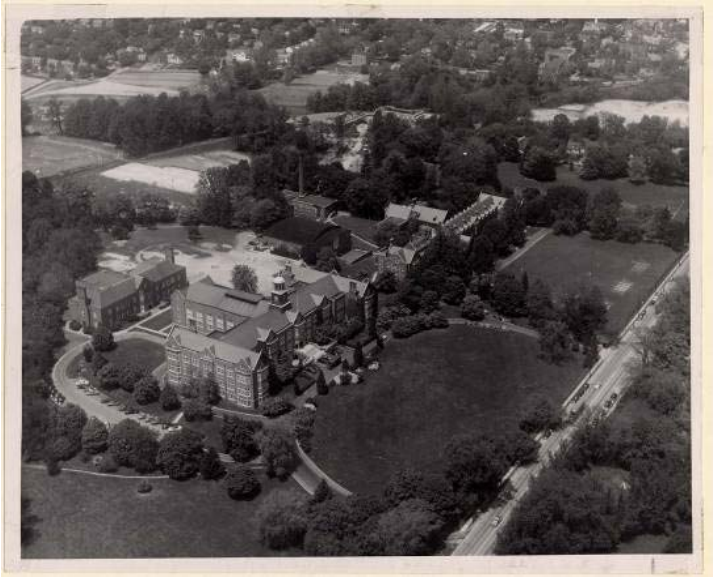
3.2 Physical Development of the Campus

1916



The Towson University campus was developed in 1915 as a new home for Maryland Normal School, which was based in Baltimore at the time. The plan was the result of a competition and the initial campus consisted of three buildings located on York Road. This initial phase of development included the creation of the Stephens Lawn and the construction of Stephens Hall, Newell Hall and the central power plant.

1916 – 1959



The next 45 years brought a gradual growth of the campus, still concentrated along York Road. The additions of Prettyman Hall and Richmond Hall, both student life buildings, helped to solidify the York Road frontage of the campus during this period.

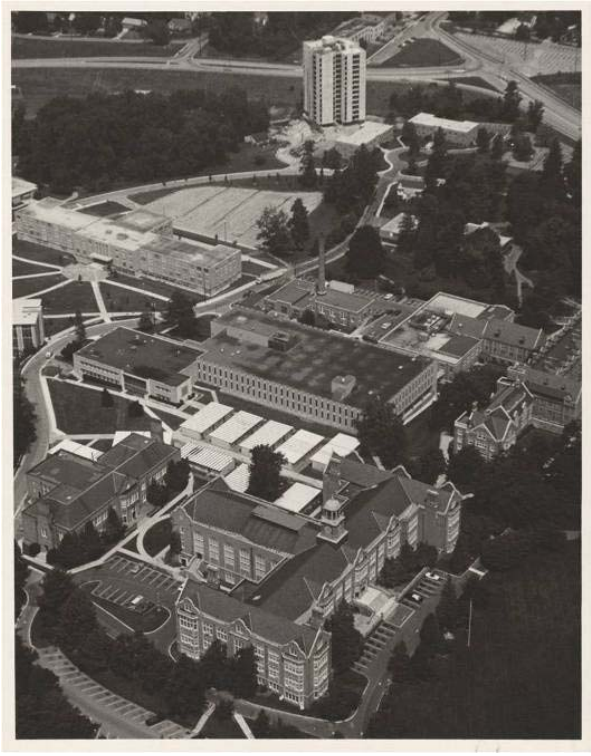
Two other buildings, the Media Center and Van Bokkelen Hall began to form a secondary quadrangle behind Stephens Hall and the Newell Dining facility. The quadrangle was at times used for the site of temporary buildings to meet immediate space needs on campus.

Two additional residence halls, Ward and West Halls, began a pattern of sprawl that would continue over the next several decades.

1960 – 1969

This period was characterized by rapid growth of the campus and a move towards vehicular circulation on campus, although the campus was primarily contained within the Academic Core. Some of this growth was contained in the orthogonal pattern established by York Road, including Linthicum Hall, Cook Library and Scarborough Hall, while other buildings, particularly Lida Lee Tall (now demolished) and Smith Hall, began to relate to the topography of their sites. The new facilities did little to give the campus a sense of unity, either through a similarity of architectural character or the creation of defined outdoor spaces. Cook Library created a significant change to the development of campus by filling much of the outdoor space previously created behind Stephens Hall and by placing its entry on the west side of the building.

1970 – 1979



The 1970's saw the most rapid sprawl of the campus, with the construction of new facilities outside the Academic Core. In the southern athletic area, the stadium and Towson Center facilities were built, while in the Towson Run area the Enrollment Services building was constructed. Within the Academic Core, the construction of the University Union, Center for the Arts, Residence Tower and General Services building represented a continuation of the spreading of campus, while Hawkins Hall, the Smith addition, the Lecture Hall and the Psychology building began to define the outdoor space that is known as the Beach. These buildings would represent the last academic facilities built on campus for the next 25 years.

1980 – 1989

Following the rapid growth of the 1970's, the pace of development shifted dramatically during the 1980's. During this period, Towson Run and the Glen Complex added considerably to the housing inventory, recognizing a shift to a traditional student body. The Glen Complex also reflects a desire by the institution to find innovative methods of financing the construction of needed facilities. The construction of the Towsontown Garage and the Union Garage during this period reflect both the impact of the wide spread campus on vehicular traffic and the limitations of the land available for development on campus.

1990 – 2003

Between 1990 and 2003, the university accommodated its expansion through the acquisition of existing facilities. The Administration building and 7800 York Road, both former office buildings, were acquired and renovated to provide additional office and classroom space. These buildings expanded the presence of the university on York Road, but are not currently well connected to the remainder of campus. In conjunction with this expansion, the Glen Garage was constructed to improve the parking situation within the Academic Core. To address the needs for student residences, the university developed a long term lease for the development of Millennium Hall in the West Village. Also undertaken during this period were the Glen Master Plan and the subsequent restoration of the Glen Tributary, marking an effort by the university to improve its heritage and ecological condition. The Johnny Unitas Stadium was improved and expanded as well.

2003 – 2009

The 2003 Campus Master Plan developed a comprehensive vision for the campus which improved connections, established a cohesive image, and developed a balance between the natural and built environments. Between 2003 and 2009, a number of major facility projects have been completed, are under construction, or are in design:

- The renovation and addition to the **Center for the Arts** was completed in 2005 and resulted in a new facility of over 300,000 gross square feet (GSF) of classroom, theater, studio, and rehearsal space.
- The **Albert S. Cook Library** lobby and surrounding area were renovated in 2006 to include a new storefront, welcoming entrance and a Starbucks Café.
- The **Parking and Transportation Services office** was relocated in 2006 to 2,500 GSF of newly constructed office space in the lower level of the Union Garage.
- The new 11,800 GSF **Childcare Center,** was completed in 2007 and is located on Auburn Drive.
- The **Towsontown Garage** was expanded in 2008 to add 500 parking spaces for student, faculty, staff and visitor use. The expansion project also included the restoration of the Towson Run stream, which runs beneath and adjacent to the garage.
- The **West Village – Phases I housing** projects, Harriet Tubman House and William Paca House, opened in fall 2008 adding 668 new on-campus beds.
- The **Campus Site & Safety** projects provided underground utility infrastructure improvements and above-ground site improvements including the Towsontown gateway entrance to campus. The project was completed in January 2011.
- The campus **Central Utility Plant** expansion, completed in spring 2009 provides the necessary utility infrastructure to support campus growth.
- The **West Village utility and transportation infrastructure** project was completed in July 2009 and supports the planned development of that precinct of campus.
- The **College of Liberal Arts – Phase 1** project includes 100,000 GSF of academic space and was completed in August 2009.

CLA Phases 1 and 2

West Village Housing

2009 to Present

The 2009 Campus Master Plan built upon the structure of the 2003 master plan making minor adjustments to small area plans, reflecting refinements of the University's evolving needs, improving connections to downtown Towson.

- The **College of Liberal Arts Phase II** added 193,000 GSF of academic space in July 2011.
- **West Village Phase II** housing projects included Barton and Douglass Houses adding 647 on-campus beds.
- The **West Village Commons** was completed in August 2011. The program includes dining, retail, meeting, office and other student service spaces.
- **Public Safety Building** built on the north side of Towsontown Boulevard consolidated campus security and fleet storage in one place.
- The **5,000-seat SECU Arena,** on the northwest corner of the existing Towson Center was completed in late 2012.
- **Ward and West Renovation and addition** consolidated campus health services in one place.
- **Campus Site and Safety Phase II** included the construction of a pedestrian bridge crossing Osler Drive greatly improving student safety.
- **Burdick Hall Phase III** completes the planned expansion of Burdick Hall for recreation and academic use as well as completes the construction of the raised walkway from the West Village. The project should be complete by Fall 2017.
- **Richmond and Newell Hall Renovations** greatly improved the livability of these historic residence halls facing onto York Road.
- **West Village Parking Garage** provided 1,466 parking spaces on the West Village
- **Softball Field Improvements** provide improved turf, dugouts, bleachers, fencing, and a press box.
- Institute for Well Being, Olympic Place and WTMD in downtown Towson improves access by the community to clinics.
- **West Village Phases III / IV** adds 700 new beds to the West Village and will be complete by fall 2016.
- **The Institute for Well Being** and the Campus radio station, **WTMD**, relocated to downtown Towson in Olympic Place.
- The university acquired the **7400 York Road** building and completed a renovation in 2015.

SECU Arena

Richmond and Newell Halls

3.2 Campus Character

Living / Learning Environment

The learning environment is currently concentrated in the Academic Core. Much of the liberal arts education is focused in this area, including the traditional heart of a collegiate education – the library. This core of buildings is relatively small and consists of two distinct and separate areas.

The first area around Stephens Lawn contains a mix of living and learning functions with a distinct architectural character and a row of buildings that address York Road. The academic buildings are Stephens Hall, Van Bokkelen Hall, the Stephens Annex and The Media Center, with Newell Hall, Prettyman Hall and Scarborough Hall as residence facilities that work in conjunction with the academic buildings to create a living / learning community. These buildings are oriented to the street grid and form a definitive edge to the campus facing the east.

The second area of academic buildings is centered on The Beach and most of these facilities are inwardly directed towards this space. Buildings in this area include Linthicum Hall, Cook Library, Smith Hall, Hawkins Hall, Lecture Hall and the Psychology building. These buildings are comprised of a variety of modern buildings set in relation to the topography as it drops from the library to Towson Run, generally facing the west.

Between the east facing orthogonal Stephens Hall area and the west facing, variably oriented “Beach” area is a series of service functions. The Cook Library lies on this edge, but is entered only from the west, effectively turning its back on the historic front of campus. The central heating/cooling plant and loading functions for Newell Dining and the Cook Library also act to separate the two precincts on the north, while loading for Smith Hall separates the two precincts to the south. The Media Center acts as a visual connection from the east and physical bridge between these precincts, but turns its back on The Beach.

Stephens Hall and the surrounding area have a distinct architectural style.

Some academic functions, notably the Fine Arts, are remote from the academic precinct creating some schedule conflicts. The expansion of the Fine Arts building provides a prominent entry facing the academic precinct, but topography and Cross Campus Drive still act as a barrier between the Center for the Arts building and the Academic Core. Burdick Hall and the recent addition of 7800 York Road are academic buildings that are modestly separated from the Academic Core, but within easy distance of the precinct.

Student life functions are concentrated adjacent to the Academic Core in Burdick Hall and the University Union. The recent addition to Burdick Hall has provided the student body with a centrally located recreation facility adjacent to the two campus recreation fields. The University Union is home to student office space, retail space, dining facilities and meeting spaces. The outdoor recreation space is situated between these two buildings.

Campus housing currently comprises 4,972 beds including the core campus facilities and the privately developed West Village complexes. This compares to 3,285 beds in 2003. Currently, the on-campus housing can accommodate 30% of the undergraduate full-time equivalent (FTE) population. This housing is centered in three general locations: York Road / Burke Avenue, the Glen and West Village. Housing adjacent to campus includes another 1,110 beds, bringing the total capacity of student housing to 37% of the undergraduate FTE population. Student housing adjacent to campus includes the Towson Place Apartments on Cross Campus Drive next to the Glen Complex and University Village on the Sheppard Pratt campus near West Village. Both of these complexes are fully occupied by Towson University students.

"The Beach" is currently the primary open space on campus.

A large portion of on-campus housing is located in the Glen Complex, which is adjacent to the University Union, the Glen and the Academic Core. These buildings have little communal gathering space and units configured in semi-suites. These high-rise buildings are serviced by the Glen Dining facility. An additional 525 beds are located in the Towson Place Apartments adjacent to the Glen Complex.

The Glen Complex constitutes a large portion of on-campus housing.

Towson Run Apartments, Millennium Hall, and the West Village Phases I-IV. Housing from the West Village which is connected to the Academic Core via the recently completed Osler pedestrian bridge.

The West Village will continue to expand over the next decade, adding a significant number of beds.

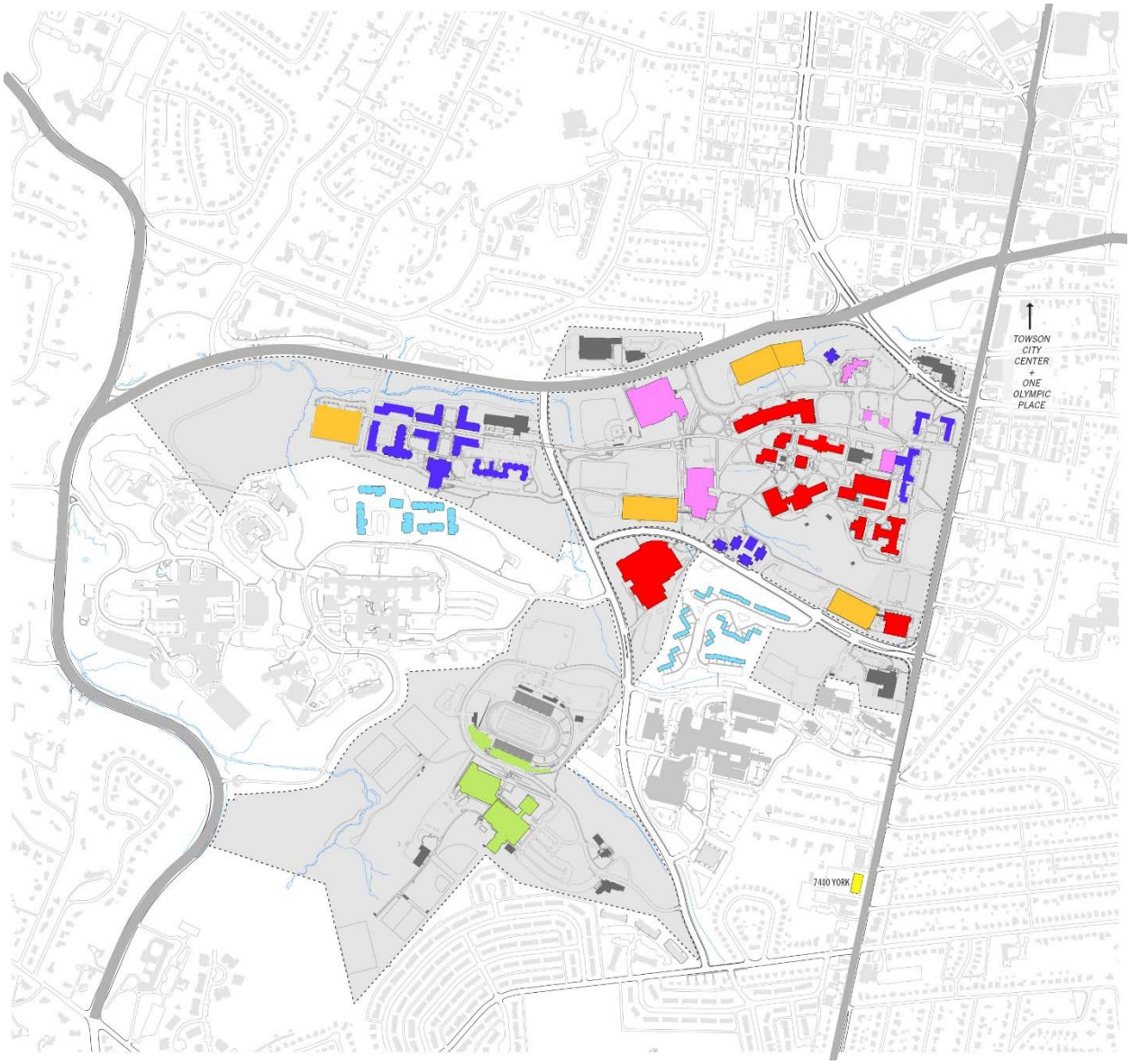
The York Road / Burke Avenue area is the traditional student living location on campus. Housing in this area includes five buildings with Newell Dining providing food service. This area is adjacent to the Academic Core and is within easy walking distance of the Towson Business Core, although the quality of the walk deters many students from taking advantage of the off-campus resources in the business district. The quantity of on-campus housing in this precinct is supplemented by an undetermined amount of off-campus housing along Burke Avenue. The off-campus housing in the adjacent neighborhoods has become a quality of life issue for the community.

3.3 Building Analysis

Building Use

The Towson University campus consists of 55 buildings comprising 5,612,095 gross square feet (2,479,058 NASF), of which 26 are state funded totaling 2,215,218 gross square feet (1,332,531 NASF). One of these structures, Stephens Annex is a temporary building placed on campus in 1986. A majority of the academic buildings on campus have never been renovated, and most have not been renovated in the past 25 years. With the exception of the Center for the Arts, the last significant renovation of an academic facility occurred in 1990 when Stephens Hall, the original academic building on campus, was renovated.

Auxiliary facilities comprise the remaining 27 buildings totaling 3,397,547 gross square feet (1,137,702 NASF). The campus also includes two privatized housing developments consisting of three buildings - Millennium Hall, Paca and Tubman Halls. This also includes 15 residence halls, two dining halls, a student center, five athletic facilities and four parking structures. There is no student recreational building, although two academic buildings, the Towson Center and Burdick Hall provide opportunities for student recreation. A recent addition to Burdick Hall for a student fitness center has provided a significant boost to the student recreation opportunities on campus which will be supplemented by the Burdick hall addition currently under construction.



Existing Building Use Diagram: 2015

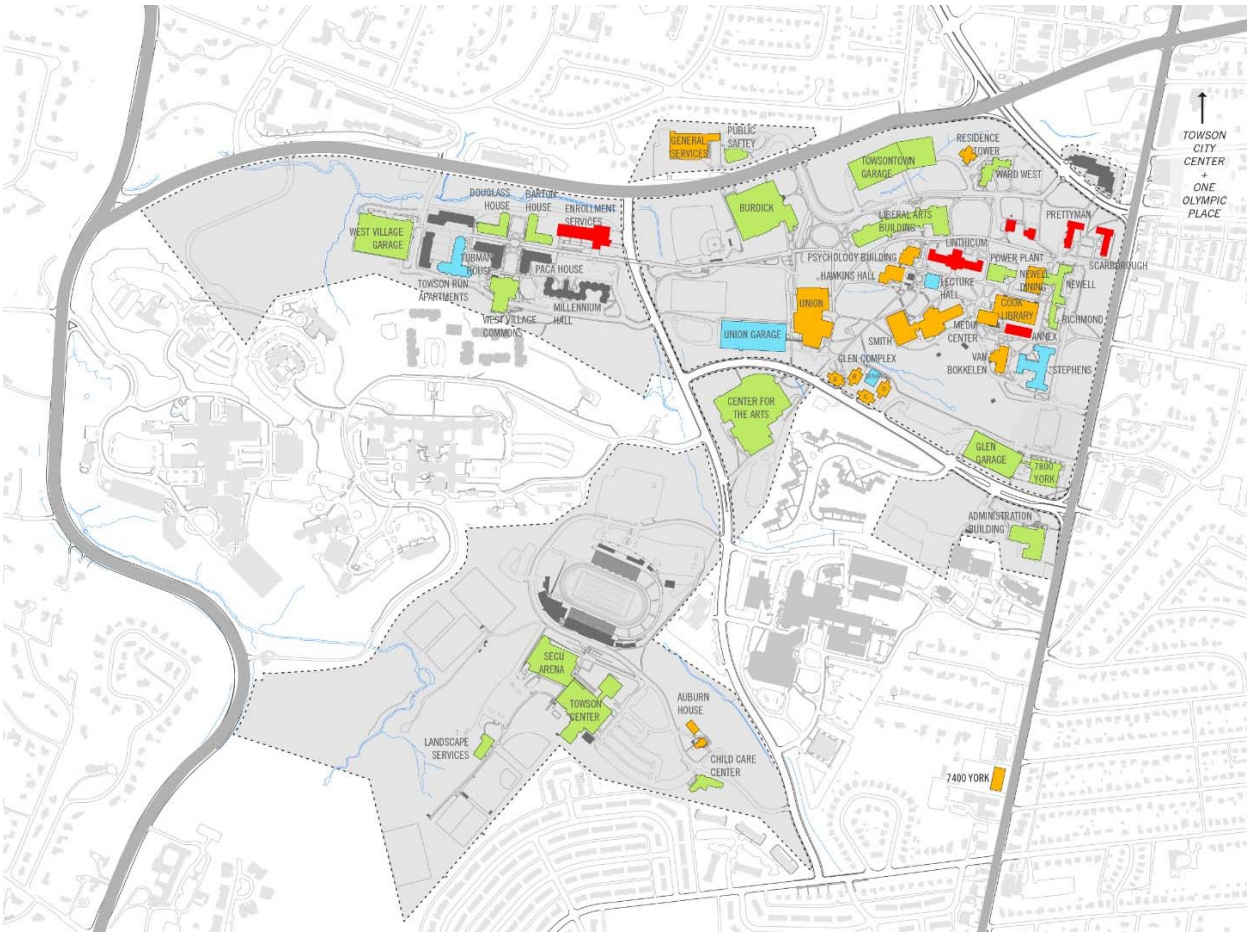
- Academic & Academic Support
- Auxiliary & Student Life
- On Campus Housing
- Parking Lot/ Garage
- Adjacent Student Housing
- Community Outreach
- Athletics

Facilities Renewal

As the needs for additional space on campus are addressed, it is also important to consider the condition of existing facilities. Decisions on major re-investment versus demolition will have to be made on a few buildings, including Linthicum Hall, the Enrollment Services building, and Dowell Health building. Stephens Annex is a temporary building that has exceeded its useful life and is not suitable for re-investment.

Van Bokkelen Hall and Stephens Hall are considered part of the original campus and function well in their current configurations. Therefore, these buildings should be slated for major renovations in order to extend their usable lives.

Prettyman Hall and Scarborough Hall are older residence halls which have outlived their useful lives. Given the limit of future new building sites on the Towson main campus, these buildings could be replaced with new academic space for the university assuming that the housing is replaced elsewhere on campus.



2015 Building Condition Summary

Good Condition | Modernization | Major Renovation | Potential Removal

3.4 Grounds Analysis

Most university and college campuses are memorable because of their grounds; the spaces that knit together the collection of individual buildings that make up the institution. Spaces that evoke the strongest memories and emotions are often those that form the heart of the campus, whether a stately quadrangle, bustling plaza, grand pedestrian thoroughfare, or tranquil lawn. While a campus may be remembered for a single space, successful campuses are comprised of a hierarchy of open spaces that accommodate different functions and are defined by sometimes very different landscape designs.

The Towson University Campus, like many campuses that have grown over time, consists of a variety of spaces including lawns, formal and informal quadrangles, natural stream valleys, athletic fields, garden spaces, and streetscapes. The University has done an admirable job over the past decade in ensuring that many of these spaces are well defined and quite memorable, sometimes as independent projects or as part of a building project. Some outdoor areas, however, continue to appear as the secondary result of a building, rather than primary spaces around which buildings are developed.

The following analysis describes the grounds in terms of landscape/open space, streetscape, and natural systems.

Landscape / Open Space Character

For purposes of this Master Plan, open spaces include all areas of the campus not occupied by buildings, parking, or roadways. While there are many types of open spaces that perform a variety of functions, they generally fall under two overall categories: passive or active. Passive open spaces include those spaces that are primarily experienced visually or by passing through. They generally play a supportive role for the campus image, buildings, roadways and activities around them. Active open spaces, on the other hand, are vital spaces that accommodate programmed events, activities, and social interaction on a regular basis. Active spaces often play a primary role for the development around them.

Similarly, there are many different landscape environments within the open space system and the landscape contributes to how well a particular open space functions. Landscapes fall into three main typologies: natural, transitional, and cultivated. The natural landscapes define the fabric of the campus and include fragmented woodlands and stream valleys, which are described in more detail below. Cultivated landscapes are those that are most manicured and “man-made” and transitional landscapes are meadow spaces and tree groves located along the edges of some of the natural areas.

While all of these typologies are present, all are generally fragmented and lack consistency throughout the campus. Following is a description and analysis of each of the primary open spaces on campus, divided into those that are mostly active and those that are mostly passive.

Natural Character

Towson University is situated within the Piedmont Physiographic Province, which is characterized by a rolling topography of gentle to steep sloped hills and stream valleys. Within this region, the dominant vegetation type has historically been an Oak-Hickory climax forest community association. The Towson University campus occurs within an intensively developed urbanized region that has greatly reduced the amount of available natural areas and their important functions. This includes deforestation of much of the historically extensive forest cover. The natural areas on campus contain remnant forest communities, stream reaches and wetlands that are worthy of protection and can be enhanced and restored to provide

valuable ecological functions for aesthetics, habitat and water quality. Many of the valleys on the campus have steep sides and therefore have not been developed forcing the concentration of built areas to the plateaus, ridges and valleys. This pattern has also held true for the surrounding institutions resulting in cleared, developed ridge tops interspersed with steep, variably wooded valleys and associated stream courses that have been protected or modified to varying degrees.

Passive Open Spaces

The Glen

The Glen is one of the most significant open spaces on the campus and is the backbone of the natural system components found near the campus core. Stone structures from the 1930's era Works Progress Administration Project are located throughout the Glen, as are narrow paths and trails. The western edge of the Glen area contains paved pedestrian walkways and a pedestrian bridge. It is from this vantage that the Glen is seen from and perceived by campus users.

The Glen's overall landscape typology is "natural." The Glen's landscape is comprised primarily of native plants—including a dense over-story of large deciduous trees and a supporting under-story of flowering trees and shrubs—contained within a natural woodland setting, largely along the slopes. Unfortunately, there are extensive areas of non-native invasive plants in the Glen woodlands. An open, central lawn area is quite pleasant and provides a strong contrast to the wooded slopes. The focal point of the space is a recently restored stream-bed that runs the length of the space. In the summer, however, the tree cover is quite dense, limiting views into the center from much of its perimeter.

Natural landscape features define the Glen area of campus.

While the Glen is the most significant open space on campus, it is mostly "back door" space with the exception of the western end (near the University Union), and lacks a strong presence or linkage with the greater campus. Enhancements to the Glen have recently been implemented to restore the historic structures, protect the stream, restore woodland areas choked by non-native invasive species, establish a cohesive pedestrian trail system, and develop a native plant arboretum. Enhancements to the campus should continue to stabilize the Glen and help establish a stronger presence for it and stronger linkages, both physical and visual, to other parts of the campus.

Woodlands

In addition to the Glen, a significant portion of the passive open space on the campus falls within the natural typology and is comprised of woodlands, both in stream valleys and on steep slopes, as well as stream channel beds, wetland areas, and minor areas of scrub-shrub and meadow habitats. These areas are described below in more detail later in this section.

Stephens/Newell Lawn

Stephens Lawn and Newell Lawn are, perhaps, the most iconic open spaces on campus and are the most symbolic of the institution. Because of their relationship to York Road and to the buildings themselves, these two lawns play an important role in establishing a positive image for the university. This cultivated landscape is the classic campus landscape, and is comprised of large shade trees and open lawns. Stephens Lawn has a particularly strong presence because it is sloped away from Stephens Hall and toward York Road. Newell Lawn is level and lower than Stephens Lawn, so its presence is not as strong along York Road. Informal groupings of large shade trees within both spaces work with the adjacent buildings to create a strong edge along most of the lawn perimeter. The York Road edge lacks any kind of tree definition, however. While the campus image presented to those in automobiles is quite strong, the pedestrian experience along York Road is not very hospitable. While Newell Lawn is used informally for recreation, the most important function of both of these spaces is to establish an elegant visual image for the university. Enhancements should preserve and reinforce this character.

The pedestrian experience of the Stephens/Newell Lawn from York Road is diminished by a lack of shade, overhead utilities, and a narrow sidewalk.

Towsontown Entrance Lawn

With the construction of a new main entrance at Towsontown Boulevard and University Avenue, the University established a second campus front lawn. This lawn spans both sides of University Avenue, between Towsontown Boulevard and Tiger Plaza. Comprised of turf and shade trees, it reinforces an iconic campus identity similar to Stephens/Newell Lawn, albeit, to a lesser degree.

Auburn House Lawn

The Auburn House Lawn establishes a setting for another historic structure and likewise establishes a positive image for the campus, particularly along Auburn Drive. The landscape here is quite nice with open lawn, large shade trees, shrubs, and groundcovers. The scale of this space is more intimate and offers a pleasing contrast to the large scale of the surrounding athletic facilities.

Setback Areas

Much of the open space on campus is comprised of setback areas between roadways and buildings. While in the case of Stephens Hall, this setback is a great lawn; most of the other setbacks on campus appear to be remnant spaces that are the result of building requirements or difficult topography. The function of these spaces is primarily visual (particularly for vehicular traffic along the adjacent roads), and the landscapes vary significantly from one setback area to another. In many cases, the setbacks are wooded, such as adjacent to the Glen Parking Garage, and help to screen unattractive facades. In these instances, they also help play an important role in connecting fragmented woodland areas (and the University has already begun tree planting adjacent to the Parking Lot 26 to provide a better woodland link). In other areas, the setbacks are generally open and planted with informal groupings of trees, affording views to adjacent buildings, such as at the Center for the Arts and the Towson Center. Some areas, however, are quite open and barren, such as the steep slope adjacent to Parking Lot 20 and adjacent to the Union Parking Garage. Overall, the landscapes of the open setbacks lack a coherent structure. Enhancements to the campus should preserve those setback areas that provide a positive image and strengthen those that do not. These setback areas provide the basis for maintaining and enhancing natural buffers along streams, wetlands and steep slope areas, and for connecting fragmented landscapes.

Active Areas

The Beach

The Beach is the largest and most “public” quadrangle on the campus and is generally well defined by the Media Center, Linthicum Hall, the Lecture Hall, and Smith Hall. Its high elevation and central location make it a prominent space for social interaction and events, while affording outstanding views to Downtown Towson. The landscape of this space is generally comprised of lawn and shade trees (formally spaced along the edges and informally spaced within the space).

While the space is well defined by buildings and trees, its significant cross slope to the north and the topographical changes near the Lecture Hall weakens its overall structure and usability. In addition, the space between the Media Center and Smith Hall provides a connection to the Glen; however, the landscape treatment using low canopy trees blocks, rather than reinforces, views to the Glen. Similarly, the linear open space connection to Newell Hall from the Beach is weakly defined and devoid of shade trees, even though it is an important campus connection. Enhancements to the campus should strengthen the prominence of this central space and its connection to the Glen and adjacent spaces.

The Beach continues to be a popular place for students to gather on a sunny day

Academic Quad (Lower Section)

With the recent development of the new College of Liberal Arts, the university has begun to implement an Academic Quad—the centerpiece of the campus open space system. This lower section is immediately adjacent to and highly visible from both University Avenue and Towson Way. It is comprised of open lawn and shade trees along the perimeter and provides the beginnings of a significant flexible quad for campus activities and programming.

Miracle Mile

In addition to the lower section of Towson Quad, the new College of Liberal Arts also defines another significant quad space to the south. This quad space is bisected by the two main spurs of Towson Way and, as a result, functions as a series of smaller, somewhat independent open spaces rather than one single quad.

Multiple spurs of Towson Way and other significant walkways subdivide the area on the south side of the College of Liberal Arts Building into a series of somewhat independent spaces.

Amphitheater

The amphitheater is generally a pleasant space that capitalizes on the campus's hilly topography and affords some views down the length of the valley to the west. The space is generally well defined by buildings, topography, trees, and the Glen, and it also provides a location for formalized events and performances. While the trees to the rear of the space are quite nice in defining a clear edge and providing overhead canopy, the ornamental trees planted on each side of the amphitheater are insignificant and are not effective at reinforcing the space or transitioning the amphitheater into the Glen.

The amphitheater is a unique campus open space, adjacent to Smith Hall.

Van Bokkelen/Stephens Annex Quad

There is a small quadrangle that is well defined by Van Bokkelen and Stephens Annex. It is one of the few relatively level open spaces on the campus and most closely resembles a “traditional quad.” While generally well defined by buildings and the formal placement of trees along Stephens Annex, the overall landscape does not reinforce this as a space. For example, a large Spruce tree is planted in the middle of the quad, which tends to “fill” rather than “define” the space. In addition, this tree blocks views to the older architecture of Stephens Hall. Conversely, the tall blank wall associated with the Stephens Hall addition overwhelms the space and could be softened by larger trees. Enhancements should reinforce this as an open quadrangle.

Prettyman/Scarborough Quadrangle

The quadrangle defined by Prettyman and Scarborough Halls is well defined by architecture and perimeter shade trees. It does not read as a defined space, however, because of the central garden, which fills the quad rather than delineates it. Nevertheless, the garden space is attractive, and offers southern exposure and an inviting atmosphere. While it is generally recommended to avoid “filling” spaces such as this, the treatment here is still effective because it borders the expansive lawn in front of Newell Hall. Should redevelopment occur in this area, it is recommended that any new open spaces be designed as more flexible, open quad areas.

West Village Quad

With the implementation of the West Village, a significant new quad has been established to serve as a gathering and passive recreational space at the center of this housing precinct. The quad is formal in design, with an open, flexible lawn reinforced by a row of shade trees on both sides.

West Village Quad provides important outdoor passive recreation for residents within this campus precinct.

Athletic Fields
Athletic Fields are a variety of open space, primarily programmed for a specific activity. Because of their expansiveness, athletic fields play a strong role in establishing the “green” image of a campus, while at the same time accommodating the activities for which they were designed.

Plazas

Tiger Plaza
Tiger Plaza was established recently as part of the campus’s main entrance (from Towsontown Boulevard) for the development of the new College of Liberal Arts. The plaza consists primarily of a central open lawn with walkways and seating around the perimeter. The space functions well as a transition from the Main Entrance Lawn to Towson Way, Likewise, it represents a highly visible positive identity for the University.

Library Plaza
This plaza is located at the main entrance to Cook Library, at the eastern end of the Beach. It is a broad, brick-paved plaza. While high quality of materials and attention to detail is evident in its design, Library Plaza appears somewhat barren. The plaza could accommodate more seating and larger trees near its perimeter to make the space more inviting. It has outstanding views to the Beach; however, these views are partially obscured by the low walls surrounding at the perimeter.

The plaza located at the Cook Library entrance is a popular area of the Beach.

University Union Plaza
This plaza at the entrance on the east side of the Union is quite pleasant, particularly when approached from the Glen. University Union Plaza is not over-scaled and it is a bright and sunny contrast to the dense shade of the Glen. The garden and water feature is displays simplicity and provides soothing sounds for users as they pass through and gather in the space.

Freedom Square

This new plaza, located adjacent to the amphitheater and Lecture Hall, is situated at the juncture of many key pedestrian circulation routes. Freedom Square offers both sunny and shaded spaces and utilizes a well-articulated design, making it a vibrant gathering space.

Freedom Square, at the junction of many different pedestrian ways, is an important outdoor social space within the campus Academic Core.

Glen Complex Plaza

The Glen Complex Plaza, amid the Glen Complex towers, helps to unify the residential buildings. While the space is somewhat stark, it does accommodate a lot of pedestrian traffic; thus, it is important that it is not cluttered with obstructions. Because it is a rooftop space, large trees cannot be grown here; however, consideration should be given to a few well-placed ornamental trees in containers. One of the most outstanding features of the space is that it overlooks the Glen at the entrance to the pedestrian bridge. The potential of this overlook is not fully realized, however, because of the solid walls that obscure lower views.

West Village Plaza

West Village Plaza is a primarily paved space at the intersection of Towson Way and the West Village Quad and contrasts with the open lawn areas of the quad. The entrances to Tubman, Douglass, Paca and Barton Houses all extend off of this plaza, resulting in an active and social outdoor space.

Building entrances oriented to the West Village Plaza help to keep this a vibrant, social space.

West Village Commons Plaza

This plaza space extends the activity of the West Village Commons outdoors and anchors the south end of the West Village Quad.

Tables on the West Village Commons Plaza provide opportunities for outdoor collaboration as well as to observe the activity in the adjacent quad.

SECU Arena Plazas

The recently completed SECU Arena includes two plazas outside of the entrances to the building. The main entrance plaza is located at the northeastern corner of the building and a secondary plaza is located at the southwestern corner of the building, adjacent to the parking lot. Both are well-scaled for crowds associated with large events in the arena.

The entrance plazas to the SECU Arena are well-scaled to accommodate large crowds.

Enrollment Services Center Plaza

This sunken plaza is located along Osler Drive on the east side of Enrollment Services. Mostly concrete with trees planted throughout, it is not a welcoming space.

Special Spaces

Alumni Garden

An alumni garden has been recently constructed on a hillside between the University Union and the Glen. It is a contemplative space and is well-situated at the edge of a woodland area. Because it is a special space, its design is appropriately unique to this setting and does not utilize campus standards.

University Union Plaza Extension

The northwestern corner of the University Union Plaza is also a unique and popular, quiet gathering space. Similar to the Alumni Garden, University Union Plaza Extension takes its design inspiration from the adjacent woodlands, incorporating large boulders and log benches into the landscape. This deviation from campus standards is appropriate for a setting such as this.

Examples of successful special, contemplative spaces where it is appropriate for the design to deviate from campus standards.

Landscape Elements

From a "big picture" point of view, the overall campus is comprised of the natural, transitional, and cultivated typologies. However, the campus is perceived by users on a daily basis in much closer detail. The landscape includes many elements that add user comforts and affect one's general impression of open spaces. Following is a description and analysis of the landscape elements found throughout the campus. Photographs of these elements are included in the design guidelines and current specifications are provided in the Towson University Construction Standards Manual.

Site Furniture

The university has recently installed new site furniture, including trash receptacles, bike racks, and benches. The simple design and black color works well with the campus's mix of traditional and contemporary architecture. While the benches have been functionally and aesthetically successful, they have also been susceptible to vandalism, which the manufacturer has addressed with the University.

Lighting

The university has been installing new pedestrian light fixtures that are black in color, emit white light, and accommodate sign panels and banners. These new lighting standards work well in unifying the campus and should continue to be used with the site furniture as a unifying element.

Special Features

Special features (public art, fountains, etc.) are limited on the campus to a few select features, such as the tiger statue at Tiger Plaza, the sundial in front of Stephens Hall, and the water garden at the University Union. While the campus could use more features, the number, style, and placement should be well-planned with the Master Plan building and landscaping initiatives to avoid conflicts and to not create excessive "visual clutter."

Paving

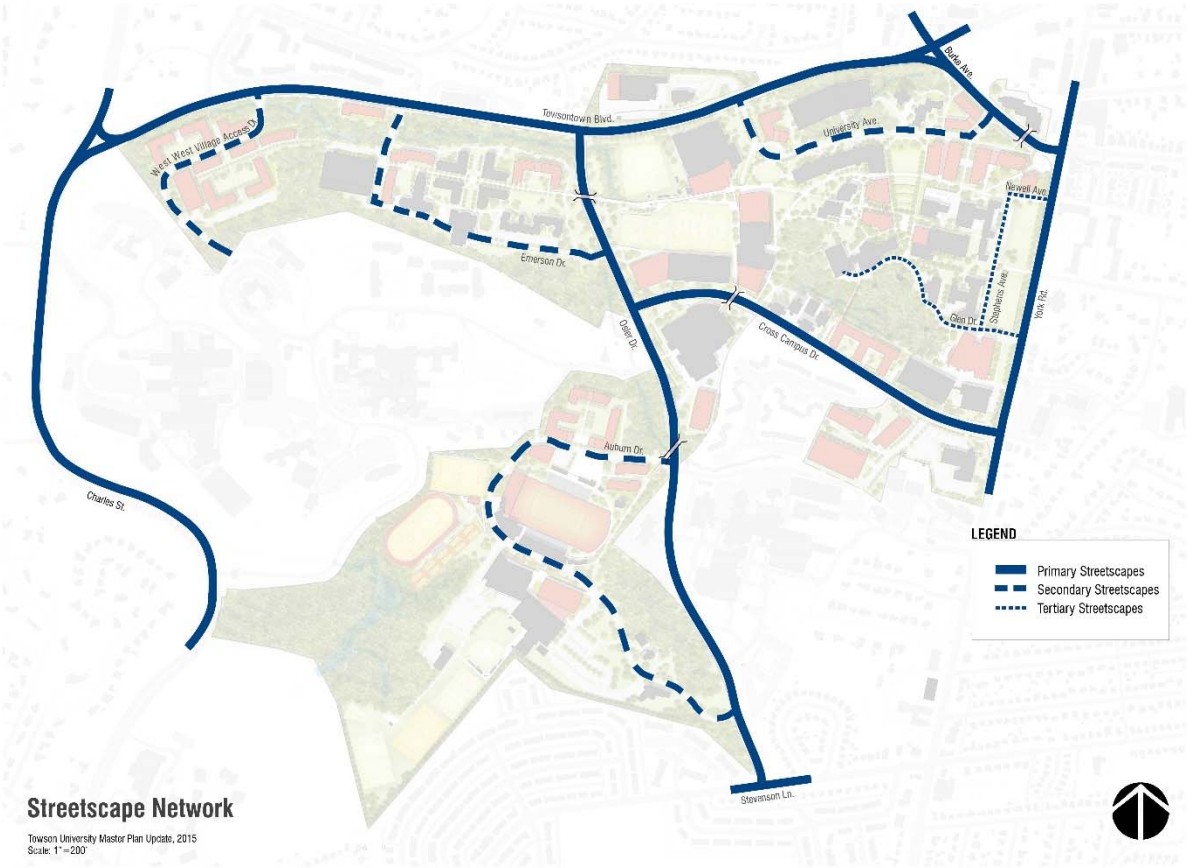
Pedestrian surfaces are predominantly comprised of concrete, concrete pavers, asphalt, and brick. Brick is primarily limited to "The Beach." However, concrete unit paver "bricks" have been and continue to be utilized throughout the Academic Core. The university has adopted this as the standard for primary and secondary walkways and gathering spaces. Concrete unit paver bricks have also been utilized for Towson Way throughout the campus, including the West Campus. This sets the standard for primary walkways that link the Academic Core, West and South Campuses. Concrete has been effectively used for secondary pathways in the West and South Campuses and for tertiary walkways in the Academic Core. Concrete's brighter color is effective in areas where the walkways are adjacent to dark colored buildings or where they are in very shady places, such as the western edge of the Glen. Asphalt has been effectively used in more naturalized areas where a sweeping pathway alignment responds to rolling topography. In addition to the above, bluestone has been used to designate special "nodes" along Towson Way and within some of the plaza spaces. The university has had some trouble with maintenance of this paving, however, and has successfully switched to a concrete paver that resembles bluestone.

Walls

There have been an increasing number of walls (both freestanding and retaining) constructed on campus recently, in addition to those associated with the main entrance. Depending upon the site context, wall materials include brick, stone, form-lined concrete, and segmental units.

Streetscape

There are generally three categories of streets at Towson University: primary, secondary, and tertiary. With the exception of University Avenue, streets adjacent to and throughout the campus continue to lack definition as organizational elements among precincts and spaces. Following is a description and analysis of each street type:



Primary Streets

Primary streets are those regional roadways that define the perimeter of the campus, or that pass through it. While they carry a significant amount of campus traffic, they primarily carry local traffic and establish a portion of the regional roadway system. As a result, many motorists experience Towson University only from these roads and, therefore, it is here where their image of the campus is established. Primary streets contain four or more lanes of traffic and, for the most part, are constructed at a scale that is threatening to the pedestrian. Consequently, these streets act as barriers between distinct portions of the campus.

York Road

York Road is historically the “address street” for the campus; however, this role has shifted to Towsontown Boulevard. The symbolic image of the campus, nonetheless, is still pictured along York Road with the Stephens and Newell lawns. While many trees have been planted informally along the properties that front York Road, the street lacks a unified streetscape. Overhead utilities along most of the campus frontage would prevent the planting of broad canopy trees along the sidewalk; however, the broad lawns would allow for tree planting behind the utility lines.

Towsontown Boulevard

This is the most significant street associated with the campus in terms of width and traffic volume. While much of the frontage is woodland, overhead utility lines immediately adjacent to the street prevent the planting of large shade trees close to the sidewalk. However, there is sufficient room for lower canopy trees and large trees associated with the woodlands. While the woodlands are important to the campus environment, they do block views into the campus along most of the frontage, particularly at the intersection of Towsontown and Burke. Consideration should be given to selective thinning and pruning of trees to provide glimpses into the campus, as the view from Towsontown Boulevard is one of the primary images that many people have of the University.

Burke Avenue

The streetscape image along Burke Avenue is generally attractive, although it lacks a strong design that would be a significant contribution to the campus's image. The grade of Burke Avenue is lower than the campus, so the primary views seen from passing automobiles is of the grassy slope. This slope affords the opportunity to create a highly visible landscape treatment.

Osler Drive

The character of Osler varies along its length, but lacks any kind of cohesiveness. Between Towsontown Boulevard and Auburn Drive, trees are set back far from the road and the scale is quite expansive. Further to the south, adjacent to the Osler Medical Center, large trees are located close to the curb and the street has a more comfortable scale. Overhead utilities are located on the east side of the street and a painted median near Auburn provides an opportunity for a planted median.

The streetscape along Osler Drive lacks cohesiveness and does little to visually connect the different campus precincts.

Cross Campus Drive
This street is quite broad and although there are significant stands of woodlands adjacent to the street in some areas, the lack of consistent planting results in an environment without much identity and one that forms a barrier between the Academic Core and the Center for the Arts. While overhead utilities are located along the north side between Osler and the Glen Complex, most of the street frontage would allow for the planting of street trees and/or enhanced pedestrian environments. Median segments also exist, but they make little visual impact being either grass or concrete. The woodland strip along Parking Lot 26 creates a fairly solid wall of green. While these woodlands help to extend the wooded character of the campus, selective thinning and pruning of some trees would allow glimpses of the Glen in the distance.

Secondary Streets

Secondary streets are those streets that provide clearly defined connections through the campus. While they are significant campus streets, they are generally narrow and have a scale that is more pedestrian friendly than the primary streets.

University Avenue
University Avenue has a generally pleasant landscape character and is well scaled for the pedestrian. The roadway grade fluctuates significantly and illustrates the campus's rolling topography. The landscape environments include woodland corridors and informally planted lawns. The woodlands near Towsontown Parking Garage encroach fairly closely to the edge of University Avenue. The resulting effect accentuates passing from one campus landscape to another and is quite pleasant.

Auburn Drive
Like University Avenue, Auburn Drive is narrow and has a generally pleasant scale. Similarly, the grade fluctuates quite a bit along its length, accentuating the landform of the campus. Landscaping generally includes groups of shade trees and woodland edges in a parkway setting. Because of the curving alignment and changing gradient, there is an opportunity to use the landscape to focus views into the valley to the west, and to significant structures such as the stadium and the Auburn House. Deciduous trees along this road have been effectively pruned to allow views beneath their canopies.

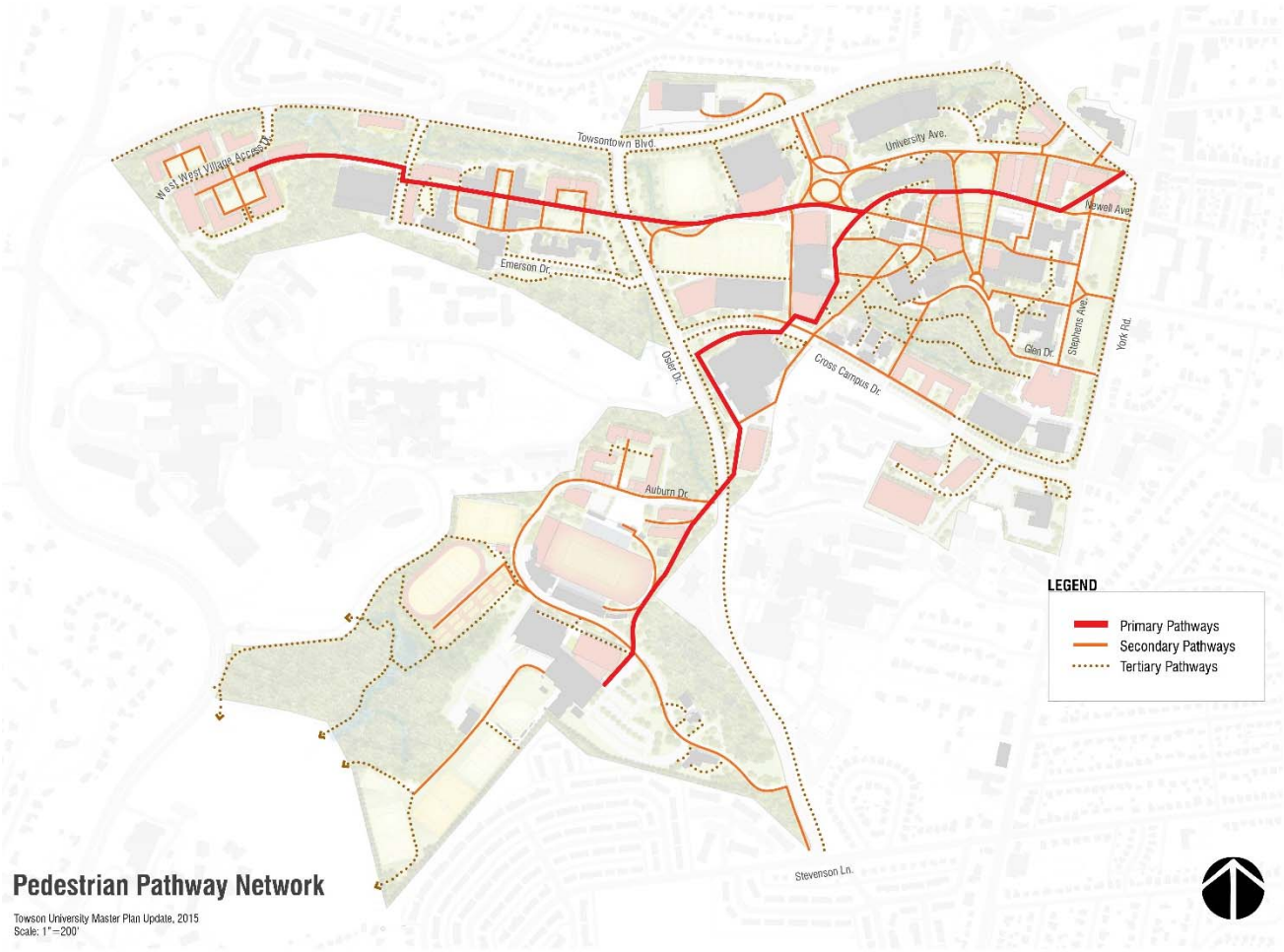
Emerson Drive
With the continued development of West Village, Emerson Drive—which runs behind Millennium Hall, Paca and Tubman Houses, and underneath the West Village Commons—has emerged as a secondary street. Additionally, it serves traffic from the West Village parking structure, located adjacent to Towson Run.

Tertiary Streets

Tertiary streets, shown in a dotted blue, solely serve the campus, accessing buildings, service areas and parking resources. While they are narrow in scale and low volume in traffic, they do create barriers between campus spaces. Tertiary streets include Glen Drive, Stephens Avenue, Newell Avenue, Linthicum Road, and Union Avenue.

Pedestrian Ways

Towson Way ("Miracle Mile"): In recent years, the University has made a significant positive impact on the quality of its campus spaces and pedestrian connectivity with the implementation of Towson Way (also known as "The Miracle Mile").



Gateways and Signage

The wayfinding signage system installed at the University is adequate in design and function, but needs to be refreshed. Regarding gateways and campus entrances, the University recently implemented new gateway signage, brick walls, and brick piers as part of the main entrance at Towsontown Boulevard and University Avenue. This entrance treatment presents a collegiate image and sets the standard for use at all entrances (scaled accordingly) throughout the campus. Currently, the secondary and tertiary entrances and campus gateway corners lack effective identification signage and wall elements; however, the main entrance provides a precedent to follow for incremental enhancements to these additional entrances.

To understand the current wayfinding and signage strategies on campus, the design team analyzed the campus setting, circulation patterns, and sign types. The qualitative and quantitative information gathered during this phase is represented in the images and diagrams that follow. Additionally, the design team reviewed the existing campus signage design guidelines dated 05/12/2004. This document should also be referenced when reviewing the observations summarized below. Observations in this section were reviewed and confirmed by the Steering Committee.

Gateways and Campus Signage

The wayfinding signage system installed at the university is adequate in design and function, but needs to be refreshed. Regarding gateways and campus entrances, the university recently implemented new gateway signage, brick walls, and brick piers as part of the main entrance at Towsontown Boulevard and University Avenue. This entrance treatment presents a collegiate image and sets the standard for use at all entrances (scaled accordingly) throughout the campus. Currently, the secondary and tertiary entrances and campus gateway corners lack effective identification signage and wall elements; however, the main entrance provides a precedent to follow for incremental enhancements to these additional entrances.

Gateways and Boundary Markers Included in Observations

Main Gateways – Identifies main entrance to campus

1. Towsontown Boulevard and University Avenue

Boundary Markers – Identifies edge of property along key corridors

2. N. Charles Street and Towsontown Boulevard
3. Stevenson Lane and Osler Drive

Vehicular Gateways – Identifies vehicular entrances to campus and provides limited wayfinding information

4. Towsontown Boulevard and Osler Drive
5. York Road and Cross Campus Drive

Directional Gateways – Identifies major on-campus gateways

6. Osler Drive and Auburn Drive
7. Osler Drive and Auburn Drive
8. Osler Drive and Cross Campus Drive

Pedestrian Gateways – Identifies pedestrian entrances to campus

9. Towsontown Boulevard and Burke Avenue
10. York Road and Burke Avenue

The following are observations and recommendations of the above gateway locations:

1. Towsontown Boulevard and University Avenue

The main gateway at Towsontown Boulevard and University Avenue is the strongest and most recognizable identifier. This location should be the design standard for future gateways.

View of Townsontown Boulevard and University Avenue Gateway

Fence Detail

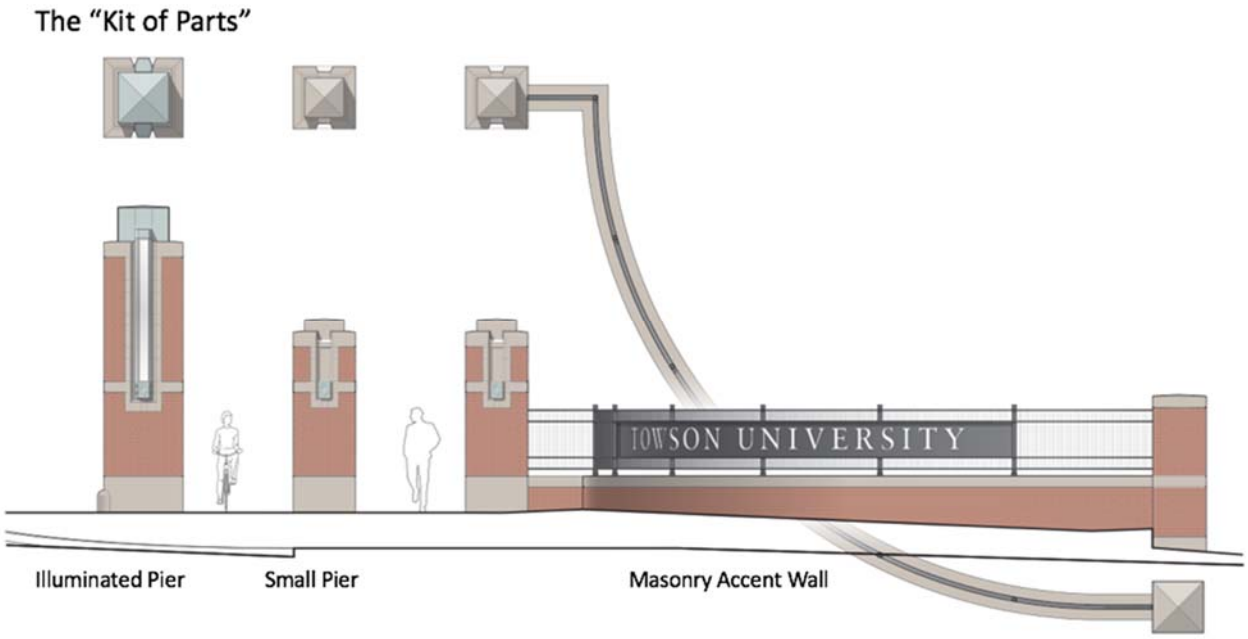
Small Pier Detail

Small Piers and Large Pier

Masonry Wall and University Name Detail (landscaping and lighting shown)

Hardscape Detail

Fence Detail



2. N. Charles Street and Towsontown Boulevard

The proposed boundary marker at N. Charles Street and Towsontown Boulevard should incorporate a masonry accent wall including the University name. Additionally, strategic clearing of the existing vegetation on the hillside, a new pedestrian / bike path, lighting, and landscaping enhancements should be considered.

Existing Sign N. Charles Street (northbound)

Existing Sign N. Charles Street (southbound)

Existing View of Proposed Boundary Marker

3. Stevenson Lane and Osler Drive

The proposed boundary marker at Stevenson Lane and Osler Drive should incorporate a masonry accent wall including the university name. Additionally, strategic clearing of the existing vegetation on the hillside, a new pedestrian / bike path, lighting, and landscaping enhancements should be considered.

Existing View of Proposed Boundary Marker

4. Towsontown Boulevard and Osler Drive

The proposed vehicular gateway at Towsontown Boulevard and Osler Drive should incorporate an illuminated pier and small pier on the southeast corner, and a large vehicular directional sign and small pier on the southwest corner. Additionally, a new pedestrian / bike path, lighting, and landscaping enhancements should be considered in conjunction with upcoming roadway improvements. The legibility of the lettering on the Osler Drive pedestrian bridge may be improved with lighting and/or painting the edges of faces of the letters a contrasting color to the bridge background.

Existing Directional Sign Detail

Existing View

Existing View (southwest corner)

Existing View

University Name Detail

Existing View of Pedestrian Bridge

5. York Road and Cross Campus Drive

The proposed vehicular gateway at York Road and Cross Campus Drive should incorporate an illuminated pier and small pier on the southwest corner, and a large vehicular directional sign and small pier on the northwest corner. Additionally, a new pedestrian / bike path, lighting, and landscaping enhancements should be considered in conjunction with upcoming roadway improvements. The existing freestanding signs on the southwest corner of the intersection could be removed.

Existing University Brand (7800 York Road)

Existing University Identification Sign Detail (location 2)


Existing University Identification Sign Detail (location 1)

Existing University Identification Sign Detail (location 1)


Existing View (apartment complex sign)


Existing View (northwest corner)


Existing View (southwest corner)


Existing View (Cross Campus Drive)


Existing View

6. Osler Drive and South Auburn Drive entrance

The proposed directional gateway at Osler Drive and Auburn Drive should incorporate an electronic message board and a large vehicular directional sign. Additionally, new lighting, and landscaping enhancements should be considered.

Existing View (southwest corner)

Existing View (Auburn Drive)

Existing View (northwest corner)

Existing View

7. Osler Drive and North Auburn Drive entrance

The proposed directional gateway at Osler Drive and Auburn Drive should incorporate an electronic message board and a large vehicular directional sign. Additionally, new lighting, and landscaping enhancements should be considered.

Existing View (southwest corner)

Existing View (southwest corner)

Existing View (Auburn Drive)

Existing View (northwest corner)

8. Osler Drive and Cross Campus Drive

The proposed vehicular gateway at Osler Drive and Cross Campus Drive should incorporate a large vehicular directional sign. Additionally, new lighting, and landscaping enhancements should be considered. Another potential enhancement would be the replacement of the low stone accent wall with a masonry wall to match the campus standard. This wall could incorporate lighting.

Existing View (southeast corner)

Existing View Detail

9. Towsontown Boulevard and Burke Avenue

The proposed pedestrian gateway at Towsontown Boulevard and Burke Avenue should incorporate small piers. Additionally, a new plaza area, pedestrian / bike path, lighting, and landscaping enhancements should be considered in conjunction with upcoming roadway improvements. These efforts should be coordinated with the master plan recommendations.

Proposed Conditions (southeast corner)

10. York Road and Burke Avenue

The proposed pedestrian gateway at York Road and Burke Avenue should incorporate small piers. Additionally, a new plaza area, pedestrian / bike path, lighting, and landscaping enhancements should be considered in conjunction with upcoming roadway improvements. These efforts should be coordinated with the master plan recommendations.

Proposed Conditions (southwest corner)

Vehicular Directional Signs (28 each)

Observations

- Campus districts / zones could be better leveraged to aid in campus wayfinding (Core Campus, West Village, South Campus)
- Freestanding signs are often located adjacent to pole mounted blade signs – which causes confusion and diminishes user confidence in overall systems
- Pole mounted sign blades are showing signs of wear and are often bent from wind, arrows are difficult to understand, letter heights are too small for perimeter roads
- Temporary signs are being utilized to direct to newer destinations

Recommendations

- Organize campus wayfinding by district/zone and direct to key destinations within each area
- Create a family of vehicular directional signs to address campus perimeter and inter-campus road conditions
- Letter heights and arrow sizes should be scaled for greater visibility
- Direct to visitor parking associated with each district/zone

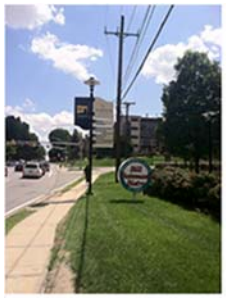
Existing Vehicular Destinations

Main Campus	Administration	7800 York Road
Information	Administration Building	7800 York Road Career Center
	Auburn House	7800 York Road Glen Garage
Glen Garage	Career Center	
Parking for Towson University Marriott	Center for the Arts	Asian Arts Center
Parking Information	Dowell Hall	Holtzman Gallery
Towsontown Garage	Enrollment Services	Main Stage Theater
West Village Garage	Glen Esk	Studio Theater Concert
University Union & Garage	Mainstage Theater	
	SECU Arena	Box Office
	Smith Hall	Recreation Center
	Sports Complex	Towson Arena
	Stephens Hall	
	Towson University Marriott	
	University Union	
	Van Bokkelen Hall	
	West Village	
	West Village Commons	


Towson Center
Box Office
Recreation Center
Towson Arena


150
TOWSON
UNIVERSITY
Garage
West Village Garage


Towson University Marriott
Parking Information
Enrollment Services
Towsontown Garage




West Village Garage
TRANSFER STUDENT PROGRAM

Electronic Message Boards (4 each)

Observations

- Message board signs are located in highly visible locations and sized proportionately to road conditions
- Masonry bases are showing signs of wear
- Design of the message board cabinets could be elevated to match elements of the campus wayfinding system
- Brighter color and resolution technology exists for electronic message boards – offering motion graphics and full color video

Recommendations

- Investigate cost of replacing cabinets with newer resolution units (+/- $1,500 sq.ft., 10mm)
- Design new cabinet housing to match signage system
- Repair masonry bases where feasible

Parking Signs (qty N/A)

Observations

- Newer parking permit signs are located immediately upon entering campus – which can convey a negative first impression
- Parking garage informational signs are often posted above entrances with parking identification – which becomes cluttered and confusing
- Surface lots are very confusing, there is an assortment of sign types and messages and an overall lack of organization

Recommendations

- Relocate parking permit signs to parking areas
- Develop a set of standard sign types for identifying garages, posting clearance heights, and parking information at appropriate locations
- Develop a set of standard parking identification and informational signs for surface lots
- Clarify visitor designated parking areas as part of vehicular directional signage and at parking areas

Pedestrian Map Kiosks (8 each)

Observations

- Campus districts/zones could be better leveraged to aid in campus wayfinding (Core Campus, West Village, South Campus)
- Sign cabinets and hardware are showing signs of wear
- Map kiosks are sometimes located adjacent to roadways – they are not legible from a vehicle
- Newer parts of campus typically do not have map kiosks
- Bottom of sign cabinet is 30” from grade – ADA requires max. of 27” from grade or inclusion of cane bar

Recommendations

- Update campus maps to include district/zone designations
- Replace signs and upgrade lighting technology if needed
- Locate kiosks at major parking areas along pedestrian paths (versus auto pull off areas) to provide first time visitors with campus orientation
- Locate additional kiosks at key decision points throughout campus

Pedestrian Directional Signs (8 each)

Observations

- Campus districts/zones could be better leveraged to aid in campus wayfinding (Core Campus, West Village, South Campus)
- Pole mounted sign blades are showing signs of wear and are often bent from wind
- There are too few pedestrian directional signs on campus

Recommendations

- Organize campus wayfinding by district/zone and direct to key destinations within each area
- Re-visit sign design and bracketing details, replace with new signs or replace with new sign type
- Supplement pathways between kiosks with additional pedestrian directional signs

Existing Pedestrian Destinations

Admissions	Auburn House	Burdick Hall
Center for the Arts	Cook Library	Dowell Hall
Enrollment Services	Field Hockey	Glen Esk
Hawkins Hall	Linthicum Hall	Media Center
Psychology Building	Smith Hall	Soccer Field
Softball Field	Stephens Hall	Tennis Courts
Towson Center	Towson University Marriott	Unitas Stadium
University Union	Van Bokkelen Hall	West Village Commons
West Village Garage		







Building Identification Signs – ground-mounted (5 each)

Observations

- Signs are showing signs of wear and age
- Many buildings lack building id signs
- Buildings with multiple entrances may require multiple building id signs

Recommendations

- Investigate including district/zones to building id signs to help reinforce wayfinding
- Develop a family of sign types based on key destinations, secondary destinations, and non-public destinations.
- Implement new building id signs campus-wide

Building Identification Signs – facade-mounted (qty N/A)

Observations

- Many buildings have façade mounted lettering to aid in identification
- Typefaces vary from building to building
- Letter construction, finish, and mounting varies from building to building
- Some locations are obstructed by landscaping
- Some locations are not legible against building background color

Recommendations

- Develop brand standards for building identification – typeface, construction, colors, etc.
- Develop 3-4 letter size options based on various building elevation
- Allow for two color finish options – one lighter and one darker
- Review view corridors and vistas of key destination buildings for opportunities for replacement and/or new letters
- Review additional opportunities for replacement and/or new building letters
- Remove and restore wall surfaces for locations that are no longer effective





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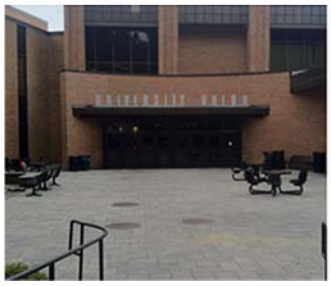



HAWKINS HALL


BURDICK HALL


ENROLLMENT SERVICES


UNIVERSITY
UNION


HEALTH AND
COUNSELING CENTERS


COLLEGE OF LIBERAL ARTS


EMERGENCY

Misc. Signs (qty N/A)

Observations

- A variety of misc. signs have been installed on campus to address short term and temporary needs
- Many of these signs do not match the construction and style of the current brand system

Recommendations

- Where feasible – information on temporary signs should be included in the future revised sign program
- University should purchase a set amount of event display signs for use as needed
- A template should be developed for the graphic layout of directional information
- In-house capabilities should be leveraged to print inserts as needed

Natural Resources

Site Analysis Methodology

Master planning is, by its nature, a broad assessment of *potential*. Such "high altitude" assessments are useful as a blueprint to guide more detailed studies and are not intended to constrain future design with rigidly-predetermined building shapes or "fixed" site layout geometry. Planning at a campus-wide scale offers Towson University a development vision that addresses logical space sizes, probable regulatory constraints, and general utility realities while balancing the fact that the plan should be *visionary*. For this study, the design team attempted to incorporate a meaningful degree of specificity without sacrificing the necessary flexibility and nimble character of a grand master plan.

As designers envision the future for Towson University's facilities, the subject of "buildable" areas becomes a signature topic. Growth and expansion commonly require some degree of horizontal build-out, even when planners attempt to emphasize vertical construction, open space retention, and forest conservation. Designers must immediately confront topographic reality, a consideration that is one of the most noteworthy issues constraining horizontal expansion in a region with very hilly terrain. Campus topography varies from elevations as low as 325 (near Towson Run waterway) or 350 (the ballfields west of SECU Arena) all the way up to elevation 450 (Stephens Hall) or 465 (parking beside York Road Administration Building). Such variation in grades creates a challenge for planners since it is uncommon to find a "flat spot" for construction. Architects and engineers must approach the topographic reality by one of (or some combination of) two strategies - re-shaping targeted areas with significant earthwork efforts or introducing special structural/architectural earth-retention solutions.

In addition to grade changes, there are infrastructure considerations when assessing the "buildable" nature of a targeted area. If a potential building pad has a well-entrenched underground network of water, sewer, storm, electric, gas, steam and telecom lines throughout the space, planners may decide that relocating all those utilities would be too costly or perhaps undesirable due to service interruptions in other facilities. However, in some instances paying high costs for utility relocations may be necessary in order to realize other master planning goals. University officials may choose to confront the infrastructure relocation challenges with a clear understanding that a particular space may be "buildable," but the cost will be higher than usual because there are significant underground pipes, conduits, drains and culverts that contractors must re-route.

From an environmental perspective, there are a number of considerations that impact the "buildable" assessment of a certain tract. The site's position within the larger watershed, the potential presence of endangered species, depth to groundwater, soil conditions, and habitat connectivity to nearby forest corridors are just a few factors influencing the decision to deem a space "buildable." The flood plain delineation is a major item to assess and Towson University has a couple of key places on campus where it's important to map the flood limits. In particular, the southern sides of the ballfields just west of SECU Arena are very close to a creek with a 100-year flood line that encroaches the fields. Also, the Towson Run stream flowing beside Towsontown Boulevard is a significant water feature constraining development near the West Village complex.

Finally, there are sometimes legal or municipal matters to investigate before selecting a site for a new building. The presence of utility easements or other types of "buffers" may constrain development options. Planners must also consider community-related observations such as proximity to Towson residents or adjacency with other establishments (St. Joseph Medical Center, Sheppard-Pratt, etc.). Transportation corridors have right-of-way boundaries that impact development decisions and designers

must examine Baltimore County's various community plans (bike lanes, bus routes, future street improvements, etc.) to see how those factors influence the "buildable" assessment of a target location.

Campus-wide Soils and Slopes

Towson University is situated within the Piedmont Physiographic Province, which is characterized by a rolling terrain and low ridges with streams of moderate slopes, and bedrock outcrops at the surface. This area is situated upon a Precambrian-age layered hornblende gneiss consisting of dark and light colored stone layered with hornblendic rock. The thickness of this gneiss ranges from centimeters to tens of meters, according to Geologic Map of Baltimore County and City (Crowley, Reinhardt, and Cleaves 1976).

Soils within the drainage area of the Towson University campus are diverse and reflect the geologic complexity of the area. The Baltimore County, Maryland Soil Survey published in 1976 by the USDA-SCS (NRCS) shows the lands to be in the Manor-Glenelg Association. Soils of this area are composed of gently sloping to very steep, well drained and somewhat excessively drained soils that have a subsoil of loam to light silty clay loam underlain by acidic crystalline rock in the uplands. The majority of the campus is made up of six soil series ranging from a Baile silt loam soils with a 0-3% slope to Manor soils with a 25-50% slope. Other soil series include: Glenelg, Chester, Brandywine and Glenville.

Areas of unstable slopes and active soil erosion observed on campus are mainly confined to stream channel banks on campus as a result of encroachment on floodplains and high energy urban hydrology. The soil variations on Towson University's campus generally reflect patterns one would expect to see in the Maryland piedmont. There are no striking anomalies or unusual quirks that would be particularly constraining for a master planning exercise. While campus soils may be generally adequate for ornamental plantings and reforestation, they are not optimal for stormwater infiltration. The master plan commentaries for each specific campus precinct highlight the nuances of soil conditions for that particular portion of campus. Broadly speaking, a review of the USDA Web Soil Survey database reveals some noteworthy parameters for planners to consider. Some key soil-related factors impacting the decision to develop target areas on campus are:

1. Hydrologic Soil Group – This factor assigns an alphabetical grade to the soil's percolation properties. Soils in group "A" or "B" allow infiltration more smoothly than "C" or "D" soils, which tend to "pond" water more quickly.

2. Depth to Restrictive Feature – USDA information will sometimes list the depth to "fragipan," a dense layer within soil stratification that resists water and root penetration. In general it's preferable to have any restrictive soil layer deeper in the ground rather than close to the surface.

3. Farmland Classification – This factor is most notable if the land is designated as "prime farmland" (per USDA definition, this is "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses."). Also, farmland classification is an element of the U.S. Green Building Council's LEED program. Within LEED's "New Construction" rating system, the "Site Assessment" credit requires documentation of a territory's farmland status. Towson University has one soil type classified as prime farmland (Glenville silt loam located in the heart of Glen Arboretum and also the Glenville soils in low areas).

4. Land Capability Classification – Obviously, certain soil groups are more fertile than others. Soils with a classification of "1" have very few limitations preventing use for cultivated crop production.

Soils classified as “4” or higher have limitations restricting crop production. The highest classification of “8” means there are severe limitations.

5. Slope Percentages and Erodible Soils - Some soils resist erosion better than others. Soil scientists can quantify this characteristic, but for master planning purposes, one can generally link the erosion potential with the slope percentages. Mapping the steep slopes on the campus provides a good snapshot of the places where development would be challenging for both topographic and erosion potential reasons.

In general, the lower elevations on campus (stream corridors in Glen Arboretum, west of Osler Drive, and southwest of the West Village Garage) have soils in the “Glenville” series (“GhB,” or “GhC”) which are listed as “prime farmland” or “farmland of statewide importance “even though the hydrologic soil group is classified “C.” The prime farmland is a single 3-acre wooded section in the middle of Glen Arboretum. The “farmland of statewide importance” totals roughly 13.5 acres but that acreage is divided among 6 stream corridor sections, with the bulk of that acreage in three “strips” of land at the westernmost edges of campus.

Protected and Regulated Resources

Environmental regulations have been implemented at the Federal, State and local level over the last couple of decades in an effort to more closely regulate development activities potentially impacting natural resources. These regulations influence campus development and adherence is required for project construction activities.

Environmental regulations that will influence future development at Towson University include: forest and tree protection under the Maryland Forest Conservation Act; Non-Tidal wetlands under the Clean Water Act and Maryland Non-Tidal Wetlands Act; Waterways, including streams, ponds, floodplains and stormwater, under the Clean Water Act and the National Pollution Discharge Elimination System (NPDES); and rare, threatened and endangered (RTE) species under Federal Endangered Species Act and the Code of Maryland Regulations.

The Towson University, Facilities Management Department addresses and tracks regulatory compliance for all campus and development initiatives. The university has a forest stand delineation plan for the campus and tree inventory mapping of its specimen trees. Reforestation or reforestation woodland mitigation areas are determined on a project-by-project basis and are intended to augment existing campus woodland resources.

Wetlands are addressed and delineated on a project specific basis and no non-tidal wetlands impact permits have been necessary for campus projects in recent times. The Glen tributary restoration received permitting as an environmental enhancement under a waterway construction permit to improve its condition. Stormwater management has been handled on a project-by-project basis addressing specific requirements for water quality control and quantity management. Moving forward the university will be required to implement environmental site design (ESD) as a primary approach to managing site runoff for new development and redevelopment projects. ESD focuses first on minimizing impacts through sound land use planning, site layout, and resource conservation strategies, followed by implementation of distributed smaller scale best management practices such as micro-bioretention, permeable paving, green roofs, etc. The university also has an opportunity to move toward a more holistic approach that looks at sub-watershed based stormwater management and comprehensive solutions starting at the source of run-off. Examples of these types of opportunities include stream restoration, landscape

conversion strategies (e.g., shifting from turf to forest or meadow), and retrofitting of older developed areas that have no stormwater management such as parking lots and streets

No known RTE species have been impacted by campus projects or activities, and none are specifically documented to currently occur/exist on campus. The historically known occurrences or potential critical habitat for rare plants is discussed in greater detail in the Vegetation Resources section.

Topography and Relief

The topography of the region includes rolling hills and moderately sloping valleys. Within Towson University, local elevations range from 285 feet above sea level to 490 feet above sea level. Much of the campus consists of level to gently sloping land bisected by steep sloped gullies. The Glen and other stream corridors on campus form much of the steep sloped gullies with slopes ranging from 10->30%. Many of these areas are also wooded which is a good land cover as it limits the erosion potential.

Steep Slopes *Protected Areas* *Stream Valleys* *Forest Conservation Area*

Geothermal Resources

A geological and geothermal desktop study was conducted by consultants during the 2009 Campus Master Plan to develop a baseline, campus-wide understanding of the site geological and subsurface

conditions that might affect and dictate geothermal systems to be considered as part of development. This analysis was not updated as part of this Master Plan update.

Vegetation Resources

Vegetation resources of the campus include forest areas, park-like tree groves, scrub-shrub areas, grass and meadows, ornamental planting beds, and grass cover on mowed lawns and athletic fields.

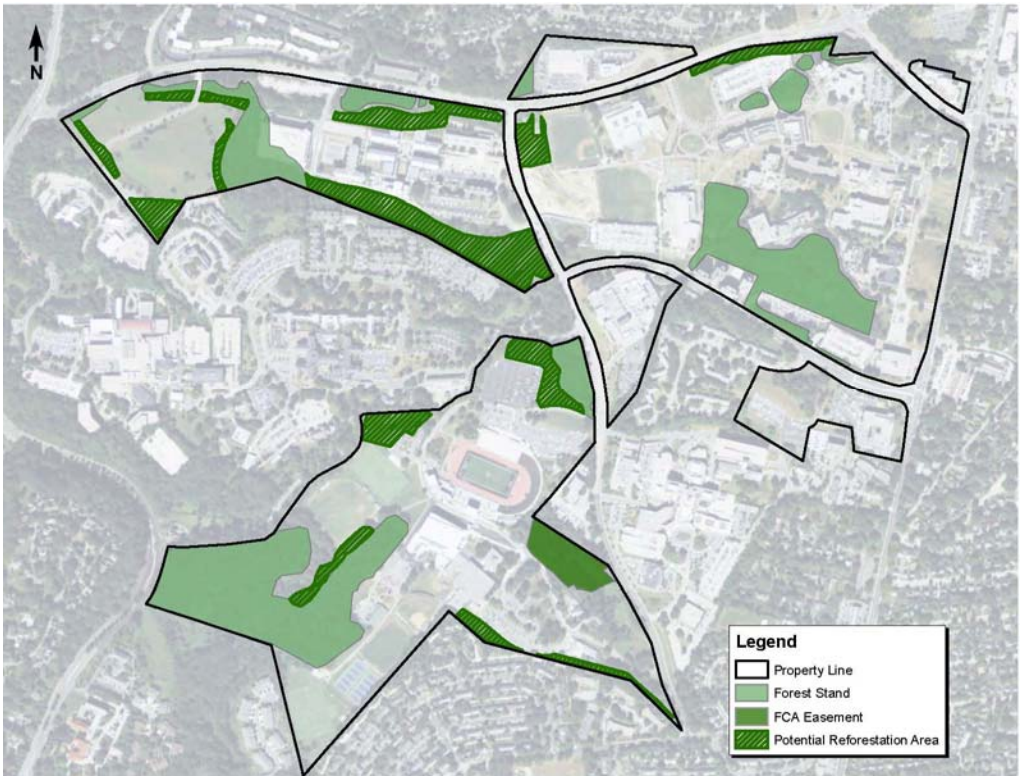
Woodlands

A total of approximately seventy (70) acres of woodlands exist across the university campus .The most significant portion of this is located in fragmented patches of forest cover within Priority Areas as designated by the Maryland Department of Natural Resources (DNR) which include floodplains, streams buffers, steep slopes, and wetlands. Regionally, the forest cover has been bisected by development of buildings, roadways, parking lots and other infrastructure. Due to a history of varied disturbances including forest clearing, there are various stages of woodland growth ranging from succeeding, old-field areas with regenerating sapling growth to mid-level succeeding closed canopy woods.

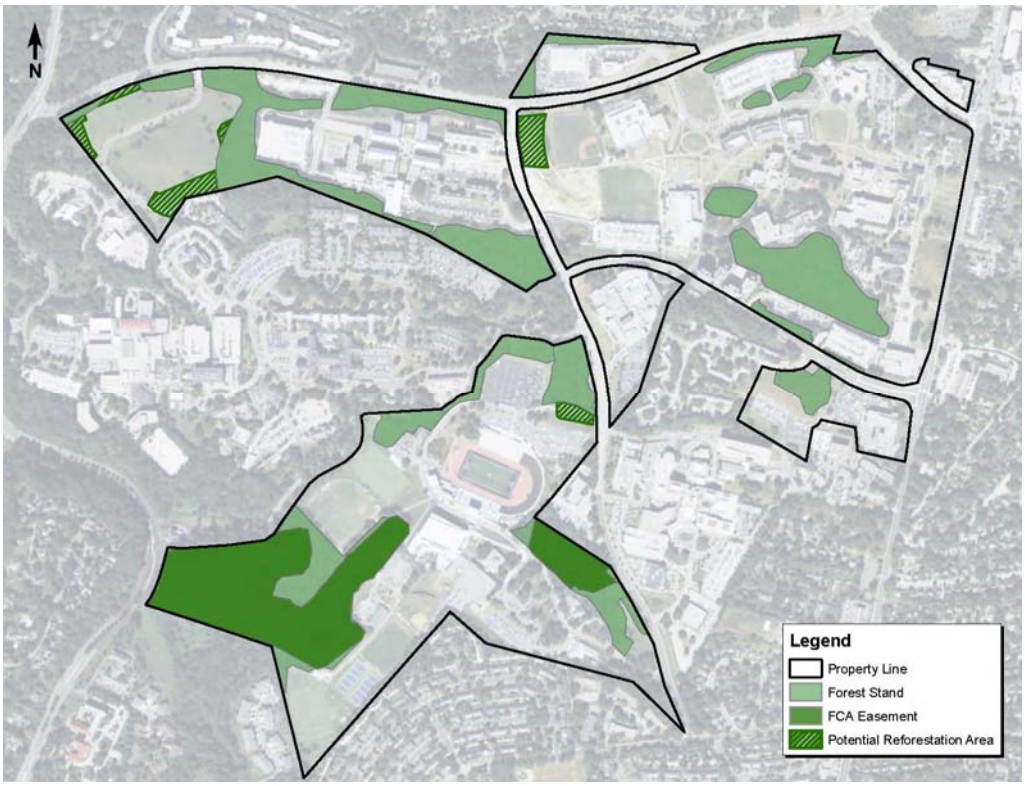
Existing woodland assemblages represent various stages of the Oak-Hickory climax forest community association common to the Piedmont. The upland forests along slopes and ridges include such tree species as red oak (*Quercus rubra*), white oak (*Quercus alba*), tulip poplar (*Liriodendron tulipifera*), and American beech (*Fagus grandifolia*). Earlier succession stages of woodlands include such additional species as black cherry (*Prunus serotina*), sassafras (*Sassafras albidum*), black locust (*Robinia pseudoacacia*), and eastern red cedar (*Juniperus virginiana*). Lowland and wetland woods include such species as red maple (*Acer rubrum*), sycamore (*Platanus occidentalis*), black walnut (*Juglans nigra*), box elder (*Acer negundo*), sweet gum (*Liquidambar styraciflua*), and silver maple (*Acer saccharinum*).

The woodlands on campus are a key asset and also include forest conservation easements that are long-term, legally binding agreements required by the Maryland Forest Conservation Act (FCA) to offset woodland impacts that occur during campus growth. Towson University currently has 27.07 acres in FCA easements, of which 17.42 acres have been set aside as mitigation for previous woodland impacts. The remaining 9.65 acres is allowed to be held within a “bank” in order to offset future woodland impacts associated with University growth.

In 2002, the university developed a Forest Conservation Plan that identified the limits of the Campus’ Forest Stand acreage and potential reforestation areas as shown in the “Woodland Conditions (Circa 2002)” figure provided. Using this Plan, the university has been thoughtful about identifying and placing into FCA easement strategic forested parcels. In addition, over time, areas across campus have been reforested by the university and/or naturally transitioned into woodlands. This transition to woodlands has resulted in approximately 20 acres of new forested woodland within the Campus limits since 2002 as shown in the “Woodlands Conditions (Circa 2015)” figure provided. Additionally, 4.32 acres have been identified for future reforestation. The table following the diagrams provides a summary of the total Woodland Resources depicted in the two figures. Ensuring woodland diversity and health is best addressed through establishing and implementing a woodland management plan. This is a recommendation under the proposed conditions.



Woodland Conditions (Circa 2002)



Woodland Conditions (Circa 2015)

Woodland Resources (Acres)

Resource Type	Circa 2002	Circa 2015
FCA Easement	4.16	27.07
Remaining Forest Stand	45.83	43.30
Total Forest Stand	**49.99**	**70.37**
Potential Reforestation Area	22.12	4.32

Non-native Invasive Plants

Non-native invasive plants threaten the native species diversity and overall health of the campus woodlands. As previously mentioned, the primary species of concern on campus is English ivy (*Hedera helix*). It is pervasive throughout the Glen woodlands and in patches along Towson Run riparian area and associated adjoining slope woodlands. Additional extensive infestation of English ivy occurs along and adjacent to the Auburn House stream tributary.

Other non-native invasive plant species present that are of concern to the campus ecology are Norway maple (*Acer platanoides*), multiflora rose (*Roas multiflora*), common privet (*Ligustrum vulgare*), Japanese honeysuckle (*Lonicera japonica*), and oriental bittersweet (*Celastrus orbiculatus*), among others. The non-native invasive plants need to be controlled to protect native biodiversity. These efforts have started with volunteer group invasive plant removal activities along the Glen Tributary. More recently, the university experimented with introducing goat herds in the Glen as a biological control strategy for invasive management. This effort had some success and provided the added benefit of increasing student awareness about invasives' impacts and environmentally sensitive control techniques.

Landscape Ecology

The wildlife habitats on campus are too small and disconnected to support sustained populations of one the most sensitive and declining wildlife groups (forest interior dwelling species) that require at least 100-acre forest blocks or a minimum of 300-foot wide woodland corridors. This type of interior forest habitat is most difficult to maintain or establish in an urban or suburban environment. The main reason for this condition is fragmentation of forest by urbanization of the region, leaving a series of forest patches with significant gaps. However, woodland management over time can improve woodland health, connectivity and habitat value by removing damaging non-native plants and planting native species to fill woodland gaps. These efforts can be further supported by changing highly maintained landscape areas such as mowed grass to natural habitats, or establishing landscape planting linkages where appropriate, to support the Master Plan goals and programs.

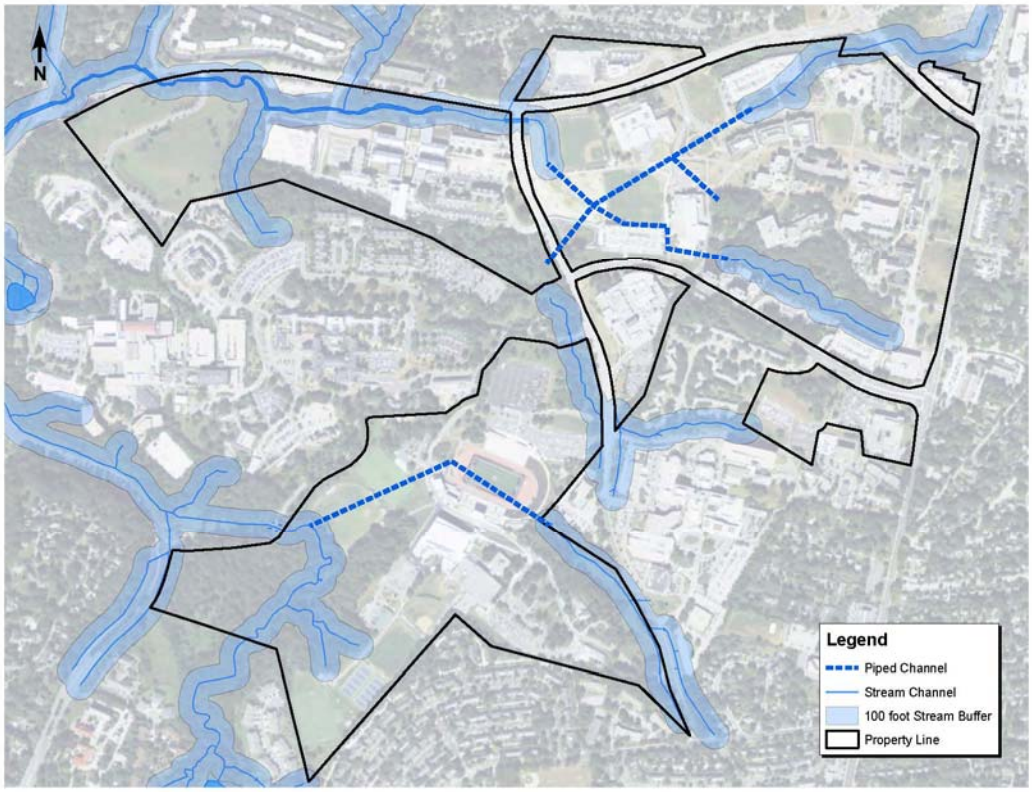
There is also a lack of significant area and connection of wetland and floodplain habitats for wetland-dependent groups such as frogs, salamanders and newts. Habitat fragmentation and degradation conditions can be improved by stream, floodplain and wetland restoration efforts on campus in collaboration with efforts on adjacent lands by other landowners and interested organizations.

Water Resources and Wetlands

Stream Channels

There is an extensive stream network including Towson Run and its tributaries that occur within five sub-watersheds on campus located in the Jones Falls Watershed.

The campus stream conditions and restoration needs have been assessed periodically over the last 15 years and recommendations have been provided to the university with respect to restoration opportunities. The general stream conditions throughout campus where restoration has not occurred reflect varying states of modification or degradation, providing limited riparian and aquatic habitat. Streams have been impacted by straightening of channels, lining them with concrete and encroachment by development into the floodplain. The university has completed some restoration projects of note including restoration of the Glen Tributary, completed in September 2002, restoration of Towson Run by the Towsontown Boulevard garage, completed in 2007, and daylighting and restoration of Towson Run on the east side of Osler Drive by the baseball field, completed in 2014. As part of this Master Plan update additional reaches are identified for stream restoration initiatives.



Streams, Closed Channels and Buffers

Non-Tidal Wetlands

Wetland resources are limited on the campus. In the rolling to steep topography, lowland areas suitable for wetland formation are constrained. There are a few areas with small scrub-shrub and emergent wetland features that occur in the riparian corridor on campus. These areas are too small to map at the Master Plan level. A comprehensive delineation of campus wetlands has not been necessary to date. A regulated wetland area was delineated in the vicinity of the Glen tributary, as part of the restoration project, in the area of the old botany pond. Additional small wetlands occur along Towson Run and its unnamed tributary below the Gilchrest Hospice and in the vicinity of the old impoundments along a tributary channel located in the woodlands near the athletic fields in the Towson Center sub-watershed. As new projects are proposed, more detailed inventories and delineations will likely be required as site conditions may have changed over time.

Fish and Wildlife Habitat

Wildlife habitat on campus is primarily suitable for urban-adapted species such as gray squirrel (*Sciurus carolinensis*), eastern cottontail (*Sylvilagus floridanus*), American robin (*Turdus migratorius*) and blue jay (*Cyanocitta cristata*). Other species that can flourish in fragmented and managed landscapes that are present on campus include white-tailed deer (*Odocoileus virginianus*), red fox (*Vulpes vulpes*), and red-tailed hawk (*Buteo jamaicensis*).

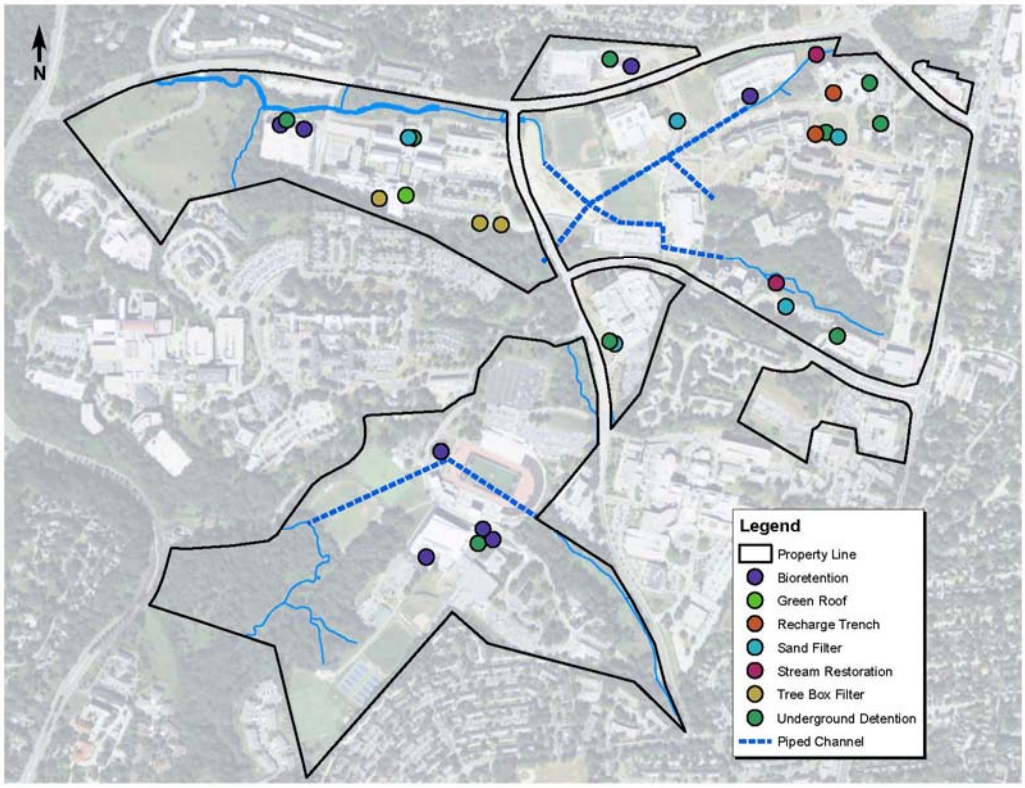
Accessible fish habitat is generally limited to the area of Towson Run west of Osler Drive and the western end of the Towson Center sub-watershed tributary. Upstream of these areas, there are culverts, old impoundment structures and channel segments that are piped, limiting fish passage access. There is also limited habitat for benthic macroinvertebrates and other aquatic organisms in the upper reaches of the tributary channels. Some of these channels are ephemeral, carrying stormwater discharges and having no base flow.

Stormwater Management

In addition to physical alteration, the main cause of ongoing stream channel degradation is stormwater run-off from impervious surfaces including parking lots, roads, roofs and even compacted pervious surfaces such as fields. The volume and extent of stormwater run-off is a result of urbanization of the watershed and resulting reductions in natural hydrologic processes such as infiltration that would typically support groundwater recharge and ultimately discharge to the streams as base flow.

Over the past decade the university has begun to invest in addressing stormwater management issues through the use of stormwater storage and treatment devices typically associated with expanded development. These stormwater storage and treatment devices have ranged from underground storage, infiltration, and filtering practices (underground detention, recharge trench, sand filter, etc.) to local environmental site design (ESD) practices that mimic natural systems for treatment (bioretention, green roof, tree box filters, stream restoration, etc.). A combination sand filter, underground detention chambers, and recharge trench was also constructed under the Academic Quad to treat run-off from the campus core. The “Existing Stormwater Management Facilities” figure provided presents the locations of such practices currently in place throughout the campus.

Towson University will continue to have a significant investment in stormwater management issues. There are costs associated with controlling and detaining water quality run-off volumes, repair of infrastructure such as pipes, inlets and outfalls, and remediation costs of enhancing and restoring streams and wetlands. In this Master Plan, the university is looking comprehensively at stormwater campus-wide in order to more holistically address the causes and potential solutions for stormwater impacts and long-term management. Protection of ecological resources and campus infrastructure are two important priorities of this effort. Additionally, as stormwater management facilities become more prevalent throughout the campus, it will be important that the type and aesthetic design of each facility be integrated into the campus landscape design.”



Existing Stormwater Management Facilities

The University's Stormwater Management Program

There are many examples of stormwater management facilities in various places around the Towson University campus. Some of these practices are relatively unnoticed, blending into the landscape, designed to appear as natural as possible. Some of these "surface" bioretention facilities have a special filter medium that allows collected water to slowly percolate into the ground. Other facilities are underground concrete vaults, with manhole lids as the only visible evidence of their existence. All of these facilities are designed to accomplish important environmental goals, namely, filtering rain water (for pollution prevention) and decelerating runoff rates (for erosion/flooding prevention).

Campus officials monitor and maintain these facilities to ensure that they remain in optimal condition. Surface facilities, such as bioretention filters, may become compacted over time and the vegetation.

growing in these facilities requires landscape attention just as other manicured campus areas. Underground facilities may accumulate sediment or may need periodic inspections to check structural integrity.

University administrators are keenly aware that environmental stewardship is closely associated with water quality and quantity management. By incorporating stormwater considerations into large-scale master planning efforts, campus planners demonstrate a commitment to sustainable practices and acknowledge their intent to follow the most recent regulatory mandates. Towson University's Department of Environmental Health and Safety maintains a "fact sheet" that provides a broad overview of the stormwater management program and summarizes the applicable regulations governing the effort.

Stormwater Studies

2006 Stormwater Management Master Plan

The July 2006 Stormwater Management Master Plan Report (RK&K, Ayers Saint Gross, Biohabitats) documented existing facilities and proposed new facilities based upon the regulatory environment at the time. The study delineated 8 sub-watersheds on campus and proposed 17 specific facilities to address runoff from the impervious surfaces within each sub-watershed. This "drainage-area-driven" approach recommended facilities strategically located within each sub-watershed while also observing that low impact development ("LID") techniques could be evaluated during more detailed design stages.
During the 2007-2009 period, lawmakers revised stormwater management regulations in Maryland. The new rules placed increasing emphasis on Environmental Site Design ("ESD") practices (microbioretention, rain gardens, etc.) and completely altered the paradigm for stormwater management in Maryland. In an effort to treat water "where it falls," designers must now include smaller, more numerous stormwater facilities placed in closer proximity to new buildings and parking lots.
As a result, some of the facilities proposed in the 2006 study might not fully comply with the new MDE regulations today. At this time, there are new stormwater facilities occupying 4 of the 17 locations specified in the 2006 mapping.

2009 Campus Master Plan

Recognizing that stormwater management rules had changed, the 2009 Campus Master Plan delineated some specific recommendations in the "Design Guidelines" section. Some of the more notable action items included:

1. *Reducing the total acreage of impervious surfaces by a minimum of 20 percent and the corresponding total site impervious surface area by 5 percent;*
2. *Develop and adopt a new Comprehensive Stormwater Management Plan that incorporates the current MDE guidelines and considers the proposed redevelopment in this Master Plan.*

The 2009 plan also itemized some important "project planning" guidelines related to stormwater management, such as:

1. *Minimize impervious surfaces on all new construction*
2. *In accordance with Maryland Stormwater Management guidelines, incorporate stormwater management into all building and infrastructure projects*
3. *Incorporate additional stormwater management techniques into each building project including disconnected roof leaders, cisterns and rain barrels, green roofs and pervious landscaping surfaces.*
4. *Emphasize small, redundant infiltration-based BMP's in a series including"*
    a. *Bioretention areas / rain gardens*
    b. *Grassed swales / wetland swales*
    c. *Infiltration trenches*
    d. *Sand filters*

2015 Campus Master Plan

Since the implementation of revised stormwater rules, "ESD" practices have been installed throughout Maryland and have become standard practice. It is therefore logical to engage this master plan update with the assumption that new campus developments will need to comply with a "project-by-project" approach and must install several ESD practices in close proximity to new impervious surfaces (roof, parking, sidewalk, etc.). Many of the sanctioned ESD techniques are governed by more micro-scale drainage area square footages, so designers can no longer collect runoff from a very large drainage area and simply deposit larger stormwater volumes in a monolithic facility. The "Environmental Site Design" ethic requires smaller, more frequent stormwater facilities that are situated adjacent (or as close as possible) to the impervious areas being managed. This "new normal" has become conventional practice in Maryland and represents the primary principle guiding the arrangement of proposed facilities in this study.It is important to emphasize that this study also approaches the selection, size, and placement of stormwater facilities from a permitting reviewer's perspective. One primary goal for Towson University planners is to advance projects that satisfy Maryland stormwater guidelines and are "permittable" under the most current regulations. Recognizing this goal, the stormwater facility layouts depicted in this study attempt to arrange reasonable numbers and sizes of proposed features in a manner that contemplates MDE approval. In fact, MDE-approval parameters were driving considerations guiding the proposed layout. However, there are many variables in stormwater management design, and at the master planning level of analysis it is impossible to definitively predict what facility selections, sizes, and arrangements will ultimately achieve permitting approval.

Master planning is, by its nature, a broad assessment of potential. Such "high altitude" assessments are useful as a blueprint to guide more detailed studies and are not intended to constrain future design with rigidly-predetermined building shapes or "fixed" site layout geometry. Planning at a campus-wide scale offers Towson University a development vision that addresses logical space sizes, probable regulatory

constraints, and general utility realities while balancing the fact that the plan should be visionary. For this study, the design team attempted to incorporate a meaningful degree of technical specificity without sacrificing the necessary flexibility and nimble character of a grand master plan.

Campus Impervious Area

The university's footprint has changed significantly in the last several years. A number of new buildings have emerged, many on locations once utilized as surface parking lots or occupied by an older building that was demolished to make way for new construction. The 2006 study tallied impervious surfaces on campus with the campus divided into 8 sub-watersheds. In order to produce a viable comparison, this 2015 study tallied the campus impervious surfaces using the same sub-watershed zones. The results indicate how most of the newly-developed portions of campus have witnessed an increase in impervious acreage. For this study, the Burdick Hall expansion and the new Science Building have been included in the 2015 figures since the Burdick expansion is now under way and the Science Building is well-advanced.

Sub-Watershed	2006 Impervious (Acres)	2015 Impervious (Acres)	Change (Acres)
Residence Towers/Library/CLA	17.52	18.19	+ 0.67
University Union/Burdick/Public Safety	29.86	27.08	- 2.78
The Glen/New Science/Administration	12.71	13.85	+ 1.14
West Village	12.03	16.36	+ 4.33
Portion of Lot #14 & #13 – small area	5.04	5.07	Unchanged*
Unitas Stadium/Recreation Fields	12.09	12.01	Unchanged*
Towson Center/SECU Arena/Tennis	11.79	12.58	+ 0.79
Auburn House	2.21	2.30	Unchanged*
Total:	**103.25**	**107.44**	**+ 4.19**

** Area measurements between the two studies within acceptable tolerances – no appreciable change in this specific zone*

This comparison indicates that the campus has increased overall impervious coverage by a little more than 4 acres since the 2006 study. For a campus that occupies roughly 329 acres, this suggests that about 31% of the territory was impervious in 2006. With recent developments that figure has increased slightly to 33% impervious coverage campus-wide in 2015

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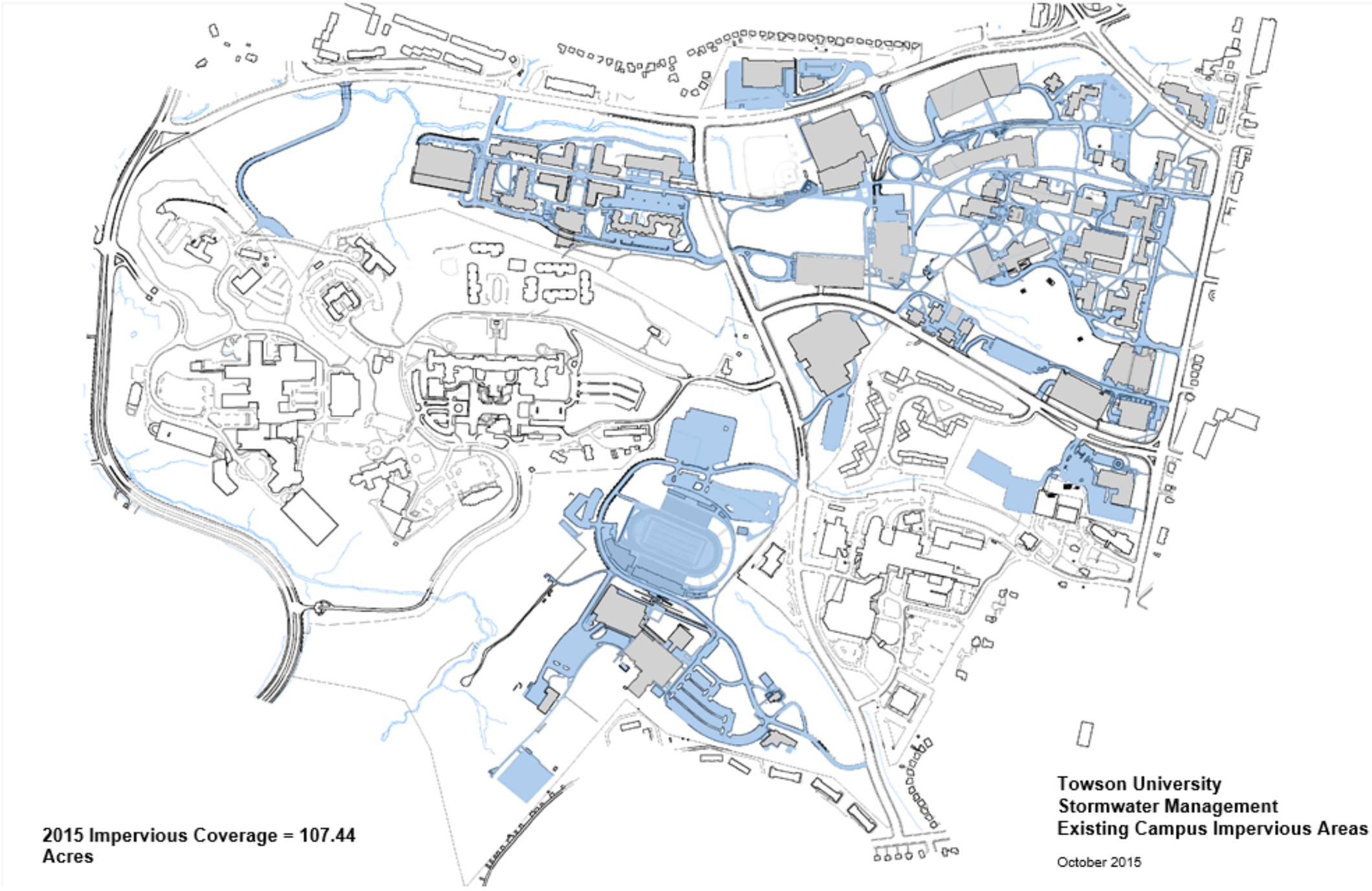
2015 Impervious Coverage = 107.44 Acres
Towson University
Stormwater Management
Existing Campus Impervious Areas
October 2015

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Existing Stormwater Facilities

There are many long-established stormwater practices on campus that were documented in the 2006 study. Since that time many new projects have added to the campus totals. The chart below summarizes the changes and provides a breakdown of the facilities by type (number of quality practices versus number of quantity control) and also indicates whether that specific facility is a surface or underground unit. This analysis allows Towson University planners to see how many facilities of each type are present and, of those facilities, how many of them are surface versus sub-surface practices.

The Burdick Hall expansion is now under construction and plans for the new Science Building are significantly advanced. For this reason, the values are listed in the chart below even though the status for both projects is technically still "proposed." The West Village Housing III & IV projects are currently under construction.

Project	Code	Established SWM Facilities	Location	Status	Quality Facility #	Quantity Facility #	Surface	Under-ground
	SWM-001	Surface Facility	Near Entrance to Gilchrist Center	Active	1		1	
	SWM-002	Surface Facility	West campus near pedestrian bridge over Osler	Active	1		1	
	SWM-003	Precast UG Sand Filter	Near main driveway entrance from Towsontown Blvd.	Active	1			1
	SWM-004	Oil-Grit Separator	Union garage	Active	1			1
	SWM-005	Fine Arts UG Vault	Underground vault at Fine Arts - Osler side	Active	1			1
		Infiltration Trench - old facility	North of parking lot next to Linthicum Hall	Removed				
	SWM-006	Surface Facility	Just south of Towsontown Garage	Active	1		1	
	SWM-007	Surface Facility	West of Ward-West	Active	1		1	
	SWM-008	Ward-West Parking Lot UG Storage	Under parking east of Ward-West	Active		1		1
	SWM-009	UG Storage	Parking lot behind Prettyman Hall	Active		1		1
	SWM-010	UG Sand Filter	Parking lot east of Glen Complex Bldg. D	Active	1			1
	SWM-011	UG Vault	Glen garage	Active	1			1
	SWM-012	Stadium Bioretention	West of Unitas Stadium	Active	1		1	
	SWM-013	Swale Structure	South of SECU Arena - next to Landscape Services	Active	1		1	
				Established SWM Facilities Subtotals:	**11**	**2**	**6**	**7**

Recent SWM Projects					Quality Facility #	Quantity Facility #	Surface	Under-ground
WVI	TBD	West Village Infrastructure - Quality	Between Douglass and Barton Residence Halls	Active	1			1
	TBD	West Village Infrastructure - UG Detention	Between Douglass and Barton Residence Halls	Active		1		1
WVH-II	TBD	West Village Student Housing II	Connected to facility between Douglass and Barton	Active	◊◊			◊◊
WVC	TBD	West Village Commons - Quality	Filterra devices along Emerson edge	Active	3			3
	TBD	West Village Commons - Quantity	UG Storage	Active		1		1
WVG	TBD	West Village Garage - Bioretention	Along north wall of garage	Active	2		2	
	TBD	West Village Garage - Detention	Just beyond north wall of garage	Active		1		1
WVH-III & IV	TBD	West Village Housing III & IV	East of WV garage	Proposed	3		3	
CUPA	TBD	Utility Plant Expansion - SWM	Linked to CLA underground facility	Active	◊◊			◊◊
CLA	TBD	College of Liberal Arts - UG Sand Filter	Lawn area east of CLA	Active	1			1
	TBD	College of Liberal Arts - UG Detention	Lawn area east of CLA	Active		1		1
SECU	TBD	SECU Arena - Surface SWM	Long, narrow microbioretention in front of Arena	Active	4		4	
	TBD	SECU Arena - Detention	UG facility in front of Arena	Active		1		1
PS	TBD	Public Safety Microbioretention	Just east of Public Safety building	Active	1		1	
	TBD	Public Safety UG Detention	Under the Public Safety parking lot	Active		1		1
C-01	TBD	Burdick Hall Expansion - Surface SWM	Immediately south of Burdick Hall	Proposed	4		4	
	TBD	Burdick Hall Expansion - UG Detention	Just west of new expansion portion	Proposed		1		1
C-13	TBD	Science Center - Surface SWM	York Road side of proposed building	Proposed	9		9	
	TBD	Science Center - UG Detention	west side of proposed building footprint	Proposed		1		1
				Recent SWM Facilities Subtotals:	**28**	**7**	**23**	**12**
				Campus-Wide Totals (per type):	**39**	**9**		
				Grand Total (All Facilities - Quality and Quantity)	**48**			

Legend

◊◊ = Facility linked to another

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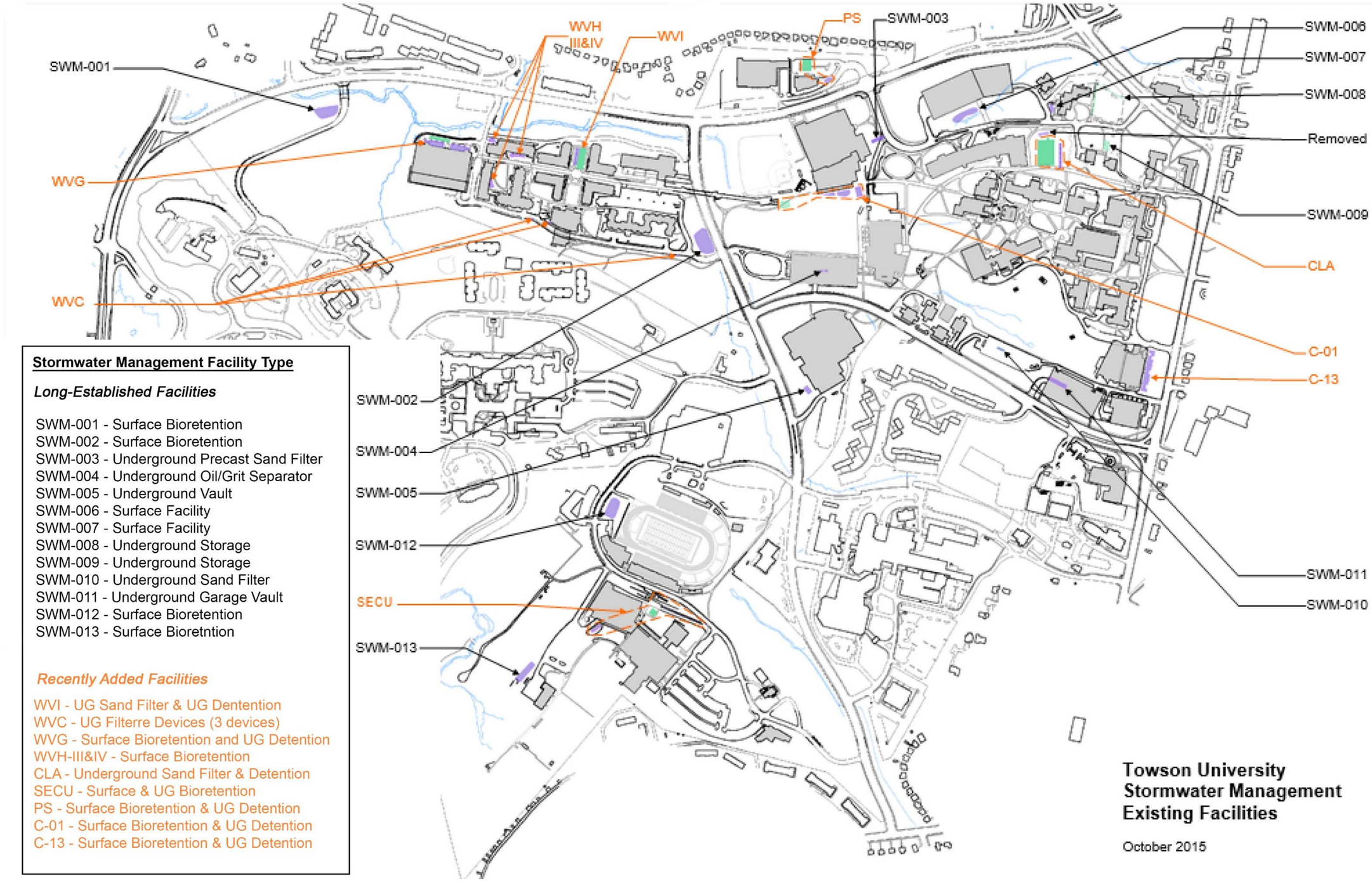
TOWSON UNIVERSITY 2015 CAMPUS MASTER PLAN



Stormwater Management Facility Type

Long-Established Facilities

SWM-001 - Surface Bioretention
SWM-002 - Surface Bioretention
SWM-003 - Underground Precast Sand Filter
SWM-004 - Underground Oil/Grit Separator
SWM-005 - Underground Vault
SWM-006 - Surface Facility
SWM-007 - Surface Facility
SWM-008 - Underground Storage
SWM-009 - Underground Storage
SWM-010 - Underground Sand Filter
SWM-011 - Underground Garage Vault
SWM-012 - Surface Bioretention
SWM-013 - Surface Bioretntion

Recently Added Facilities

WVI - UG Sand Filter & UG Dentention
WVC - UG Filterre Devices (3 devices)
WVG - Surface Bioretention and UG Detention
WVH-III&IV - Surface Bioretention
CLA - Underground Sand Filter & Detention
SECU - Surface & UG Bioretention
PS - Surface Bioretention & UG Detention
C-01 - Surface Bioretention & UG Detention
C-13 - Surface Bioretention & UG Detention

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3.5 Sustainability

Climate Commitment

Towson University President Robert L. Caret signed the American College and University Presidents' Climate Commitment (ACUPCC) on August 30, 2007. In doing so, Caret placed Towson among Duke, Cornell and nearly 685 other leading institutions that have pledged to become carbon neutral by 2050.

- American College and University Presidents' Climate Commitment
- Greenhouse Gas Emissions Inventory

Climate Commitment Pledge

As a signatory of the American College and University Presidents' Climate Commitment, the university strives to reduce campus greenhouse gas emissions. Towson outlined strategies to achieve this goal in the 2013 Climate Action Plan (CAP). Since signing the ACUPCC, the university has made great strides towards neutrality by conducting annual greenhouse gas inventories, monitoring campus performance, forecasting for future conditions, conducting educational outreach campaigns, and integrating sustainability into curriculum and research.

Green Building

The university amended its construction standards policy to require that all new campus construction is built to the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Silver standards. Campus construction followed suit, with five LEED Silver and two LEED Gold certified projects. In addition, West Village Phase III and IV, and the Burdick Expansion are on target for LEED Silver certification. LEED certification is a nationally recognized benchmark for the design, construction, and operation of sustainable buildings. To gain certification, buildings must meet the LEED standard on a range of criteria focusing on the building site, water efficiency, energy and atmospheric impact, materials and resources, and indoor environment quality. LEED certified buildings are known not only for being environmentally conscious, but also for having decreased operating costs and enhanced productivity.

Building energy use is a leading producer of greenhouse gases on the Towson University campus. To reduce these emissions, the university committed to reducing its energy use by 20% by 2020, from a 2010 baseline. To date the university has reported a 13% reduction in usage.

- U.S. Green Building Council
- Maryland Green Building Council
- Green Building
- Campus Construction

Alternative Transportation

Transportation is another major source of greenhouse gases contributing to Towson University's carbon footprint. To reduce our emissions, the university strives to provide access to—and encourage the use of—alternative transportation for all TU faculty, staff, students and visitors.

Campus shuttle ridership has greatly increased over the past years.

The university's shuttle system provides over 600,000 rides annually. The on-campus shuttle service provides access to all campus areas seven days a week. Our off-campus shuttle services several apartment complexes along Kenilworth Drive, Burke Avenue, Stevenson Lane, Putty Hill Avenue, and Goucher Boulevard, in addition to the Timonium Park and Ride. The university's Tiger in Town route offers daily access to the downtown Towson area.

- Shuttle Services

The campus is home to many public transportation stops. Five MTA bus stops located on or near the university host six bus lines that provide weekday service to the Inner Harbor, University of Maryland Transit Center, Lutherville Light Rail, Fox Ridge and Franklin Square.

The Collegetown Shuttle provides complimentary service for students, faculty, and staff from Towson to local shopping areas, colleges and universities, as well as Baltimore's Penn Station. It services the Center for the Arts bus stop on Cross Campus Drive seven days a week.

- Collegetown Shuttle
- Maryland Transit Administration

In addition to mass transportation, the university also offers several other alternative transportation options and incentives, including seven ZipCars, 18 EV charging stations, 30 loaner bikes, discounts on parking for fuel efficient vehicles, and a carpooling program.

- Alternative Transportation

Waste Reduction

The university has built upon its long-standing recycling and composting programs to align with the Maryland Recycling Act. In addition, the university has continued to participate in the RecycleMania competition, a national collegiate competition designed to raise waste awareness.

- RecycleMania
- Maryland Recycling Act

3.6 Existing Transportation Network

Overview

The transportation section of the Towson University Master Plan is composed of capital improvement projects, recommendations for operational strategies, and proposed policy changes that are synchronized with the goals, land use, and growth forecasts presented in other sections. The combined effect of these recommendations is intended to create a transportation network in and around the campus that effectively serves Towson University, its neighbor institutions, and local residents. Before these recommendations are presented in Chapter 4, we first describe the existing campus locus and various factors that define the transportation network around the campus. Next, the existing parking supply and related policies are described. Finally, the campus pedestrian circulation and shuttle systems are discussed to conclude the analysis of existing transportation conditions on campus.

Campus Focus

Towson University's 329-acre suburban campus is located 7 miles north of downtown Baltimore and 2 miles inside (south of) the Baltimore Beltway (I-695). The campus is a 10-minute walk (about ½ mile) south of Towson Town Center, which includes the region's largest upscale shopping mall. Towson is an unincorporated town that is the center of local government as the seat for the 599 square miles and 785,000 residents of Baltimore County. Towson University's campus locus is largely separated from adjacent commercial and residential areas and is defined on three sides by the arterial streets that border the campus on the east (York Road), north (Towsontown Boulevard and Burke Avenue), and west (Charles Street). To the south, Towson borders the Rodger's Forge neighborhood of primarily single-family homes. Towson's immediate institutional neighbors include the following three regional medical centers:

- Greater Baltimore Medical Center (GBMC) is located on approximately 71 acres and has 302 licensed beds. GBMC has 2,386 employees (full-time equivalents) and approximately 2,700 parking spaces.
- St. Joseph Medical Center is a non-profit institution located on approximately 37 acres and has 306 licensed beds. There are approximately 2,000 parking spaces serving employees, patients, and visitors.
- Sheppard Pratt Health System (SP), situated on 80 acres, is a private, non-profit provider of psychiatric services. Sheppard Pratt has a total of 1,500 employees in eleven counties of Maryland and in Baltimore City, a portion of which work at the Towson facilities. About 625 parking spaces serve the SP hospital use. An additional 475 +/- spaces serve the 615-bed University Village apartments, owned and operated by Sheppard Pratt. Residents of this development, which opened in 2002, are nearly all Towson students.

In 2003, Towson and the three medical centers described above formed a strategic working group known as "The Towson Four" to address shared institutional concerns, such as parking, traffic and facility planning. Each member of the Towson Four is planning major expansion projects over the next 10 years. The group intends to address the cumulative short-term and long-term impacts of this growth on the transportation network in a cooperative and coordinated fashion as their respective plans further develop over time. According to the Towson Four, the group represents a combined workforce of nearly 9,000 employees. The Towson Four also own and operate a cumulative number of parking spaces slightly over 13,000 in the campus locus (about 56% of these belong to Towson University). Thus, the Towson Four are already a significant generator of vehicle trips in the region; further development of these institutions

will introduce additional demand on the existing transportation network. If member institutions remain committed, the Towson Four could become an effective forum for coordinated efforts to mitigate growth-related transportation impacts through a coordinated strategic planning effort.

A key component of the existing vehicular circulation plan is that each of the medical centers' access to the surrounding arterial streets is largely independent of each other. GBMC and Sheppard Pratt have main entrances on Charles Street while St. Joseph is primarily accessed from Osler Drive. Sheppard Pratt, however, also has a secondary means of access/egress onto Osler Drive. Thus, Osler Drive is the primary location where traffic from the mid-afternoon hospital shift change (2:30 P.M. – 3:30 P.M.) coincides with Towson students and faculty/staff leaving campus for the day. Osler Drive also bisects the campus into the Academic Core on the east side and the Athletics and Towson Run Precincts on the west side, with resulting large numbers of pedestrians crossing throughout the day between activity centers. For these reasons, Osler Drive is one of the primary focus areas of the Master Plan's transportation component.

Vehicle Circulation

As opposed to campuses in denser urban settings served by public transportation, the predominant mode of travel to/from Towson University is by private vehicle, although ridership for the campus shuttle is increasing as described further in this document. One of the fundamental Master Plan goals is to transform the existing "commuter campus" into a more pedestrian-friendly residential campus. Students who live off campus beyond walking distance oftentimes have little incentive to change from a single-occupancy vehicle (SOV) to commute to/from campus. Not surprisingly, the majority of students (and faculty/staff) travel by SOV to classes. According to data from a transit survey conducted by Towson University, approximately 77% of students routinely drive to campus.

Another factor in Towson University's automobile dependence is the lack of convenient connections with the surrounding public transportation system, including MTA bus and light rail, and MARC train service. Towson University is located between the radial heavy and light rail lines to/from the city center, which are well beyond walking distance and there are no direct bus connections to the closest stations to provide a convenient transfer. The majority of those who utilize the regional transit system travel via the bus routes on York Road.

During this study, the lack of an identifiable main 'gateway' entrance and other secondary entrances that give the campus a "sense of identity or place," i.e., signaling to an unfamiliar driver that s/he has arrived on campus was noted. Corresponding to this lack of a main entrance is the need for a centralized visitor/information center that allows visitors to easily access parking, maps, and directions. Finally, the existing vehicle circulation system lacks a consistent means of defining places, buildings and streets for way-finding purposes either by car or on foot.

The concentration of over 5,000 parking spaces in the Academic Core of campus (see next section) results in an auto-oriented atmosphere that in some cases conflicts (literally) with the pedestrian elements or "walkability" of the campus. Vehicle circulation is organized primarily around the location of the three major parking garages (Towsontown, Union, Glen) with about 1,000 spaces in each. Each of the three major garages has two means of access and egress and 80-90% of the spaces are assigned to students.

Existing Traffic Conditions

Study Area

Townson University campus (TU) is located in Baltimore County, just north of the Baltimore City limits. The study area primarily encompasses the TU campus boundary and also includes off-campus intersections along the roadways that border the Campus; MD 139 (North Charles Street) to the west, Towsontown Boulevard to the north, MD 45 (York Road) to the east, and Stevenson Lane to the south. In Figure 1 below, the Campus boundary is shown by the solid yellow line and the study boundary is shown by the dotted yellow-black line. Of the fifteen study intersections, eleven are signalized and four are stop-controlled. Three intersections fall outside the Campus boundary. MD 45 and MD 139 are state roads, while all remaining roadways are owned and maintained by Baltimore County.

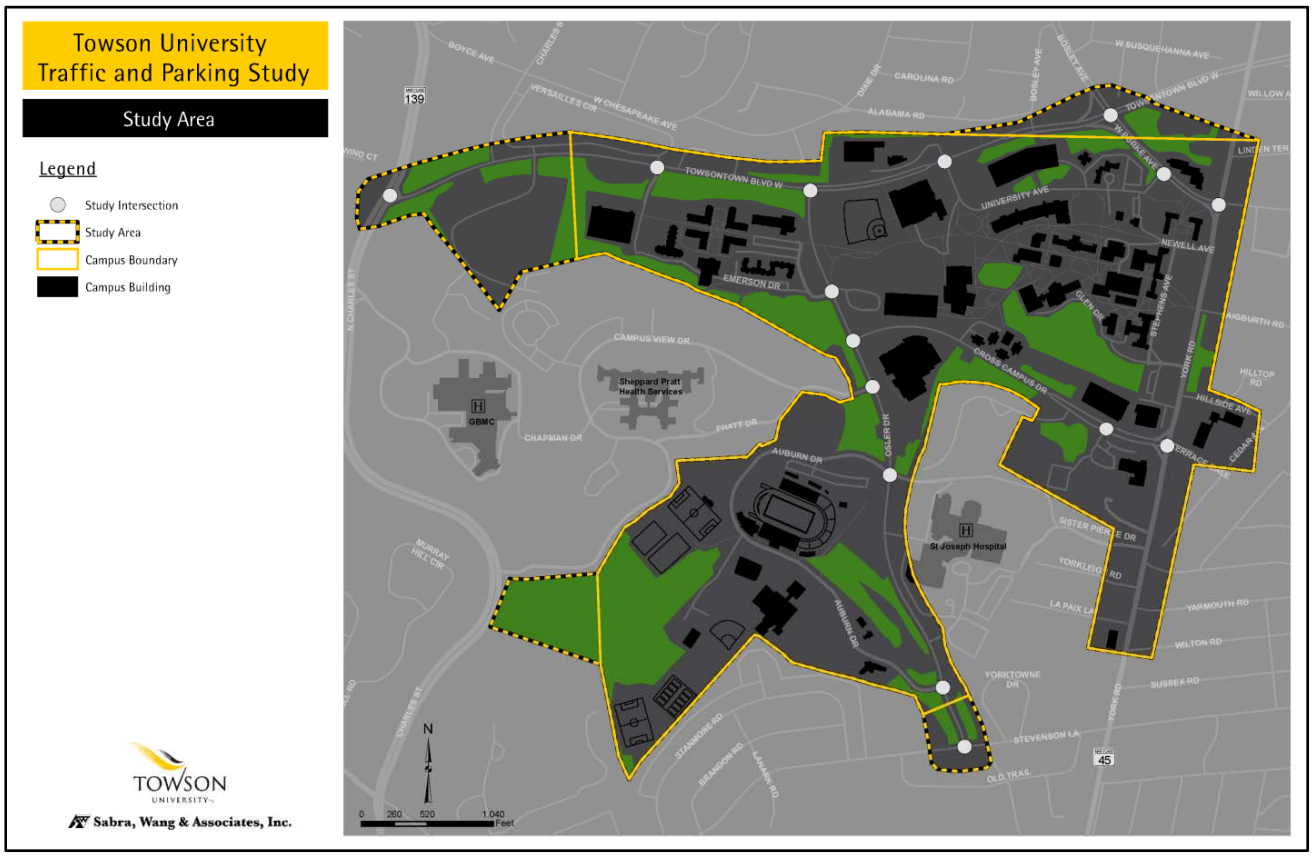

Figure 1: Study Area and Intersections Evaluated

Site Accessibility

Towson University has multiple site access points to parking garages and lots from the surrounding network:

- Towsontown Boulevard (via University Avenue) to parking
- Towsontown Boulevard (via Emerson Drive) to parking that is primarily for on-campus residents
- York Road (via Cross Campus Drive) to multiple parking garages
- Stevenson Lane (via Osler Road) to multiple parking lots and garages

In addition, TU generally has sidewalks along its perimeter and robust internal sidewalk connectivity for pedestrian access. Bicycle access from outside the campus property is limited due to the poor bicycle level of comfort along surrounding roads[1].

Average Daily Weekday Traffic

The primary roads included in the study area are: Towsontown Boulevard, Osler Drive, Cross Campus Drive, and York Road. Osler Road and Cross Campus Drive are main through- roads within the Campus' internal network while Towsontown Boulevard and York Road are the main roads that provide access to the Campus from the surrounding area. Figure 2 shows the average daily weekday traffic (ADWT) for the major roads around and within the Campus.

MD 45 and MD 139 carry about 33,000 vehicles and 40,000 vehicles, respectively, daily in the TU campus area. MD 139 traffic volumes have generally stayed flat since 2001, while MD 45 ADWT has declined by about ½% per year since 2001. Towsontown Boulevard is an east-west connector for the Towson area carrying 25,000 vehicles daily. Osler Road is the north-south connector within the Campus and carries 25,000 vehicles daily. Cross Campus Drive connects York Road and Osler Drive, providing access to two large parking garages, and carries 5,000 vehicles daily.

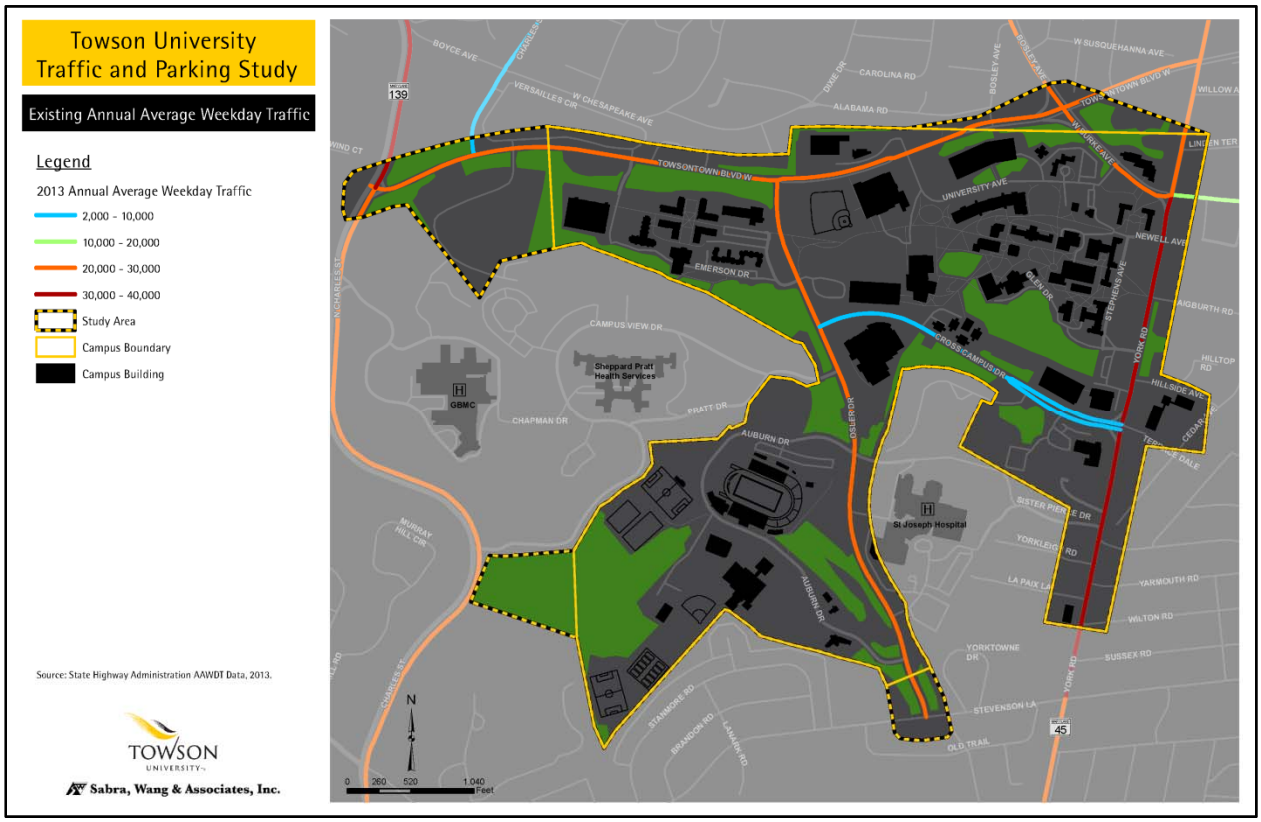

Figure 2: Existing Average Daily Weekday Traffic

[1] Bicycle level of comfort (or level of service) is a mathematical formula that judges on-road biking conditions by several factors, primarily vehicle speed, distance between cyclists and adjacent traffic, and % of heavy vehicles in the traffic mix.

Intersection Volume & Level of Service

Intersection capacity analyses were performed using the industry standard National Academy of Sciences Transportation Research Board's Highway Capacity Manual (HCM) methodology for all study intersections. Performance measures of effectiveness include level of service (LOS), volume-to-capacity (v/c) ratio, and average vehicle delay measured in seconds per vehicle. Synchro™ modeling software imbeds Highway Capacity Manual 2000 (HCM) methods of analysis to determine LOS. Synchro™ is a deterministic and macroscopic signal analysis computer software program that models street networks and traffic signal systems. Geometric data such as number of lanes, lane configuration, storage lengths, tapers, and distances between intersections were inputted into Synchro™. Key performance measures are defined as follows:

- **Level of Service (LOS)** is a qualitative measure describing operational conditions of an intersection or any other transportation facility. LOS measures the quality of traffic service, and may be determined for intersections, roadway segments, or arterial corridors on the basis of delay, congested speed, volume to capacity (v/c) ratio, or vehicle density by functional class. At intersections, LOS is a letter designation that corresponds to a certain range of roadway operating conditions. The levels of service range from 'A' to 'F', with 'A' indicating the best operating conditions and 'F' indicating the worst, or a failing, operating condition.
- The **volume-to-capacity ratio (v/c ratio)** is the ratio of current flow rate to the capacity of the intersection. This ratio is often used to determine how sufficient capacity is on a given roadway. Generally speaking, a ratio of 1.0 indicates that the roadway is operating at capacity. A ratio of greater than 1.0 indicates that the facility is operating above capacity as the number of vehicles exceeds the roadway capacity.
- **Delay** (Control delay) is the portion of delay attributed to traffic signal operation for signalized intersections or a stop sign(s) for unsignalized intersections. Control delay (overall delay) can be categorized into deceleration delay, stopped delay, and acceleration delay. Table 1 describes each Level of Service and their corresponding delay values for signalized and unsignalized intersections.

Table 1: Intersection Level of Service Delay Ranges

	Signalized intersections	**Unsignalized intersections**
Level of service	**Delay range (sec)**	**Delay range (sec)**
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Baltimore County owns the majority of intersections/signals in the study area, and their minimum operating standard for signalized intersection is a level of service D while the state's minimum operating standard for signalized intersection is a level of service E.

Intersection turning movement counts were conducted at each of the fifteen study intersections during a weekday in April of 2015 when campus was in session. (Refer to Figure 3 and Figure 4 for existing AM and PM volumes, respectively.)

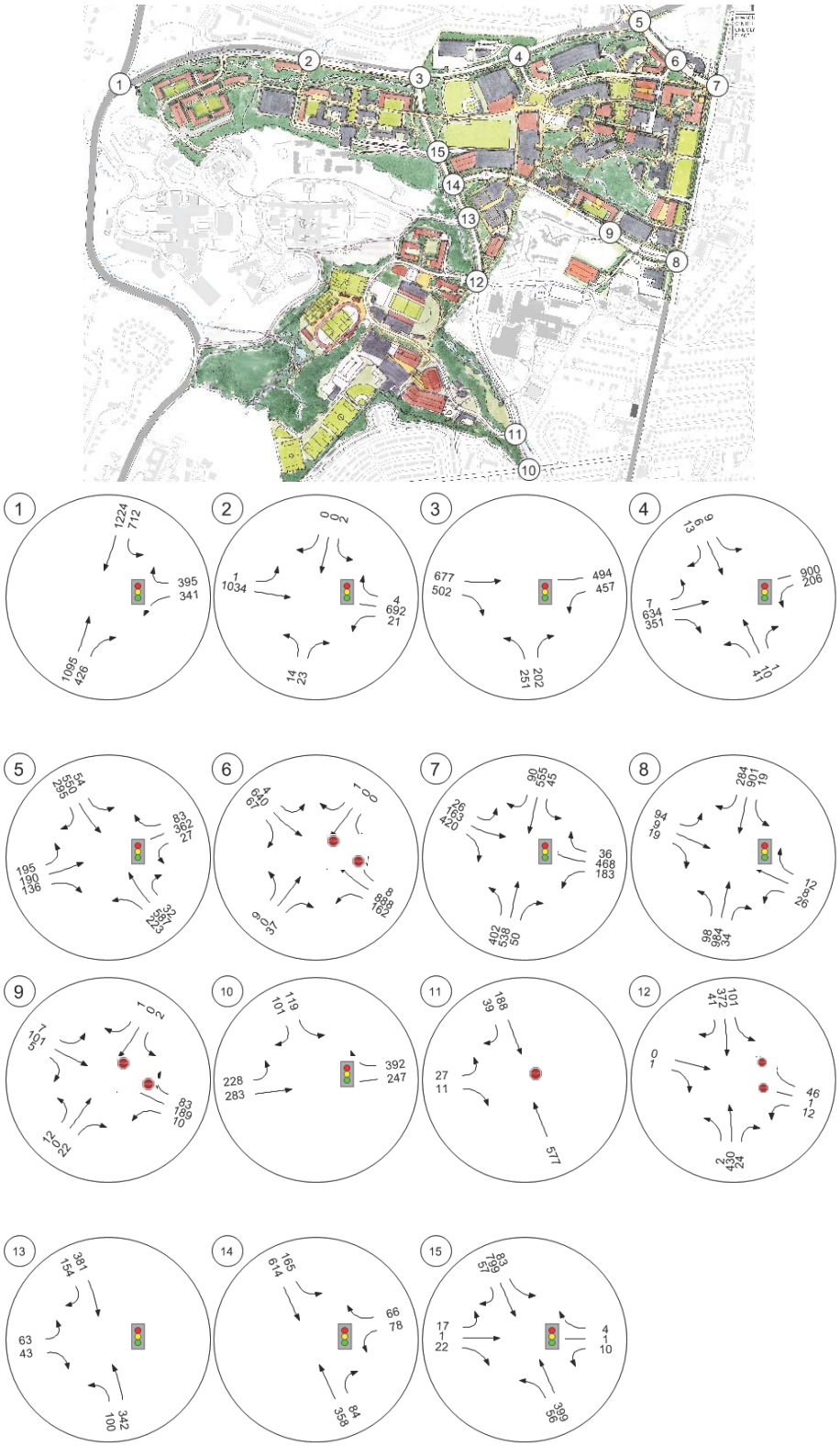

Figure 3: Existing Volumes – AM Peak Period

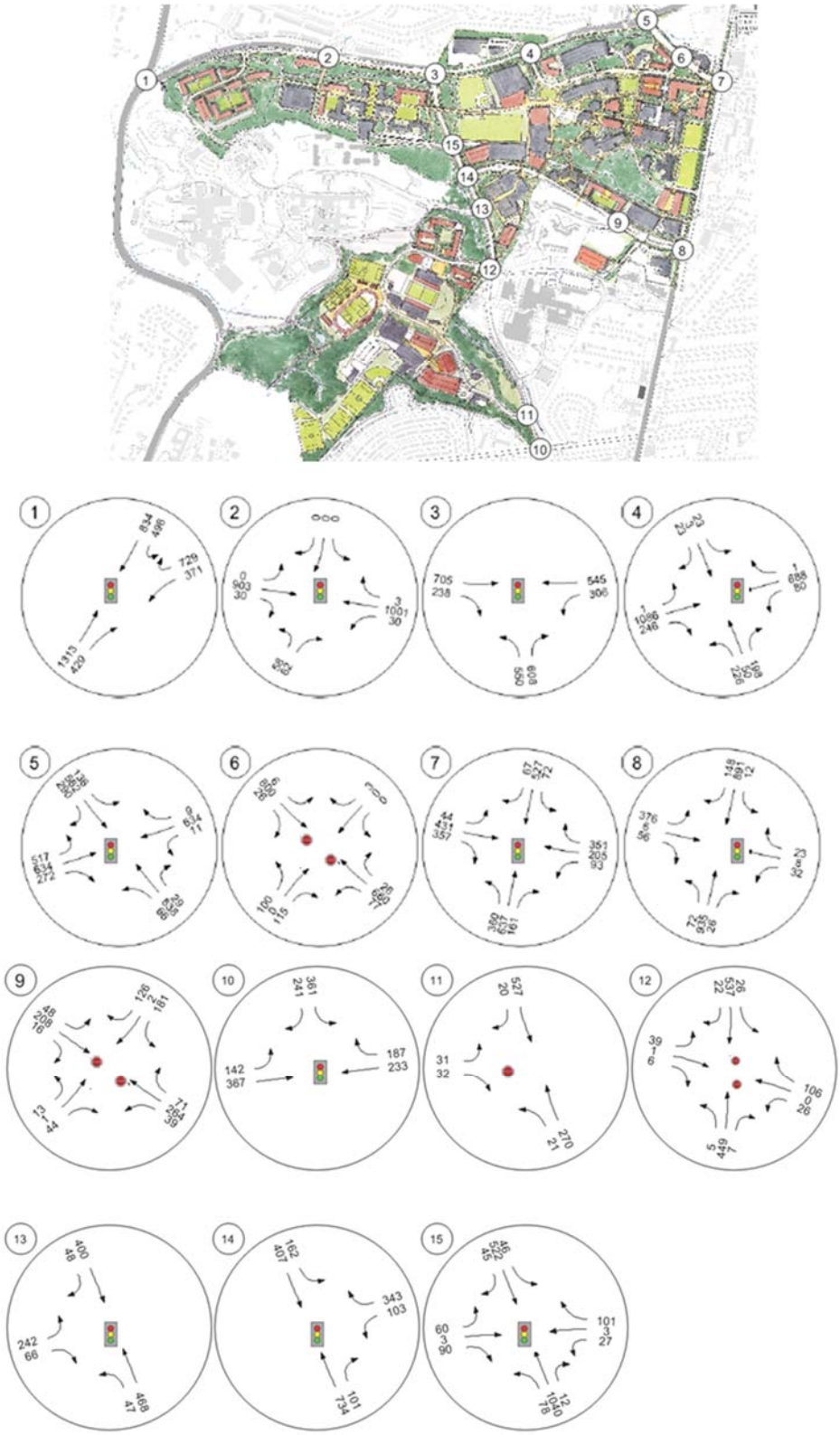

Figure 4: Existing Volumes – PM Peak Period

Lane configurations and these existing volumes, along with existing signal timings and phasing obtained from the Maryland State Highway Administration and Baltimore County, were coded into a Synchro™ traffic model in order to determine LOS. Table 2 summarizes the HCM analysis performed under existing traffic conditions. In the AM peak period, all study intersections operate at a level of service D or better. In the PM peak period, all study intersections operate at a LOS E or better. The intersection of Towsontown Boulevard at Osler Drive, a county maintained intersection, operates at a LOS E in the PM peak period which is below the County's acceptable standards. The existing AM and PM LOS is shown for each study area intersection is shown graphically in Figure 5.

Table 2: Existing – Intersection Capacity

	Intersection	Intersection Control	V/C	Delay (s)	Level of Service
1	**Towsontown Blvd. at Charles St.**	*Signalized*	0.68 (0.71)	25.9 (29.2)	C (C)
2	**Towsontown Blvd. at Emerson Dr.**	*Signalized*	0.5 (0.41)	17.6 (7.6)	B (A)
3	**Towsontown Blvd. at Osler Dr.**	*Signalized*	0.9 (0.77)	40.5 (56.1)	D (E)
4	**Towsontown Blvd. at University Ave.**	*Signalized*	0.57 (0.72)	14.3 (34.7)	B (C)
5	**Towsontown Blvd. at Bosley Ave.**	*Signalized*	0.56 (0.82)	29.6 (38.2)	C (D)
6	**Burke Ave. at University Ave.**	*Unsignalized*	0.06 (0.94)	12.7 (71.2)	- (-)
7	**York Rd. at Burke Ave.**	*Signalized*	0.66 (0.77)	47.2 (60.4)	D (E)
8	**York Rd. at Cross Campus Dr.**	*Signalized*	0.43 (0.48)	8.2 (19.1)	A (B)
9	**Cross Campus Dr. at Greenview Ter.**	*Unsignalized*	0.01 (0.83)	12.8 (44.2)	- (-)
10	**Osler Dr. at Stevenson Ln.**	*Signalized*	0.58 (0.58)	16.3 (31.9)	B (C)
11	**Osler Dr. at Auburn Dr.**	*Unsignalized*	0.07 (0.12)	11.3 (12.3)	- (-)
12	**Osler Dr. at St. Joseph Hospital Rd.**	*Unsignalized*	0.11 (0.15)	17.0 (18.0)	- (-)
13	**Osler Dr. at Campus View Dr.**	*Signalized*	0.25 (0.33)	5.8 (17.7)	A (B)
14	**Osler Dr. at Cross Campus Dr.**	*Signalized*	0.29 (0.43)	8.7 (18.3)	A (B)
15	**Osler Dr. at Emerson Dr.**	*Signalized*	0.34 (0.45)	18.2 (23.1)	B (C)

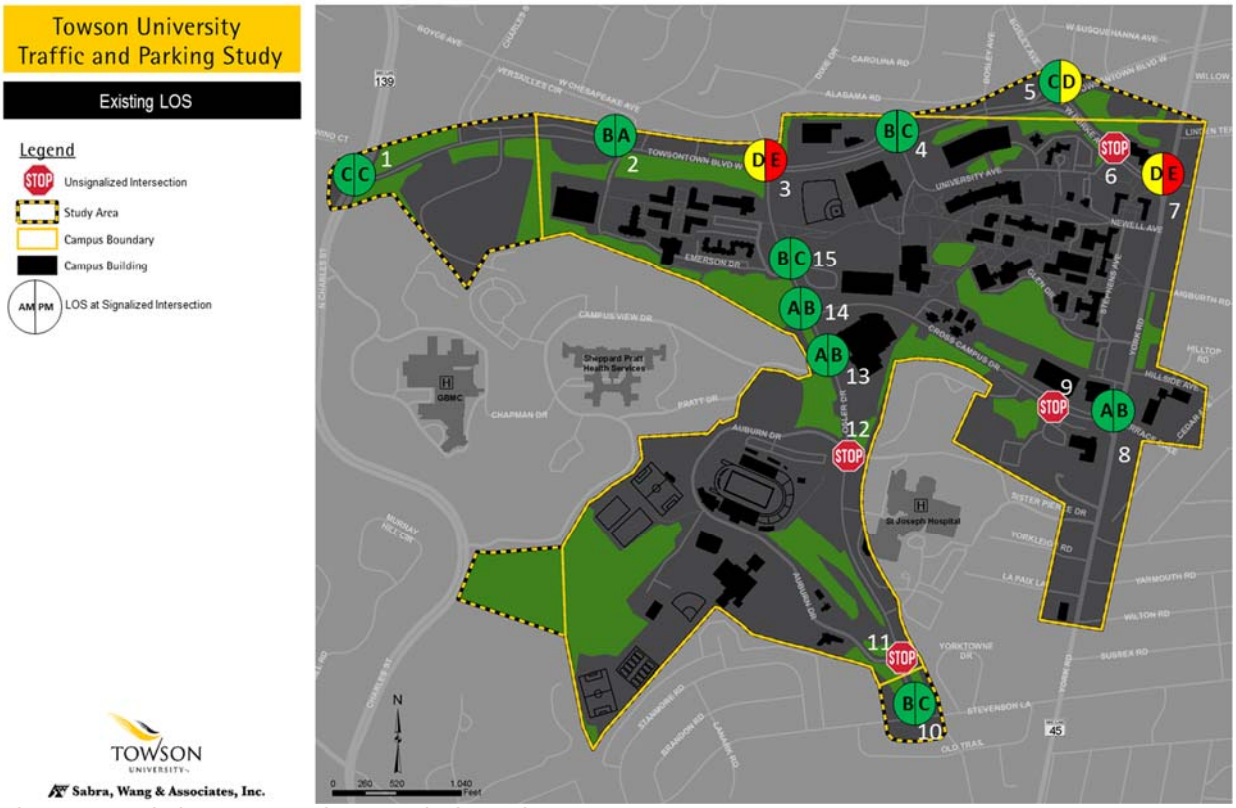

Figure 5: Existing Intersection Level of Service

Special Events

A parking management and traffic operations plan is an essential element for special events held on the Towson campus. Most of the large events occur in the South Campus during weekends or evenings. Towson generally discourages the booking of special events generating more than 50 vehicles until after 3 PM on weekdays or anytime on weekends. Towson has installed a series of changeable message signs on Towsontown Boulevard and coordinates police control to direct traffic into the area and manage the flow as various parking facilities fill with cars. According to the Towson University police, the current special events plan generally works well. The primary area for improvement is to alert inbound drivers earlier about parking conditions so that they can be diverted to more distant facilities, if necessary.

Bicycle Network

Figure 6 shows the current bicycle network within the study area including existing bike lanes, signed bike routes, pedestrian bridges, and shared use paths, as well as proposed bike lanes and share use paths. Bicycle parking locations are also shown and the number above each bike parking location indicates the number of spaces. While there are shared-use paths that provide for biking internally within the Campus, there is little existing bicycle infrastructure connecting the Campus to the surrounding area. A bike lane is proposed along the Campus' north-south connector, Osler Drive, and a shared-use path is proposed along the area's east-west connector, Towsontown Boulevard. There are forty-one bike racks throughout campus totaling 695 individual bike spaces. Most racks are standard loop racks. No bike lockers or covered bike parking are available at academic buildings.

Aside from a few locations served only by stairs, internal campus bike circulation is easy and safe, generally. Conditions on state and county roads surrounding campus, however, are poor for biking. High speeds and a lack of separation between cyclists and motor vehicle lead to a low bicycle level comfort.

Separated or buffered bike lanes are recommended on Osler, Towsontown, York, and Cross Campus. Absent the ability to construct dedicated and protected bike facilities, wide shared-used paths are recommended on TU right-of-way. Additional bike racks and covered bike racks and bike storage lockers are recommended near academic buildings to encourage cycling.

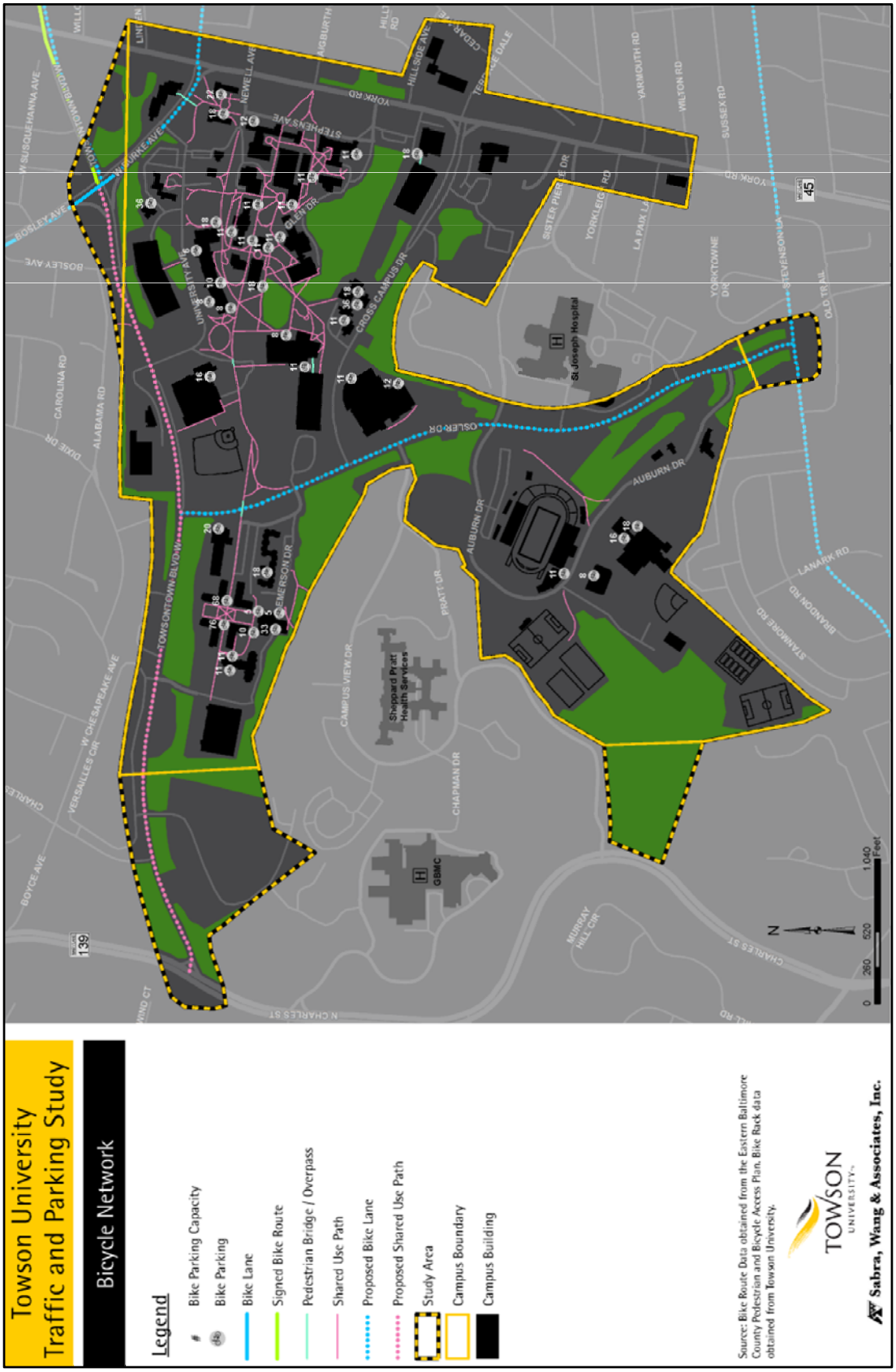

Figure 6: Existing Bike Network

Transit Network

Towson University operates two routes that service on-campus destinations and six off-campus routes that connect the Campus to residential and town-center destinations. The frequencies of all eight routes during weekdays (Monday-Thursday) are represented in Figure 7 below. The campus is served by shuttle service with at least 20-25 minute headways.

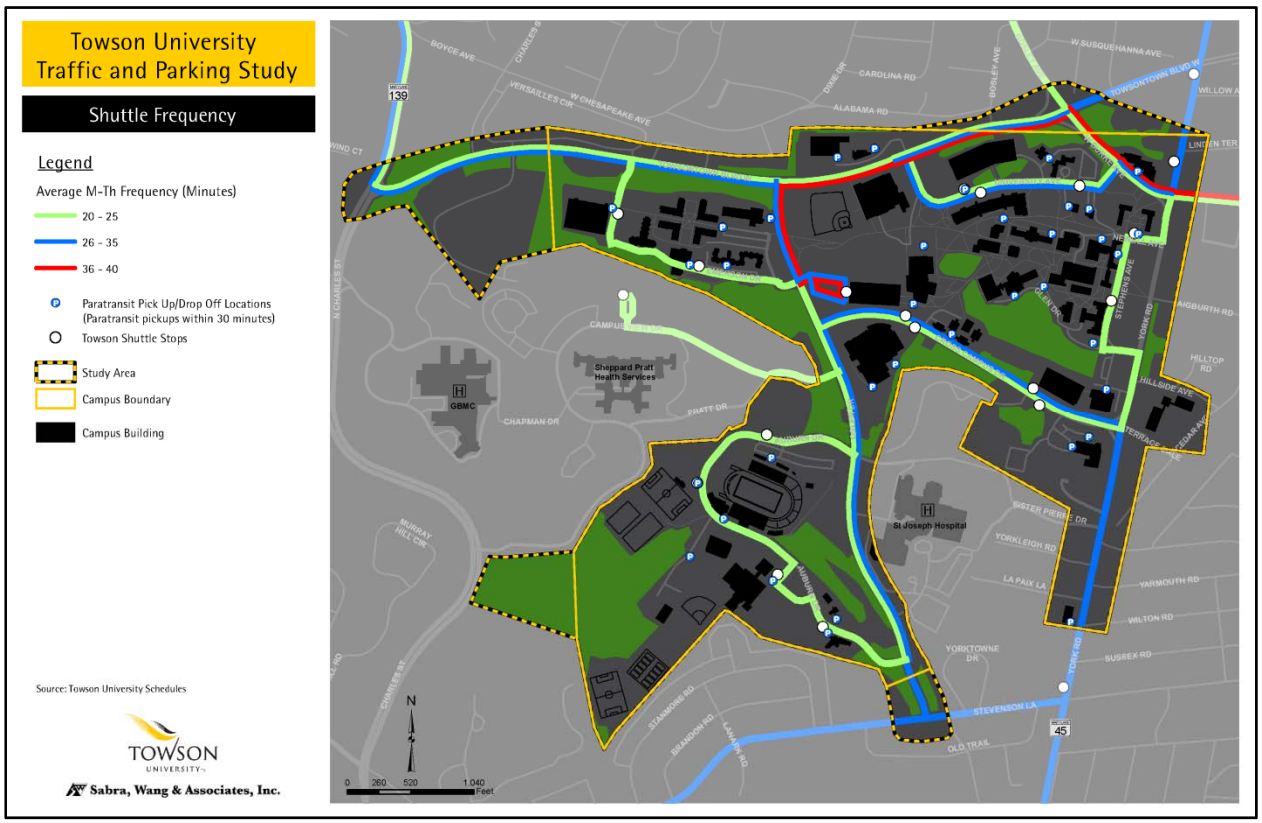

Figure 7: Transit Network & Frequency

Figure 8 below, shows the stop locations and the average daily boardings served by the Townson shuttle locally and regionally. There are seventeen stops located on the Campus with an average daily boarding per stop of 131 boardings. The top three stops with the highest ridership include the stop at the West Village Commons Building (468), the CLA building (414), and the Towsontown Garage stop (385). The stop at York & Burke and the stop at Emerson Drive at Union Garage averaged fewer than five daily boardings.

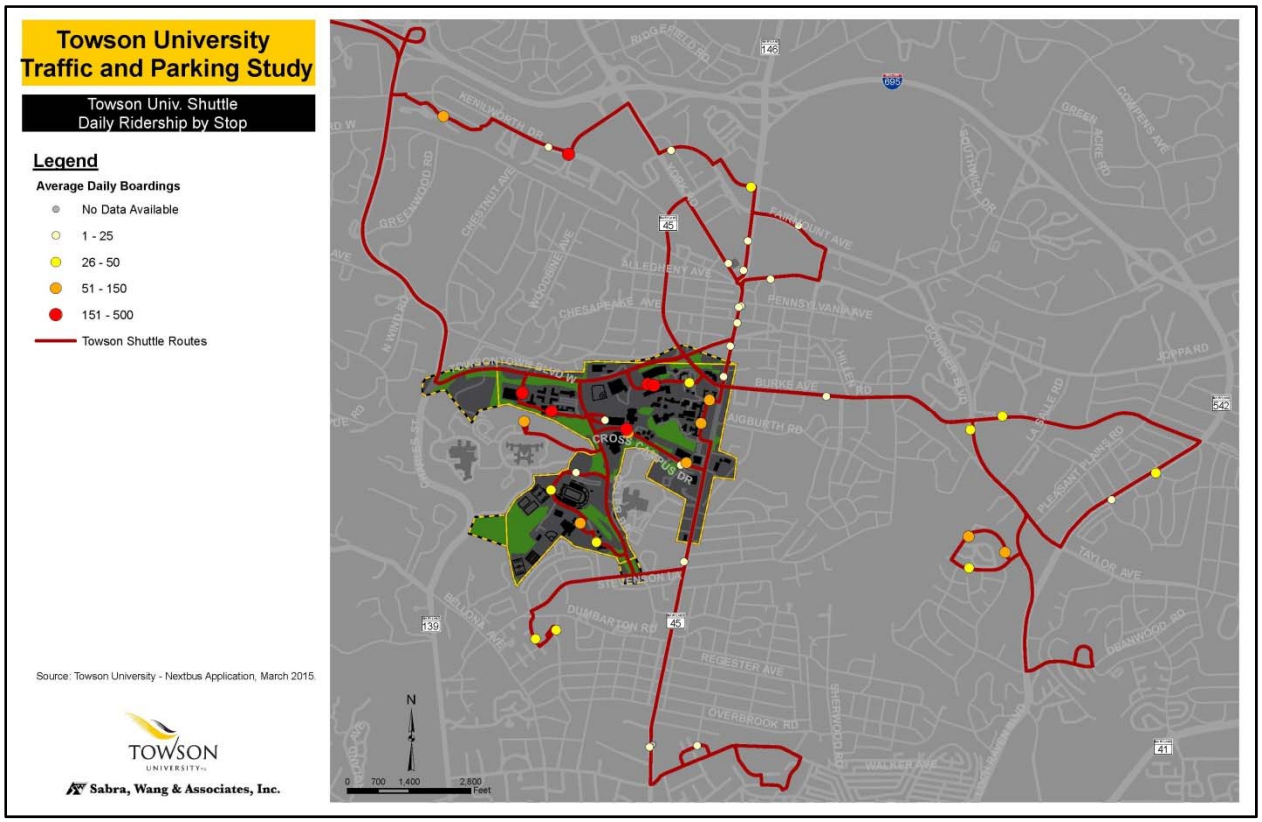

Figure 8: Transit Ridership by Stop

Of note, there are multiple stops, particularly in Downtown Towson that receive very little ridership. **Consolidation of transit stop in Downtown Towson is recommended**. Additionally, there are several neighborhood serving stops that see little ridership; **these are potential stops to consider for elimination. Savings from route/stop consolidation can be applied to neighborhood-serving or internal bike facility improvements. In addition, real-time bus arrival time display screens are recommended at bus shelters and building lobbies**

3.7 Parking Inventory and Utilization

Parking utilization rates were determined from field studies conducted on Wednesday, April 22, 2015 and Saturday[2], April 25, 2015. The field studies were conducted mid-day from 11AM to 2PM to capture a peak time on Campus. A total of 5,714 spaces were inventory across four on-campus garages, three off-campus garages, and three on-campus surface lots as well as on-street parking along Cross Campus Drive, as seen in Figure 9. The number of spaces inventoried sampled 75 percent of the Campus' entire parking capacity. There are 4,972 beds occupied on campus which represents 30.5 percent of the full-time student equivalents (FTE)[3] enrolled. A parking space capacity of 7,766 yields 0.476 spaces per FTE.

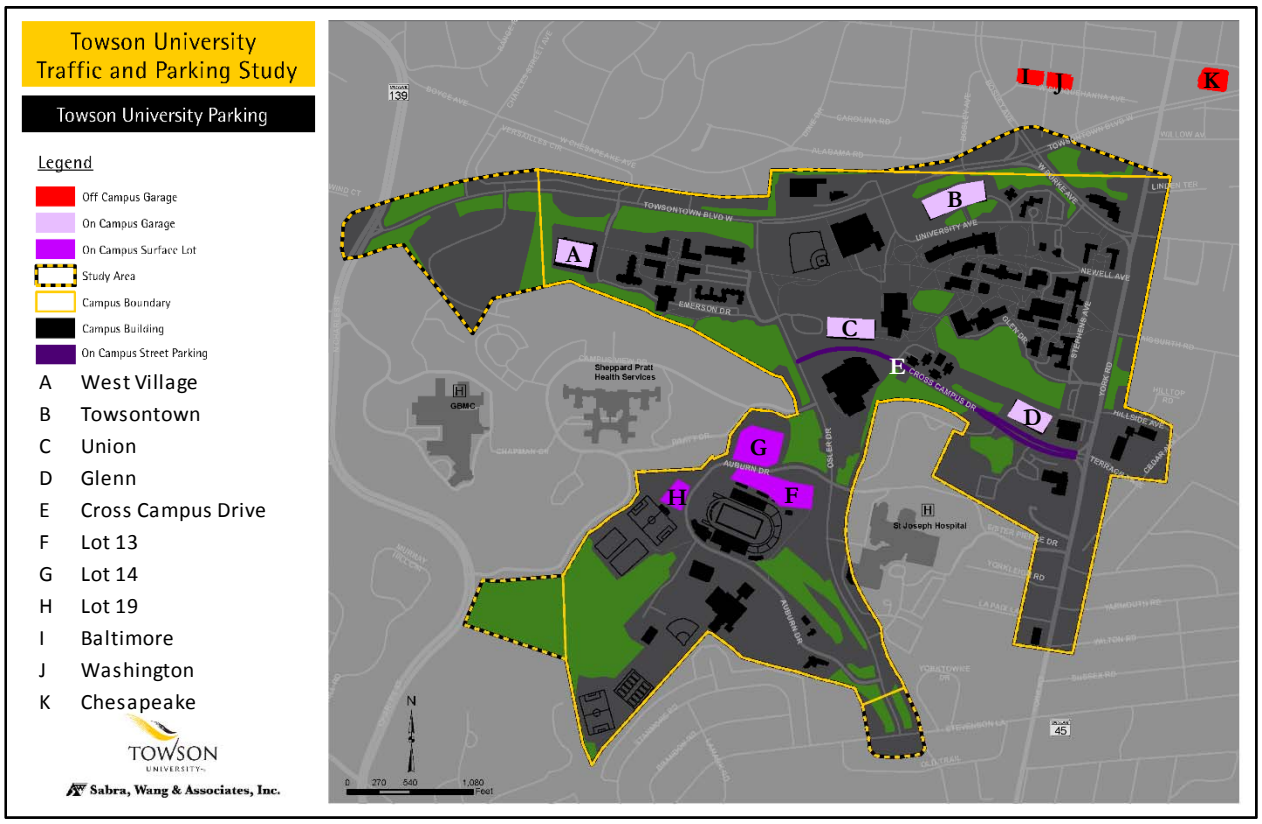

Figure 9: Parking Inventory

The utilization rates for each parking location are shown graphically for weekdays and weekends (Saturday) in Figure 10 and Figure 11 respectively. The highest utilized on-campus parking garages are Towsontown and Union at 90 percent weekday utilization each. These two garages primarily serve faculty/staff and commuter students. The West Village Garage, which primarily serves on-campus residents, has a 78 percent weekday utilization rate. The Glen Garage, which primarily serves faculty/staff and commuter students, has a weekday utilization rate of 77 percent.

The three on-campus surface lots surveyed have a lower weekday utilization rate than the on-campus garages. The highest used surface lot, Lot 19 Field House, has a weekday utilization rate of 67 percent. Roughly one-third of its spaces are for faculty/staff and the remaining are considered overflow parking. Lot 13, Towson Center, has a weekday utilization rate of 44 percent and all of its spaces are considered

[2] Weekend parking utilization was capture on a non-event day for the stadium.
[3] As of calendar year 2015 campus enrollment was 20,500 which equals 16,320 full time equivalents

overflow. Only 2 percent of the spaces in Lot 14, Towson Center, were utilized during the week. Of the three surface lots survey, Lot 14 has the most spaces at 409. Additionally, Cross Campus Drive has 130 on-street spaces along both sides of the street and 93 percent of the spaces are occupied during the week.

Of the off-campus garages, the garage on Baltimore Avenue had the highest weekday utilization rate at 80 percent, followed by the Washington Avenue garage at 44 percent, and the Chesapeake Avenue garage at 23 percent.

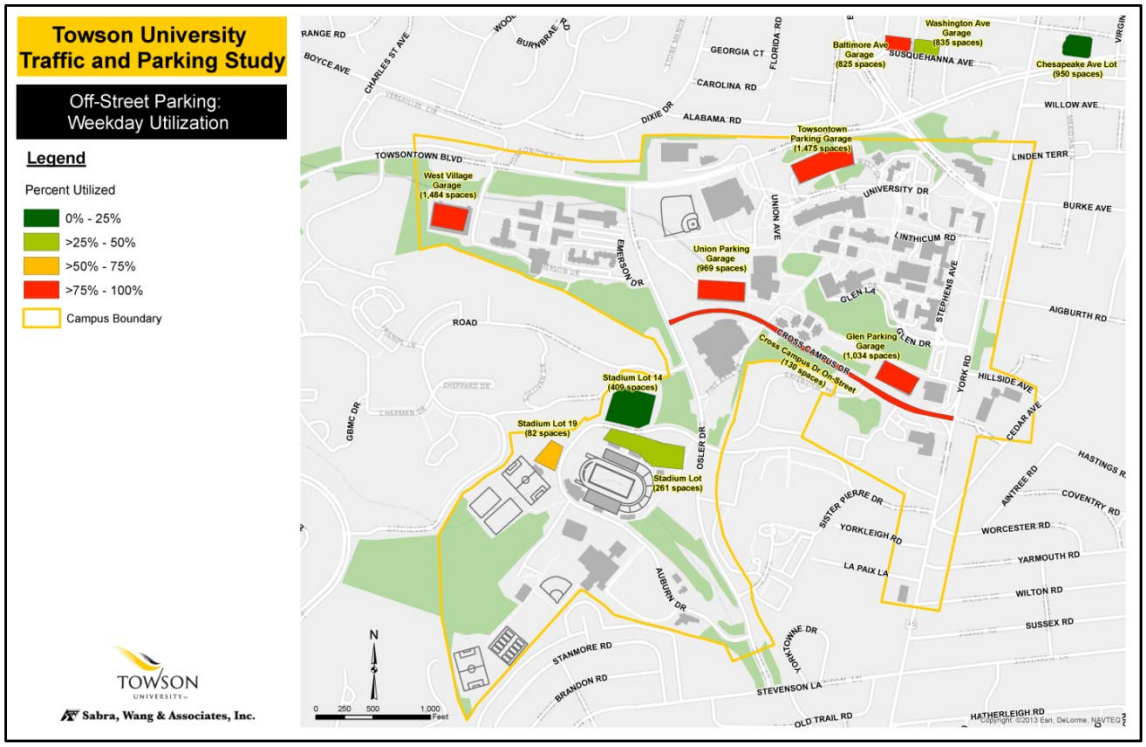

Figure 10: Parking Utilization – Weekday

Utilization of the parking garage drops considerably on the weekends. Four of the seven garages have a less than 25 percent of their spaces utilized. The highest utilized garage on the weekend is West Village at 38 percent, followed by the Union garage at 31 percent. At Lot 19, Field House, 96 percent of its spaces were utilized. This is most likely due to an event at the soccer field. The remaining two surface lots have less than 25 percent parking utilization.

The weekday vs. weekend utilization rate of the on-street spaces along Cross Campus Drive does not change much. During the week, 120 of its 130 were utilized and during the weekend 107 spaces were utilized. Table 3 and Table 4, respectively, show the number of spaces utilized by type at each facility.

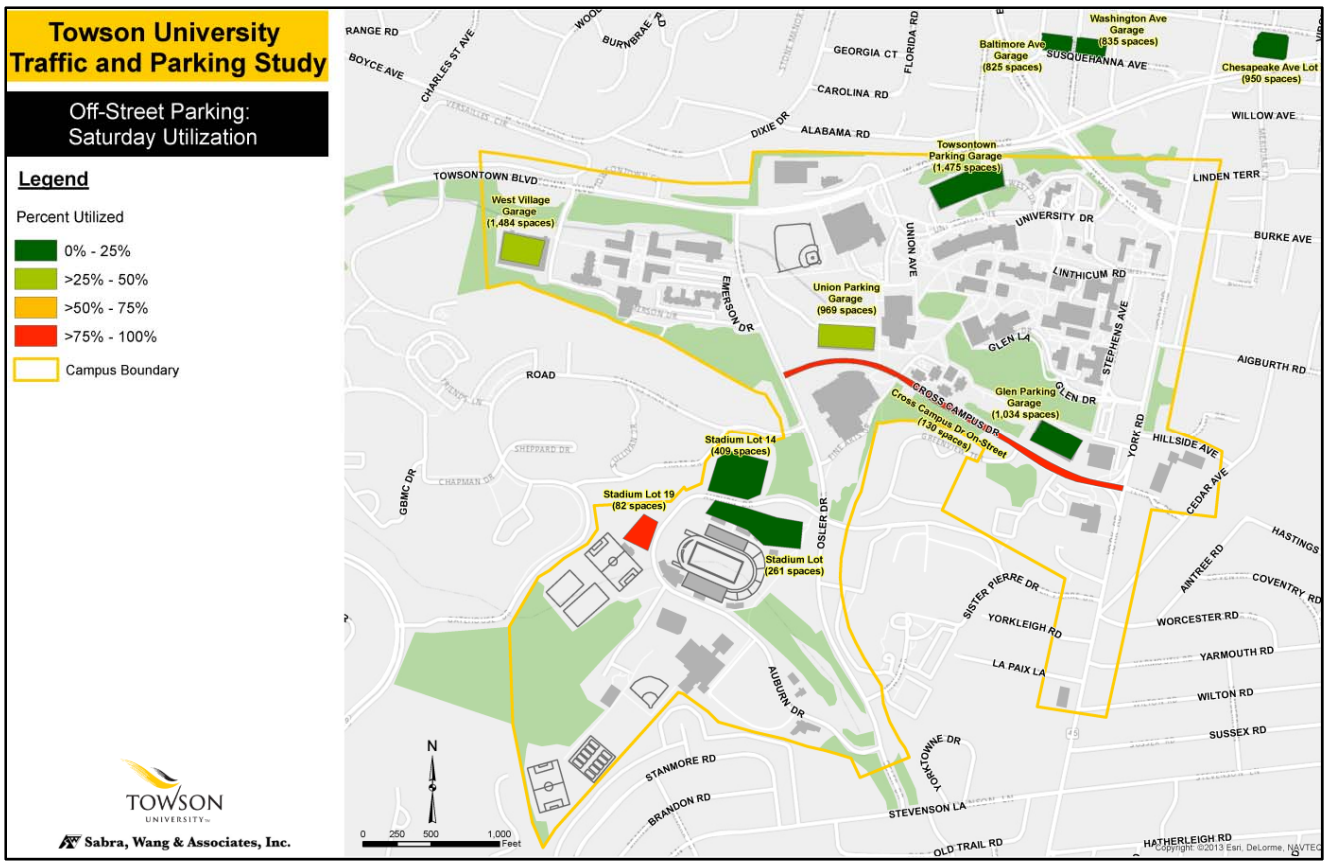

Figure 11: Parking Utilization – Weekend (Saturday)

Table 3: Parking Utilization – Weekday

Type of Lot	Type of Space: Name	Faculty /Staff		Commuter Student		Resident		Reserved		Visitor		HC W/O aisle access		Handicap W/ aisle access		TU Vehicle		Vendor		Motorcycle		20 min paystation		Overflow		Bus Spaces		Meters		EVC Charger		TOTAL PARKED	TOTAL SPACES	*Percent Utilized*
		No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces			
ON-SL	13. Towson Center																															116	261	*44%*
ON-SL	14. Towson Center																															10	409	*2%*
ON-SL	19. Field House																															55	82	*67%*
ON-G	Towsontown	389	450	814	837	59	110	13	14	48	48	0	0	9	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,332	1,475	*90%*
ON-G	Union	201	231	635	670	0	0	5	5	18	18	1	4	3	14	0	3	0	2	8	12	2	2	0	0	0	0	0	0	2	8	875	969	*90%*
ON-G	Glen	197	258	586	723	0	0	3	6	6	10	0	3	5	13	0	3	0	0	2	10	0	0	0	0	0	0	0	0	1	8	800	1,034	*77%*
ON-G	West Village	21	41	0	0	870	920	2	10	63	142	1	7	1	9	0	10	0	0	0	0	0	0	202	345	0	0	0	0	0	0	1,160	1,484	*78%*
ON-ST	Cross Campus																															121	130	*93%*
OFF-G	Baltimore																															658	825	*80%*
OFF-G	Washington																															369	835	*44%*
OFF-G	Chesapeake																															222	950	*23%*

Table 4: Parking Utilization – Weekend

Type of Lot	Type of Space: Name	Faculty /Staff		Commuter Student		Resident		Reserved		Visitor		HC W/O aisle access		Handicap W/ aisle access		TU Vehicle		Vendor		Motorcycle		20 min paystation		Overflow		Bus Spaces		Meters		EVC Charger		TOTAL PARKED	TOTAL SPACES	*Percent Utilized*
		No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces	No. Parked	No. Spaces			
ON-SL	13. Towson Center																															54	261	*21%*
ON-SL	14. Towson Center																															23	409	*6%*
ON-SL	19. Field House																															79	82	*96%*
ON-G	Towsontown	50	450	137	837	56	110	6	14	28	48	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	277	1,475	*19%*
ON-G	Union	101	231	180	670	0	0	3	5	18	18	0	4	1	14	1	3	0	2	1	12	0	2	0	0	0	0	0	0	0	8	305	969	*31%*
ON-G	Glen	89	258	99	723	0	0	4	6	9	10	0	3	1	13	1	3	0	0	0	10	0	0	0	0	0	0	0	0	2	8	205	1,034	*20%*
ON-G	West Village	10	41	0	0	396	920	4	10	99	142	0	7	1	9	0	10	0	0	0	0	0	0	49	345	0	0	0	0	0	0	559	1,484	*38%*
ON-ST	Cross Campus																															107	130	*82%*
OFF-G	Baltimore																															192	825	*23%*
OFF-G	Washington																															89	835	*11%*
OFF-G	Chesapeake																															44	950	*5%*

3.8 Utilities Infrastructure & Energy System Assessment

Mapping

In order for planners to evaluate Towson University's future development footprint, it is useful to incorporate utility information into the analysis process. Campus utilities are obviously quite dendritic, with underground storm drains, sanitary lines, water lines, electric conduits, telecommunications duct banks, and steam routes all intersecting or crossing at various elevations and angles. Designers developed a composite base map with as much utility information as possible to inform master plan decision-making. This approach involved the following steps:

1. Planners gathered utility information in electronic (CAD) form for multiple campus projects. The CAD base development effort merged vector information from existing electronic sources or traced raster data as needed. All of the linework became consolidated into one grand composite utility file. The composite file accounts for the following:

    a. Property line delineation (per Baltimore County GIS)
    b. West Village Student Housing
    c. West Village Commons
    d. Site and Safety (all phases)
    e. Commemorative Garden
    f. College of Liberal Arts
    g. CUPA Utility Expansion
    h. Towson Public Safety
    i. Fiber Duct Bank (from Cook to Health Bldg.)
    j. Burdick Recreation Fields
    k. Burdick Hall Expansion
    l. New Science Building
    m. Child Care Center area
    n. Towson Center area
    o. Towson Arena
    p. 13kv Electric Feeder through campus
    q. Baltimore County Sanitary Key Sheets
    r. Baltimore County Water Key Sheets
    s. Linework from "Existing Conditions" as surveyed for above projects
    t. Inclusion of Google Earth aerial imagery as one layer
    u. Inclusion of 2015 Master Plan on pertinent layers

2. Using the 2015 Master Plan, planners superimposed utility mapping to identify significant places where infrastructure alignments conflict with proposed building footprints. Designers used this "layered" mapping technique to isolate pinch points where utilities are especially congested.

Utilities and "Buildable Area"

The Towson University campus, like most college settings, has locations where underground utilities are especially congregated. For planning and budgetary purposes, it is useful to highlight areas where piping is particularly "clustered" underground. It is also noteworthy to identify areas where utility alignments happen to be oriented in a manner that might make future development more onerous. Such exercises are helpful at a master planning level, with the understanding that some existing utilities may be

undersized if more detailed, project-specific design efforts reveal the need to increase capacities. Campus planners may determine that an area slated for expansion might introduce unusual site development costs because the area is uncommonly congested underground. When merged with CAD-based utility line composites, the 2015 Master Plan imagery informs planners regarding the degree of difficulty anticipated as utility lines may need alteration, re-alignment, or abandonment in order to realize grand campus visions.

When planners propose development for a given project location, it is customary to evaluate all the utilities, but they typically scrutinize “gravity” systems more closely. Storm drainage and sanitary effluent rely on gravity to function properly, so the drain lines must have some degree of vertical drop as they are routed away from proposed buildings. This functional requirement is often a significant design consideration for engineers because other utilities (water, electrical, telecommunications, etc.) don’t need gravity assistance in order to operate, so designers can usually manipulate those horizontal routes more easily. Since sanitary and storm drain line alignments are driven largely by topography (the ability to “drop” or “fall” a certain vertical distance over a certain horizontal distance), the location and arrangement of these gravity lines became a primary consideration for the Towson University study. In particular, the proximity of an “outfall point” for stormwater management facilities became a significant factor for the master planning effort.

The master plan commentaries for each specific precinct highlight potential utility difficulties and opportunities unique to that portion of campus.

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Section 4: Proposed Master Plan

The proposed Master Plan provides a strategic physical framework to guide the future growth and redevelopment of the Towson University campus as the institution continues to evolve and advance its academic mission and role within the greater Towson community. The plan has thoughtfully incorporated and integrated both the input of the campus community and its neighbors, as well as the goals and aspirations of the institution. As a result of this input, the disposition of buildings and grounds is characterized by sensitivity to the history of the institution, the natural environment and the surrounding community.

In meeting with the on and off campus stakeholder groups, three questions continually came up:

1. What is the capacity of the University plan?
2. How will the plan support the creation of a strong on campus community while being supportive of the adjacent communities?
3. How can we foster greater connectivity internal to the campus and foster greater connections with downtown Towson?

These three 'C's became a major theme of the Plan: Capacity, Community, and Connections.

The proposed master plan answers all three by

- Addressing potential university enrollment growth and how it can be accommodated in facilities which accommodate academic, student life, parking, and support needs;
- using the university's compact nature to its advantage to develop strong neighborhoods built around residential clusters, the academic core, and student life which builds on-campus community;
- improving pedestrian and bicycle connections to downtown Towson through the development of gateways and improved key intersections around campus;
- by continuing to work our neighbors to minimize intrusions of institutionally generated on-street parking, encouraging off-campus student housing in existing apartment complexes and downtown Towson, and using the campus shuttle system to bring students to and from campus which minimizes the need for parking and reduces road congestion.

4.1 Planning Principles

A series of five guiding principles was developed to provide a framework for the development of the final plan.

A. Support Academic Excellence and Student Success

Towson University is located at the northern edge of the Baltimore metropolitan region, just south of Towson, the Baltimore County Seat. The region is home to 22 colleges and universities, seven of which, including Towson, lie on the Charles Street & York Road corridors. Towson University has the largest enrollment of any of these institutions.

The university property is located directly adjacent to Sheppard Pratt Health System, Saint Joseph Medical Center and the Greater Baltimore Medical Center, creating a 500-plus acre area bounded by strong residential neighborhoods and the southern edge of the Towson central business district.

While the focus of this physical Master Plan is for the Towson campus, education at Towson University is not limited to offerings only at this location. Towson University has established partnerships with 14 Maryland community colleges, including those in Harford County, Hagerstown, and Southern Maryland, to create seamless transfer opportunities between associate degree programs and Towson University baccalaureate and graduate degree programs.

Towson University important statistics:

Enrollment Mix

- 45% Started as Freshmen on campus
- 37% Transfers
- 2% Other Undergraduates (Second Bachelor's or Non-Degree)
- 16% Graduate Students
- *82% In-State (Undergraduate)*
- *62% Women*
- 16% African American, 5% Asian, 5% Hispanic/Latino, 63% White, 2% Foreign, 9% Other or Unknown

High School Averages of Enrolled Freshmen (Fall 2014)

- SAT: 1626
- GPA: 3.61
- **22,999 Applicants for 4,698 seats in Fall 2014**

With the university now attracting increasingly stronger students, the 2015 Plan serves as an important tool in providing the necessary resources and best possible facilities to enhance the academic, residential and recreational experiences of their collegiate career at Towson University.

B. Develop the Campus to the Responsible Capacity of the Land

Towson University strives to balance the need to preserve ecological areas, create meaningful open space, build appropriate structures, and maintain walkways and roads to serve the campus. This balance can be described as the responsible capacity of the land which maintains the collegiate scale of the campus.

The Towson University Campus Master Plan consists of a series of interconnected centers that interlock with manicured and natural areas. The buildings are generally two to six stories in height to maintain enough density and enclosure of open spaces, while encouraging a pedestrian-oriented environment.

Facilities Overview

The Towson University campus consists of 55 buildings comprising 5,612,095 gross square feet (GSF) (2,479,058 net assignable square feet (NASF)), of which 26 buildings are state funded totaling 2,215,218 GSF (1,332,531 NASF). Since 2009, institutional enrollment has grown nearly five percent.

Most of the academic buildings on campus have never been renovated, and those that have, were renovated over two decades ago. Other than the Center for the Arts project, the last significant renovation of an academic facility occurred in 1990 when Stephens Hall, the original academic building on campus, was renovated. The planned new Science Building will provide 315,000 GSF of new research and

teaching space for life and physical sciences and allow the adaptive renovation of Smith Hall for Visual and Communication Arts. The planned College of Health Professions Building will provide 250,000 GSF to consolidate the college out of seven current locations across campus.

The 2015 Campus Master Plan Capital Improvement Program includes recommendations for renovating a number of academic buildings, including Smith, Hawkins, Psychology, Stephens and Van Bokkelen Halls, and Cook Library. To supplement and provide expansion space for academic support and community outreach functions, the university leases 64,887 GSF in the City Center in downtown Towson. This location serves as the primary community outreach facility and includes Towson's public radio affiliate WTMD and the Institute if Well Being, which consists of The Hearing and Balance Center, The Hussman Center for Adults with Autism, The Occupational Therapy enter, and The Speech, Language and Hearing clinics.

Auxiliary facilities comprise the remaining 27 buildings totaling 3,397,547 GSF (1,137,702 NASF). This includes 15 residence halls, two dining halls, a student center, West Village Commons, five athletic facilities, four parking structures, a childcare center, and a conference center hotel. Currently the Towson Center and Burdick Hall provide opportunities for student recreation. An addition to Burdick Hall is currently under design and will provide needed additional recreational opportunities.

In fall 2008, construction was completed on the first of five planned phases of housing in the West Village. Phase I and II added 1,315 new beds. The West Village Commons was completed in 2011 adding a mix of student services including dining, retail, meeting, office and other student service spaces which enhances the area's living and learning environment and serves as a central gathering space for current and future residential students. A 1,500 space parking garage was added to meet the parking needs of the West Village as well as the meeting facilities in the West Commons. The West Village build-out plan consists of one additional phase of housing, which will add 600 new beds once the Enrollment Services Building is replaced.

The university is currently adding 700 beds to the west end of the Village. This new housing will add enough capacity to the campus to facilitate the phased renovations of the Residence Tower and the Glen Towers over the next ten years. In addition, Newell Dining and Glen Dining Halls will be renovated at the same time.

New West Village Housing

One of the significant changes from the 2009 plan is a rethinking of the South Campus as a vibrant mixed use neighborhood with the addition of 1,000-1,200 new beds, dining, informal recreation, and parking. This new development will be primarily on the northern tip of the South Campus and connect to the Academic Core with a new bridge across Osler Drive. The new housing will be a unique neighborhood and could include approximately 300 beds of Greek themed housing with chapter rooms and student meeting space.

Space Needs Assessment

A space needs analysis was conducted by Ayers Saint Gross to detail and identify current and projected space needs. According to the fall 2014 space data from the university's Space Guideline Application Process (SGAP) Report, the total space on campus is about 1.6 million NASF, excluding housing and parking facilities. Applying higher education guidelines to the identified space categories in Academic, Academic Support and Auxiliary Space reveals a deficit of 282,000 NASF as of fall 2014. Given the projected enrollment of 25,000 students, the space deficit is projected to grow to 613,000 NASF. Implementation of the planned facility projects proposed in the 2015 Plan will result in approximately 1.4 million GSF or about 800,000 NASF of additional space in these categories, thus offsetting existing and projected space deficits generated by projected enrollment growth.

Property Acquisition Plan

In 2011, the university acquired the 7400 York Road property, which serves interactive community outreach functions. In 2012 the university entered into a lease in the Olympic Place downtown Towson providing the Institute for Well-Being and Towson's public radio station WTMD.

Space Needs Analysis by Space Category

	Fall 2014				12% Growth		22% Growth	
	Existing NASF	Proposed NASF	Overage/ (Need)	Future Existing NASF	Proposed NASF	Overage/ (Need)	Proposed NASF	Overage/ (Need)
Academic Space								
Classrooms	173,007	179,183	(6,176)	173,007	204,510	(31,503)	221,984	(48,977)
Laboratories	272,063	394,491	(122,428)	272,063	449,947	(177,884)	488,067	(216,004)
Class Laboratories	*177,153*	*271,093*	*(93,940)*	*177,153*	*311,792*	*(134,639)*	*337,623*	*(160,470)*
Open Laboratories	*51,946*	*61,320*	*(9,374)*	*51,946*	*68,683*	*(16,737)*	*74,810*	*(22,864)*
Research Laboratories	*42,964*	*62,078*	*(19,114)*	*42,964*	*69,472*	*(26,508)*	*75,634*	*(32,670)*
Academic Offices	291,352	277,777	13,575	291,352	307,646	(16,294)	329,582	(38,230)
Library & Study Space	100,805	184,651	(83,846)	100,805	202,782	(101,977)	214,535	(113,730)
Other Academic Space	26,932	29,199	(2,267)	26,932	32,706	(5,774)	35,624	(8,692)
Academic Space Total	**864,159**	**1,065,301**	**(201,142)**	**864,159**	**1,197,591**	**(333,432)**	**1,289,792**	**(425,633)**
Support Space								
Administrative Offices	154,968	161,062	(6,094)	161,128	173,816	(12,688)	178,599	(17,471)
Other Administrative Space	55,746	54,677	1,069	55,896	59,059	(3,163)	62,707	(6,811)
Assembly & Exhibit Space	52,335	70,800	(18,465)	52,335	76,059	(23,724)	80,436	(28,101)
Assembly Space	*40,994*	*56,200*	*(15,206)*	*40,994*	*59,706*	*(18,712)*	*62,624*	*(21,630)*
Exhibit Space	*11,341*	*14,600*	*(3,259)*	*11,341*	*16,353*	*(5,012)*	*17,812*	*(6,471)*
Media Production	10,785	29,200	(18,415)	10,785	32,706	(21,921)	35,624	(24,839)
Central Computing Space	5,371	10,450	(5,079)	5,371	11,765	(6,394)	12,860	(7,489)
Athletics / Physical Education / Recreation	237,160	219,077	18,083	298,250	236,040	62,210	250,161	48,089
Physical Education & Recreation	*75,373*	*69,626*	*5,747*	*136,463*	*86,589*	*49,874*	*100,710*	*35,753*
Intercollegiate Athletics	*161,787*	*149,451*	*12,336*	*161,787*	*149,451*	*12,336*	*149,451*	*12,336*
Lounge Space	35,222	43,421	(8,199)	35,222	43,421	(8,199)	43,421	(8,199)
Physical Plant	59,582	79,441	(19,859)	59,582	84,716	(25,134)	86,904	(27,322)
Physical Plant	*42,690*	*62,698*	*(20,008)*	*42,690*	*65,542*	*(22,852)*	*65,543*	*(22,853)*
Central Service	*16,338*	*14,599*	*1,739*	*16,338*	*17,030*	*(692)*	*19,217*	*(2,879)*
Hazardous Materials	*554*	*2,144*	*(1,590)*	*554*	*2,144*	*(1,590)*	*2,144*	*(1,590)*
Support Space Total	**611,169**	**668,128**	**(56,959)**	**678,569**	**717,582**	**(39,013)**	**750,712**	**(72,143)**
Auxilary Space								
Student Center	82,144	116,800	(34,656)	85,844	130,825	(44,981)	142,496	(56,652)
Health Care Facilities	15,428	4,780	10,648	15,428	5,305	10,123	5,744	9,684
Auxilary Space Total	**97,572**	**121,580**	**(24,008)**	**101,272**	**136,130**	**(34,858)**	**148,240**	**(46,968)**
TOTAL	**1,572,900**	**1,855,009**	**(282,109)**	**1,644,000**	**2,051,303**	**(407,303)**	**2,188,744**	**(544,744)**

C. Create a Compact, Connected and Comprehensible Campus

The 2015 Plan reflects the dramatic needs of the institution and the significant constraints of the campus setting. The needs of the campus for academic space and additional housing capacity create the opportunity to better organize and concentrate these functions on campus. The 2015 Plan organizes the campus into four areas: Academic Core, Student Life, West Village, and South Campus.

The Academic Core is centered around a new green space created at the entrance to Cook Library and is flanked by the proposed College of Health Professions Building and the College of Liberal Arts Building. In addition to anchoring the new space, these buildings functionally realign academic departments that are currently dispersed throughout campus. A building addition to Cook Library will provide additional space for collections and student study and research.

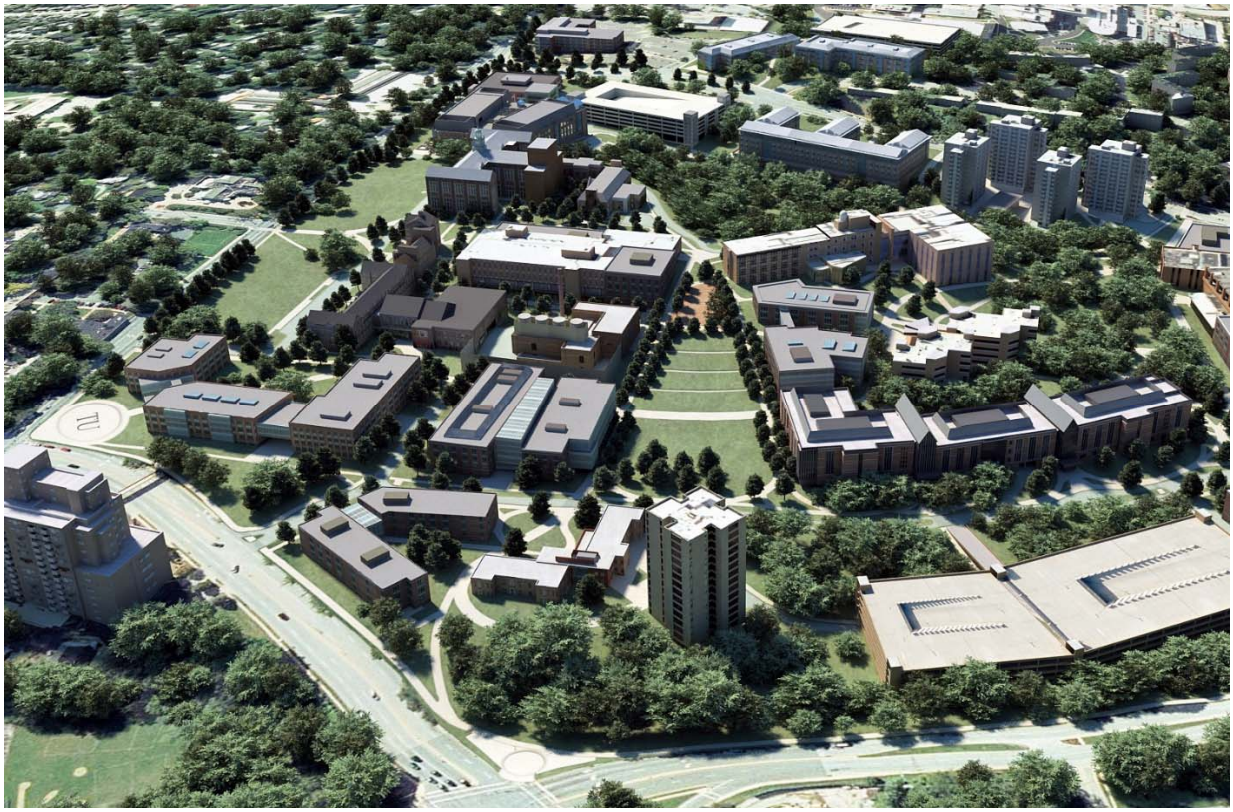
The new Science Building south of Stephens Hall will replace outdated research and teaching labs currently in Smith Hall which was built over 40 years ago. Once the new Science Building is complete, Smith Hall will be renovated to accommodate the visual and communications technology programs. Renovation of Stephens, Van Bokkelen, Burdick, Hawkins, and Psychology will help to consolidate academic space and complete the realignment of the academic functions and departments within the Academic Core.

More than 1,000,000 GSF of new building space has been identified in the Academic Core to accommodate additional academic and support buildings to sustain planned enrollment growth through 2029.

New Science Building South Plaza

Functional Realignment Diagram

- College of Liberal Arts
- College of Fine Arts
- College of Education
- Fisher College of Science & Math
- College of Health Professions
- College of Business & Economics



Academic Core

A major goal of the 2015 Plan is to complete the functional realignment of academic and academic support departments currently dispersed throughout campus. In 2011, The College of Liberal Arts was consolidated in one building. Consolidation of the remaining University Colleges will be achieved through the following projects:

- The Fisher College of Science and Mathematics department of biology, chemistry, and physics will move into a new classroom, lab and research building south of Stephens Hall and adjacent to the computer science and mathematics departments in 7800 York Road.
- The College of Health Professions is scattered around campus in six locations — Linthicum Hall,Towson Center, Stephens Annex, Burdick Hall, Enrollment Services and Van Bokkelen Hall. The new building will provide 250,000 GSF of new classroom and lab space, while some program space in Burdick Hall and Towson Center will be maintained.
- The College of Fine Arts and Communication will gain space in a renovated Smith Hall for visual and communications technology.
- The College of Business and Economics will utilize existing space in Stephens Hall and Van Bokkelen Hall for the foreseeable future.
- The College of Education, currently in Hawkins Hall, will expand into the adjoining Psychology Building.
- A building addition to Cook Library will add nearly 75,000 GSF which will accommodate new volumes and collections while providing collaborative study areas.
- Renovations of Stephens Hall and Smith Hall, as well as proposed future buildings will accommodate additional classroom space as needed.

Student Life

The area between West Village and the Academic Core serves as a focal point for student activity outside of the classroom. This area includes core student support services such as recreation, health, counseling and enrollment services.

Ward and West Halls were converted and expanded into the Counseling and Health Center, providing 31,000 GSF of student service space.

Burdick Hall and the University Union, along with adjacent recreation fields, currently form the bulk of the campus student life facilities. The fitness addition to Burdick Hall completed in 2014 has improved student recreation facilities and the planned expansion will bring the facility in balance with the projected enrollment. Three new artificial turf recreation fields were provided north of the Union parking deck to provide year round recreational field access.

The University Union was constructed in 1972 for student population of about 11,000. The building is the most heavily utilized facility on campus facility, but is overcrowded and does not have an adequate amount of space to serve the current student population. A complete renovation of the existing building is planned to address the building's aging infrastructure and an 80,000 GSF addition is planned to provide additional student spaces. The University Union renovation and addition project will provide much needed dining, retail, student service, and student group spaces to serve the current and future university needs. To provide easy access for students and visitors, a new Enrollment Services Building is planned at the new gateway entrance, between Burdick Hall and the Towsontown Garage.

Burdick Hall Expansion (Currently Under Construction)

West Village
In 2014, a new pedestrian bridge was built across Osler Drive providing a much safer and convenient connection of the West Village to the Academic Core.

On the west side of Osler Drive, the university is approaching the last phases of the build out the West Village. Construction of a new Enrollment Services Building near the Towsontown Garage will allow for additional housing to be developed on the land occupied by the current Enrollment Services Building.

The area west of the West Village has the potential to add a mix of upper division, graduate, and faculty housing in the future as a unique campus neighborhood.

South Campus
In the South Campus, the new Childcare Center was completed in 2007. The Towson Center renovation and the new 5,000 seat SECU Arena were completed in 2012.

The 2015 plan converts the South Campus into a vibrant community with the addition of 1,000-1,200 beds of new student housing at the northern tip of the south campus. The development could include accommodations for Greek housing as well as dining facilities. The South Campus will be connected to the Academic Core with a new pedestrian and bicycle bridge which crosses Osler Drive. Additionally, new parking structures will accommodate students and visitors on campus for events at Johnny Unitas® Stadium and SECU Arena.

The Athletics facilities will be expanded and updated with new and improved competition and practice fields, a new field house with coaches' offices, stadium improvements, as well as a potential natatorium, ice rink, or indoor practice facility to benefit competitive and recreational sports.

Proposed South Campus Plan

Landscape and Site Connections

The 2015 Plan proposes a landscape that establishes a cohesive open space environment to help the university function better as a place of study and social interaction while enhancing its environmental stewardship. The proposed open space system builds upon three primary landscape typologies—natural, cultivated and transitional landscapes, linked by streetscapes and pedestrian pathways.

The 2015 Plan proposes a hierarchy of pedestrian pathways, including primary/site service, secondary and tertiary paths, and trails. A key component of the 2015 Plan is to connect the campus from "hilltop to hilltop," mitigating current topographical challenges through pedestrian bridges and landscape treatments, which will enhance the quality of walking to destinations across campus. Primary paths are significant circulation routes that clearly link different campus areas. A strong east-west link between the Academic and West Village Cores is proposed near Stephens Hall, past the University Union, across the Osler Drive pedestrian bridge, and toward West Village. A proposed north-south path links the Academic Core to the South Campus and is a pedestrian link to the Towson business area to the north, providing a safe and pleasant walking and biking path for the community. Secondary and tertiary paths link spaces and buildings within each Core with trails—used primarily as recreational paths for bikes and pedestrians—that serve the university, neighboring institutions and the surrounding community.

The Osler Drive pedestrian bridge has been instrumental in improving the connection and cohesiveness of the campus. Likewise the proposed bridge connecting the South Campus to the Academic Core will greatly reduce the perceived distance between these centers.

Open Space Plan

Forested Areas | Campus Quads and Fields | Major Walkways | Bridges

D. Develop a More Sustainable Campus

Towson University signed the American College and University Presidents Climate Commitment on August 30, 2007. In doing so, this placed the university among nearly 685 other leading institutions that have pledged to neutralize greenhouse gas emissions on their campuses. The university aims to achieve this goal by implementing a climate action plan integrating sustainability into the curriculum and taking the following immediate steps to reduce greenhouse gas emissions on campus:

- Amending its construction standards policy to require that all new campus construction is built to the U.S. Green Building Council's LEED Silver standard and/or IgCC Building Standards embracing low-impact design strategies.
- Providing access to and encourage the use of alternative transportation for all faculty, staff, students and visitors.
- Minimizing campus waste through source reduction, recycling, composting, and additional materiel management.

Towson University has also pledged to reduce energy consumption. The university embarked on the Department of Energy Better Building Challenge to reduce energy use by 20% by 2020. This can be achieved through proper building placement and design, development of efficient utility systems, and transportation demand management. In addition to energy conservation, the university actively pursues the integration of renewable energy sources with each new capital project.

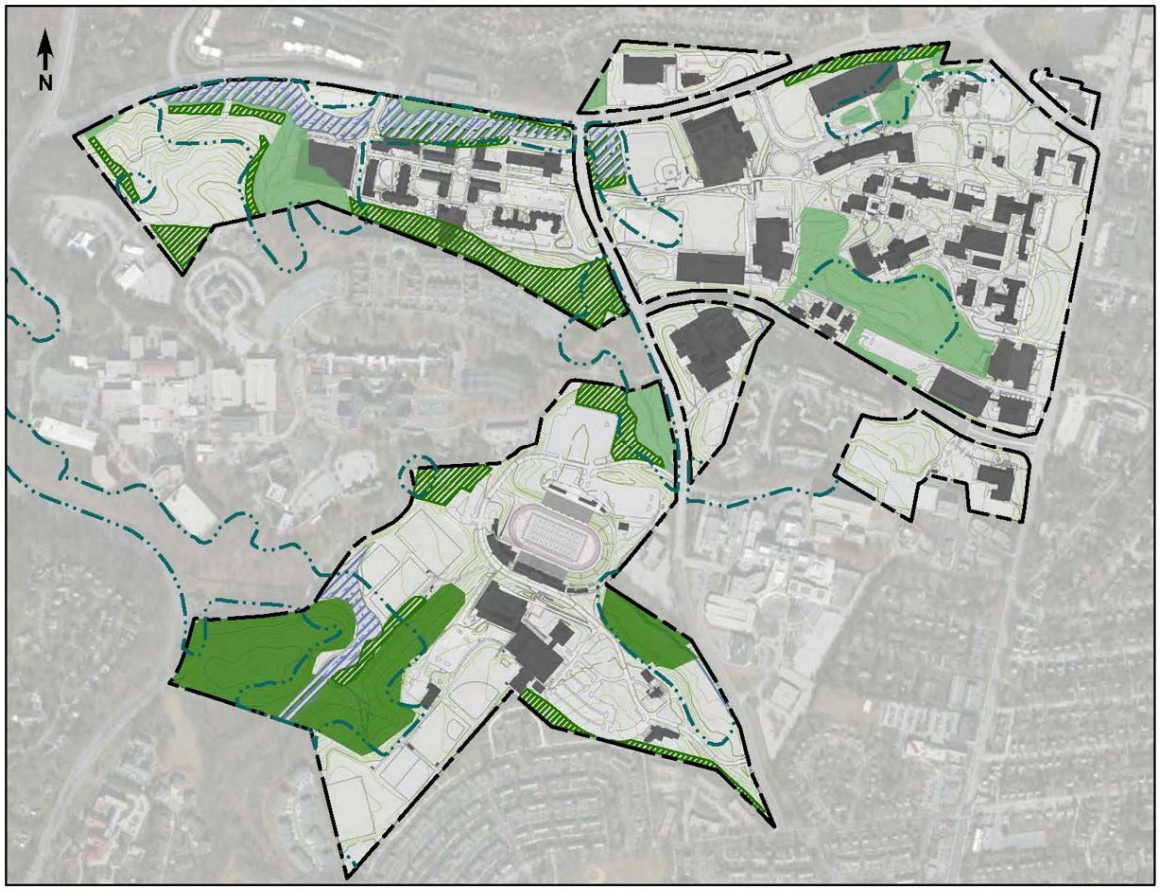
Utility Infrastructure and Energy Systems

Powering, heating and cooling of campus buildings currently generates 58 percent of the greenhouse gases emitted by the university. Therefore, a goal of the 2015 Plan is to improve energy efficiency, reduce carbon emissions, and provide operational redundancy within the Academic Core through expansion of the central utility loop. The first phase of the College of Liberal Arts and Campus Site and Safety projects expanded the central utility plant and developed a portion of the campus chilled water and steam loops. The 2015 Plan proposes an additional chiller, which is anticipated to be accommodated in the Smith Hall renovation, along with the completion of the central utility plant loop. An additional boiler is also planned for the central utility loop within the next 10 years. This additional chiller and boiler capacity is needed to support new buildings in the Academic Core and planned enrollment growth.

Natural Resources

Protection of natural resources such as wetlands, streams and floodplains, rare threatened and endangered species habitat, forests and specimen trees, and steep slopes are a high priority.

The university is situated within the fragile Chesapeake Bay watershed, along the western edge of the Jones Falls watershed. The campus retains components of the naturally-occurring forested character created by woodland stands along steeply sloping hills and riparian floodplain woodlands along streams. Portions of the Towson Run sub-watershed and its tributary channels are within the university property. Protecting the Jones Falls and enhancing campus streams through restoration is an important objective for Towson University. The university has placed a high priority on the restoration of the Glen and the remaining restoration of Towson Run.



Forest Conservation Easement | Forest Stand | Forest Restoration | Stream Buffer | Flood Plain

The campus is composed of 329 acres but is constrained by topography, forest conservation zones, reforestation areas, flood zones, and stream valleys. These elements add to the natural beauty of the campus and must be maintained.

Transportation and Parking Strategy

According to the greenhouse gas inventory, transportation accounted for 32 percent of the greenhouse gas emitted from the university. With this in mind, the 2015 Plan includes transportation-related capital improvement projects, recommendations for operational changes, and proposed policy changes that are synchronized with the goals, land use and growth forecasts already presented. The combined effect of these recommendations is intended to promote sustainable solutions and create a transportation network for the campus that benefits Towson University, its neighbor institutions and local residents.

The most significant impact on the transportation system will be the university's desire to build more on-campus housing. Planned enrollment growth combined with additional new housing in the West Village

and South Campus will result in a higher percentage of students living on campus and, therefore, walking or biking rather than driving to class on a daily basis.

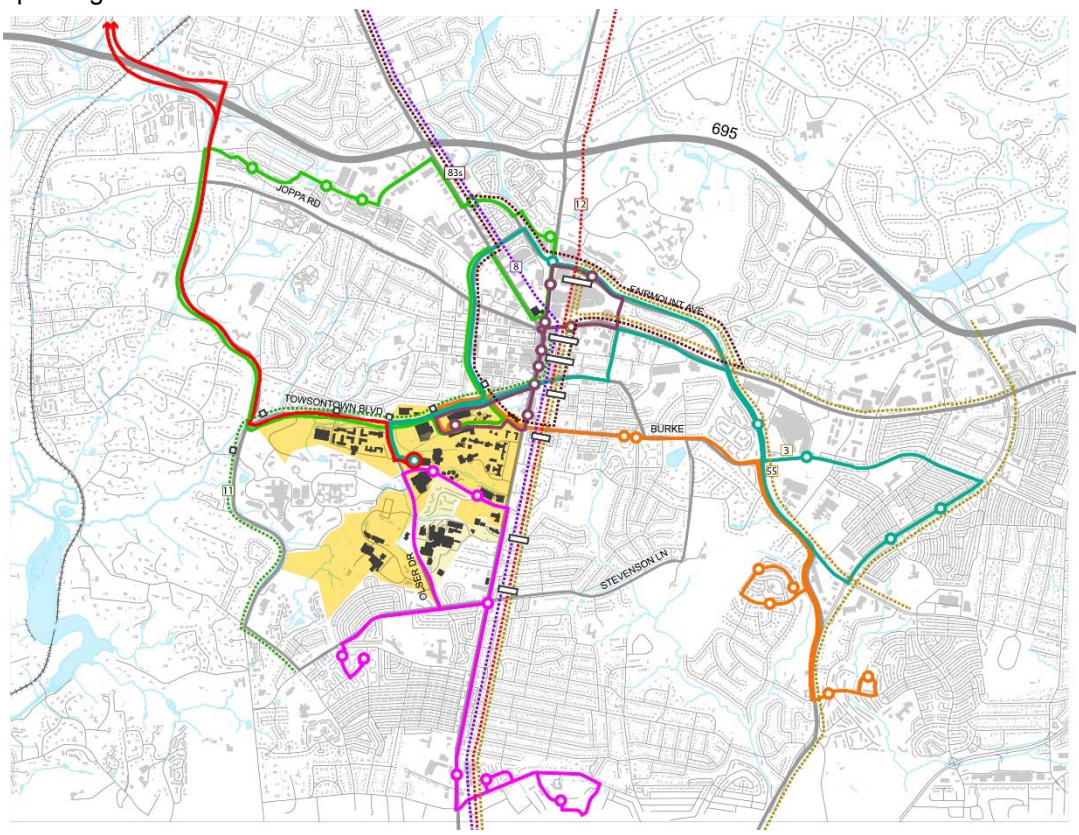
The primary transportation goals of the 2015 Plan are to:

- Create a “Park Once, Pedestrian-Oriented” campus through improved walking paths, pedestrian bridges and green spaces which connect and enrich the pedestrian experience.
- Provide alternative means of transportation to reduce parking demand:
  on and off-campus shuttles, park and ride lots, carpooling and ridesharing incentives, doubling the number of on-campus bike racks, subsidized transit passes, and continue to increase access to Zip Cars.

Shuttle Routes

In an effort to better serve the campus community, the university operates six on- and off-campus shuttle routes. Two on-campus shuttle routes serve the primary destinations around the Academic, South, and West Village.

Six off-campus shuttle routes serve students, faculty and staff living in apartments or residential areas near stops along Kenilworth Drive, Goucher Boulevard, and the Timonium and Cockeysville areas. This service has significantly reduced the traffic count on and around campus, resulting in an increase of off-campus shuttle ridership to 300,000 riders within one academic year, as well as an increased use of intercept parking.



2015 Shuttle Routes

Towson College

TU Shuttle Routes

MTA Bus Routes

Parking

The primary objective of the parking policy recommendations is to create additional incentives for parking outside the Academic Core, using the on- and off-campus shuttle routes and promoting a higher utilization of parking garages.

The proposed plan would bring the total number of parking spaces on the campus to about 9,490, an increase of about 1,700 net spaces over the existing count. The phasing plan for parking also allows a periodic reassessment and refinement of parking demand as each garage enters the design phase; at this stage the capacity could be increased or decreased to correspond to changes in campus population, travel behavior, or university policy that may occur over the next ten years.

In addition to the positive results from expanded shuttle routes, the incorporation of Transportation Demand Management (TDM) measures has also resulted in a relatively flattened demand for parking permits and an average of more than 750 available on-campus parking spaces daily during peak demand.

The university anticipates both facilities and enrollment growth and will provide adequate parking. Since 2009, TDM strategies resulted in parking demand rising modestly to 6,900, with 7,766 parking spaces available on campus. More aggressive TDM measures over the upcoming years will result in a minimal increase in demand, despite the expected enrollment growth.

The 2015 Plan includes two additional parking garages: one west of the Administration Building and the other in the South Campus which will increase the on-campus parking supply to about 9,490 in the next fifteen years to accommodate projected demand.

Major Road Systems

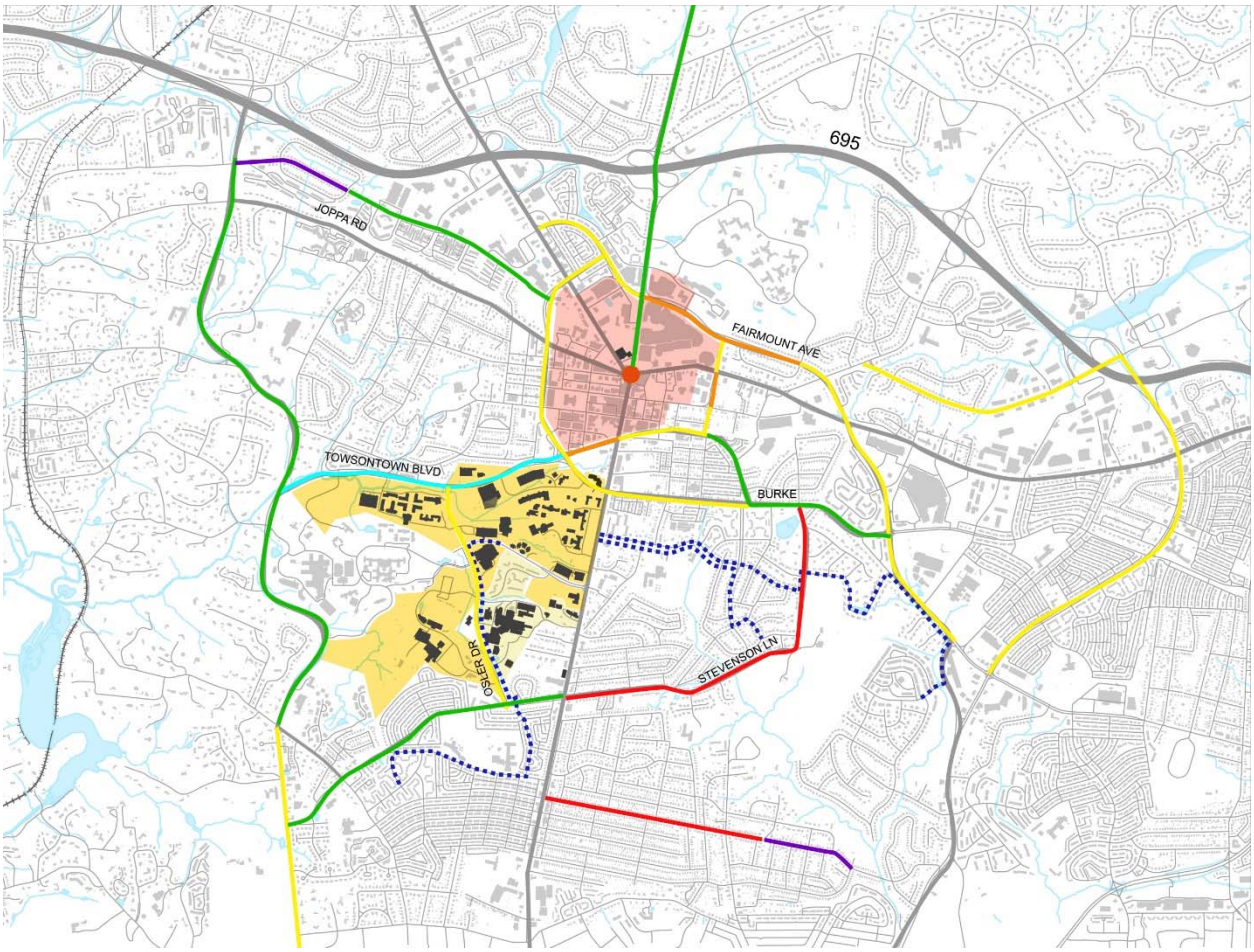
Recommendations include:

- Working with Baltimore County and adjacent institutions to assess current and projected traffic demand on adjacent roadways.
- Construction of an exclusive right-turn lane along eastbound Towsontown Boulevard at Osler Drive.
- Remove merge lanes and create traditional right turn lanes at the Towsontown Boulevard and Burke, York Road and Burke, and Cross Campus Drive and York Road intersections.

Proposed Intersection Pedestrian and Bicycle Safety Improvements

Pedestrian and Bike Circulation

The Towson Spokes bicycle plan has begun the transformation of Towson into a much more bike friendly community. The 2015 plan builds upon this framework with the development of a "bike beltway" around the campus perimeter. The new shared bike and pedestrian path will be built along Towsontown Boulevard, York Road, Cross Campus Drive, and Osler Drive. In addition to the new bike lanes, additional bike racks are proposed indoors and out to accommodate bike commuters and residents alike.



Baltimore County Bicycle Master Plan

TU Recommended Bike Paths

The following pedestrian and bike improvements are recommended to better connect the Academic Core to the surrounding activity centers:

- Provide a stairway, path and lighting to connect Towson Place Apartments with the walkway along the east side of the Center for the Arts.
- Construct new sidewalks along the west side of Osler Drive.
- Construct a pedestrian bridge over Cross Campus Drive with future University Union expansion.
- Construct a pedestrian bridge over Osler Drive from the Center for the Arts to the South Campus.
- Provide bike lanes on appropriate new campus walkways and bridges.
- Develop a new bike and pedestrian "beltway" around the campus perimeter streets.
- Add bike racks in key areas of campus. Reassess locations and quantity on an annual basis.
- Increase bike storage and amenities.

Off-Road Bike Boulevard On-Road Bike Route Bike Path

Proposed Bike Beltway

E. Define Clear Edges and Centers

While the historic frontage of Stephens Hall along York Road is the most recognizable edge of Towson University, the surrounding edges of campus are rather unclear to visitors. The existing campus lacks identifiable “gateways” and other secondary entrances that give it a “sense of place” and signal to an unfamiliar driver that they have arrived on campus. The university would benefit from an improved wayfinding system that allows visitors to easily access parking and buildings, either by foot or in a vehicle. The new brick piers and signage at Towsontown and University Avenue create a strong gateway into this portion of the campus, but the other edges are undefined. Using the new gateway elements, campus edges and secondary gateways can be defined.

The campus landscape also plays an important role in identifying and distinguishing campus gateways. Gateways are located at each end of University and Burke Avenues and serve to identify visitor entrances. Visitor parking will be accommodated in campus garages, surface lots and by street parking. The future Enrollment Services (A) building will be located adjacent to the Towsontown Garage, with a convenient drop-off circle near the new main gateway (B).

The 2015 Plan was created with a goal of welcoming the community onto campus for cultural, educational, athletic, entertainment, and recreation opportunities. Campus venues such as the Center for the Arts, the University Union, Unitas Stadium and the SECU Arena are key to facilitating this connection between the community and the campus, and future construction will strive to foster this relationship.

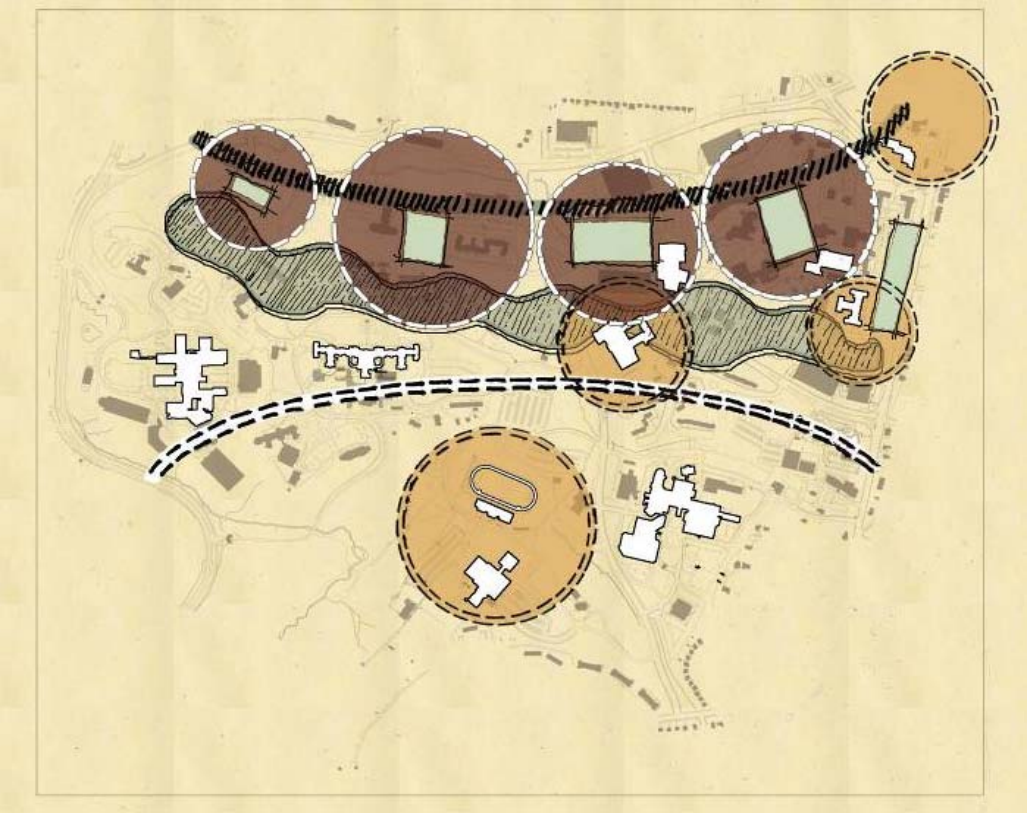
Towsontown Boulevard Campus Entrance

4.2 Concept Plan

The concept plan is a broad-brush organizational diagram used to structure the campus physical development plan. This concept is based on the planning principles. The concept plan proposes structuring the campus along the east-west axis along the topographic features, waterways and road network already defining movement on campus. The concept uses three east-west organizing features: a landscape edge, a woodland buffer and a consistent path.

The landscape edge follows Towson Run and Towsontown Boulevard along the north edge of the campus. Through the development of a consistent edge to the campus, the definition between campus and community can be reinforced, the university can better define the image it portrays to visitors and it becomes possible to create discreet thresholds and entries into the campus. This continuous landscape element also provides an opportunity to connect the Academic Core and West Village with a defined path. The use of landscape as connective tissue of the campus along Towson Run provides the opportunity to improve the health of this stream as it passes through the campus.

Currently, the Glen and the wooded slope of the West Village act as a separation between the northern half of campus and the southern campus and the adjoining institutions. The concept plan proposes the use of this natural asset as a break between areas of development. The wooded areas can create a separation between the development at Sheppard Pratt, GBMC and St. Joseph Hospital to provide a backdrop for the development of new facilities on the Towson University campus. Providing continuity of this wooded corridor would also improve its viability as a natural amenity and provide an opportunity for passive recreation on the campus.



The 2015 Campus Master Plan builds on the overall concept plan from 2003.

On the southern side of campus, the four institutions have a series of individual entry points and internal circulation loops off of the major public roads. The plan proposes the alignment of these entries and the possible connection of these circulation paths in order to simplify, improve safety and greatly improve the efficiency of vehicular and pedestrian circulation through and to the four institutions.

Within this framework, the concept plan proposes the creation of distinct precincts of development on campus. These precincts would be set within the east-west armature and consist of a series of buildings focused around a distinct open space. The open space acts as the connector for the built fabric of each precinct and the buildings act to focus the life and energy of the institution back into the open spaces creating a visible, vibrant campus life.

In addition to the precincts focusing on campus life and activities, the plan proposes the creation of nodes of public interaction. The nodes are typically a building or facility that house programs attracting the public for events or daily use. Drawing the community into campus for cultural, educational, athletic or entertainment opportunities is a major goal of the plan. Therefore, the development of clear points of activity and interaction are important to making the connection between the community and the opportunities available on campus.

The last element of the concept plan is a clear network of pedestrian paths through the campus. This network provides an opportunity to connect the internal campus components and also connect the residential neighborhoods adjacent to the campus and the Towson business district.

The concept plan envisions a campus built around a series of centers each with active open spaces surrounded by a dense fabric of buildings. These centers are set within a strong framework developed by the hillsides, forests, streams and landscape areas, in conjunction with a clear vehicular and pedestrian circulation network. The strong patterns of buildings and landscape areas allow for the development of defined edges and gateways to the campus.

Proposed Campus Master Plan

- Existing Towson University Building
- Proposed Building

4.3 Proposed Campus Plan

The proposed plan reflects the dramatic needs of the institution and the significant constraints of the campus setting. The needs of the campus for academic space and additional housing capacity create the opportunity to better organize and concentrate the functions on campus. The proposed plan contains the Academic Core, the South Campus and the West Village.

The Academic Core is centered around a new green space created at the entry of the library and is flanked by the College of Liberal Arts building and the new College of Health Professions building. In addition to anchoring the new space, these buildings will turn the face of campus towards the new orientation on Towsontown Boulevard and centralize the departments that are currently dispersed through campus. With the consolidation of these departments in new facilities, the vacated space can be renovated for new occupants allowing further growth for the College of Education. The Fisher College of Science and Mathematics will be relocated to the new Science Building adjacent to 7800 York Road. An addition to Cook Library will act as the focal point of the new space and a connector between the new campus green and the Stephens Lawn on York Road.

The completion of the new Science Building allows for the renovation of Smith Hall for Visual Communications and Technology. The new Health Professions Building consolidates the program into one building and allows the removal of Linthicum Hall which will allow for the expansion of the campus Quad.

Burdick Hall and the University Union, along with recreational fields currently form the bulk of the campus student life facilities. The addition to Burdick Hall currently under construction will greatly improve student recreation facilities. There is also currently a lack of student organization and meeting space in the University Union. The Campus Master Plan proposes an addition to the Union in order to improve the quality and quantity of student life space and to create a Student Life precinct surrounding expanded outdoor recreational fields on the east side of Osler Drive. To provide easy access for students and visitors, a new Enrollment Services building is planned between Burdick Hall and the Towsontown Garage.

New housing near the renovated Residence Tower will allow for the removal of Prettyman and Scarborough halls and the development of future academic space and an improved connection to downtown Towson across an improved York Road and Bosley intersection.

On the west side of Osler Drive, the creation of the new Enrollment Services building will allow for the redevelopment of the land surrounding the current Enrollment Services building, in addition to the land currently occupied by surface parking lots. The West Village will contain significant amounts of additional student housing, and passive outdoor recreation space.

On the South Campus new student housing, which may include Greek style housing, is proposed with a new pedestrian bridge link back to the Academic Core. By mixing residential with Athletics, this part of campus will be more unified with the overall campus plan.

4.4 Sustainability & Resiliency

As signatories of the American College and University Presidents' Climate Commitment (ACUPCC), the university has made the pledge to achieve carbon neutrality by 2050. In addition to sustainability, and in anticipation of the challenges associated with the changing climate, the university will also integrate the main principles of resiliency, as outlined by Second Nature, into future planning.

With guidance from the state and the university's Climate Action Plan, the university will continue to investigate and integrate best practices in green building, land management, waste minimization, alternative transportation, and the conservation of energy and water. The university will also continue to monitor existing sustainability benchmarks and develop additional performance metrics, as outlined by the Association for the Advancement of Sustainability in Higher Education Sustainability Tracking and Rating System (STARS).

4.5 Facilities Programs and Development

Updated space needs findings for the current and target years were assembled based on the enrollment and staffing projections provided to the consultants by the institution. Enrollment in existing programs on the Towson campus is projected to increase from 16,320 Full-Time Equivalent Undergraduate Enrollment (FTE) in 2014 to 19,825 FTE undergraduates in 2029. The institution provided the consultants with the 2014 facilities inventory and percentage growth rates on a program by program basis that applied to enrollment in the fall 2014 course file. The increased staff needed to accommodate the projected enrollment growth will be primarily faculty, and projections of increased staff were provided to the consultants by the institution. The chart below further explains the university projections through 2029:

Towson University Growth, 2009-2029 (projected)

Category	*Historical* fall 2009	*Current* fall 2014	*Projected* fall 2024	*Projected* fall 2029
Headcount Enrollment - Institution [1]	21,177	22,285	25,034	27,193
Headcount Enrollment - Towson Campus	19,500	20,459	22,982	25,000
FTE Undergrad Enrollment - Institution [1]	15,986	17,188	20,432	20,974
FTE Undergrad Enrollment - Towson Campus	15,533	16,320	19,400	19,825
On-Campus Student Housing	4,385	4,972	7,760	7,930
On-Campus + Adjacent Student Housing [2]	5,495	6,082	8,870	9,040
Parking Spaces	7,279	7,776	9,290	9,490

Notes:
[1] *Institution includes: main Towson campus, satellite campuses, and online education*
[2] *TU Adjacent Student Housing includes: University Village (585 beds) and Towson Place (525 beds)*

The space needed in comparison to existing facilities at the target year enrollment mix was determined by applying guidelines as established by the Maryland Department of State Planning, the Council of Educational Facility Planners, International (CEFPI), and the Western Interstate Commission for Higher Education (WICHE), as well as best practices for other colleges and universities whose size and mission are comparable to Towson University.

The *Capital Improvement Program Study for Enrollment Growth* phasing plan outlines and prioritizes new construction to meet the needs created by anticipated growth at the university.

The Campus Master Plan has identified a series of prioritized projects intended to address the current and projected space needs of the campus, as well as update existing facilities. A major goal of the plan was the consolidation of academic facilities within the Academic Core, as well as the consolidation of academic colleges/programs in one or more closely related or linked buildings, requiring a more efficient use of the existing land. This requires infill within the existing precinct, additions to existing buildings and the demolition of some buildings to create sites for new construction.

New Buildings

The first step in addressing the space needs identified requires the construction of new facilities:

Science Building

The Fisher College of Science and Mathematics will have 316,000 GSF / 184,000 ASF of new classroom, lab and research space with the new Science building, while maintaining space in 7800 York Road for Computer Science and Mathematics. The new building will allow for the Fisher College of Science and Mathematics to move from Smith Hall.

College of Health Professions

The College of Health Professions Building (250,000 GSF / 130,000 ASF) will flank the lower campus green opposite the Liberal Arts Building along University Drive. All departments within the college will be relocated into this facility with the exception of Kinesiology and the Wellness Center, which have special needs better suited to existing buildings nearby. The building will also act to screen the service courtyard of the central facilities plant. The configuration of the building will also require the replacement of the existing fuel oil tanks located adjacent to the central plant.

Enrollment Services

The Enrollment Services Building (90,000 GSF / 54,000 ASF) will be situated between the Academic Core and the Student Life Precinct at the main campus entry at Towsontown Boulevard and University Drive. Enrollment services, tutorial service, assessment, academic advising, student disability services, developmental education, career services, the English Language Center, and the International Student Scholar Offices, currently located in buildings across campus, will be consolidated in the new facility creating a one-stop location for students. Also to be located in the new facility are the visitor's center and admissions offices, providing a convenient front door location for these public functions. Convenient parking for this facility will be located in the adjacent Towsontown Garage.

Student Housing

When taken into the context of the Master Plan enrollment increase, Towson is proposing to create housing on a scale that provides on campus housing for nearly 78% of its proposed full-time equivalent undergraduate enrollment growth on campus. Total on-campus housing would grow from 4,972 beds today to 7,930 beds by 2029, which is over a 59% increase. With an enrollment increase of slightly more than 21% and an on-campus housing increase of 59%, a higher percentage of students will be living on campus. To accommodate this growth, new student housing facilities will be located in the West Village area as a phased redevelopment of the Enrollment Services Building site, housing in the South campus, and adjacent to the Glen Complex. Greek style living could be provided as part of the South Campus housing development.

Parking Structures

New parking structures will be constructed to provide approximately 1,750 net additional parking spaces to accommodate enrollment growth, and to offset the loss of existing surface lots being redeveloped for building sites and additional green spaces/recreation fields.

4.6 Facilities Renewal

Existing Towson University buildings, with a few exceptions, were designed and built over 30 years ago for a different student population, teaching methodology, life safety standards and energy use standards. As a result, many of the academic programs have outgrown their existing facilities in terms of size and capacity, technological capabilities and configurations to support modern teaching pedagogies. Very few major building systems infrastructure, life safety, space configuration and equipment upgrade projects have been undertaken in existing buildings over the past two decades, which has in turn resulted in the substantial growth of the campus-wide deferred maintenance backlog.

As a part of the Campus Master Plan, a rigorous program of renovations, additions and building replacement has been proposed to support enrollment growth, offset the deferred maintenance backlog, and to deliver modern instructional and student support spaces. Following the creation of new facilities to address the quantitative space deficits, significant investment in existing facilities is needed to improve the qualitative deficits existing in many of the current buildings.

Renovations and Additions

Hawkins & Psychology
The College of Education, currently housed in Hawkins Hall, has outgrown its current facilities and will continue to grow over the next decade, necessitating some form of expansion to accommodate its needs. The College of Liberal Arts building will accommodate the Department of Psychology, allowing the College of Education to expand into the neighboring Psychology building and surge space for the university. Both buildings require significant renovation, which can be phased to allow for renovation of the Psychology building prior to occupancy by the College of Education followed by a full renovation of Hawkins Hall.

Stephens Hall / Van Bokkelen Hall Renovation
The College of Business and its associated centers and institutes is currently based in Stephens Hall. Along with current growth trends, the college plans to initiate new undergraduate and graduate programs creating additional projected space needs over the next decade. To accommodate projected space needs for the college, Stephens Hall and Van Bokkelen Hall will be renovated.

Visual & Communications Arts Technology – Smith Hall Renovation
With the construction of the new Science Building, the Visual and Communications Arts programs are proposed to be relocated into a renovated Smith Hall. The renovated building will provide consolidated classrooms, studios, and state of art media labs for the departments of Communications and Electronic Film and Media in the College of Fine Arts and Communications and replace space currently occupied in the Media Center and Van Bokkelen Hall.

Cook Library / Media Center Expansion / Renovation
The Cook Library addition (75,000 GSF / 45,600 ASF) will act as the head of the new campus green and the focus of the Academic Core, placing the library at the heart of the academic life of the university. The addition will contain a lobby with a single control point and a 24-hour study lounge that is open both to the north (on the green) and south (the Glen and Van Bokkelen Hall) along with a reading room with views to

both the north and south above the lobby. The addition will allow for a major renovation of the existing facilities which have not been renovated in 30 years and will free area in the existing building to provide renovated space for various support and training functions housed in the existing buildings, including Computer and Network Services, Center for Instructional Advancement and Technology and Media Center.

University Union
The University Union addition (80,000 GSF / 48,000 ASF) is intended to add student organization office and meeting space. The Union was originally constructed for a population roughly half the enrollment projected in the next decade and lacks sufficient space for student meetings or offices. The original building also has not been renovated and is in need of improvements. The addition will be to the north side of the existing building and is designed to accommodate the existing loading. The addition offers the opportunity to reorganize the circulation through the existing building. The main entry to the facilities will be located on the north side, along with an adjacent plaza. A new central stair is planned in the center of the existing facility connecting the existing east and west entrances to the building and creating a two story common space at the heart of the existing building.

General Services Building
The General Services addition (10,000 NSF / 6,000 ASF) is intended to deliver much needed maintenance and trade shops and storage. In addition, office space for increased staff to support growing campus enrollment and building stock will also be needed.

Building Removal

The university is a careful steward of their facilities and the investments made over time, however in some cases continued investment in existing facilities is not fiscally sound or a more effective use of the land necessitates the removal of a particular building.

- As previously planned, **Linthicum Hall** will be removed and the Academic Core will expand outward and the new campus green will be developed.
- **Dowell Health Center** is a small two-story building which has outlived its useful life.
- **Glen Esk** will be removed to accommodate the new Health Professions Building.
- **Stephens Annex** is a one-story temporary building which has outlived its useful life. The Annex will be removed to facilitate the expansion of Cook Library.
- As mentioned in the discussion of the West Village and the new Enrollment Services Building, the existing **Enrollment Services Building** in the West Village will be removed to allow for additional on campus student housing.
- As part of the long-term development of the capacity of the campus, **Prettyman and Scarborough Halls** will be removed for future academic space expansion once replacement housing has been developed adjacent to the Residence Tower.

4.7 Campus Landscape

Academic Core: Existing Aerial View 2015

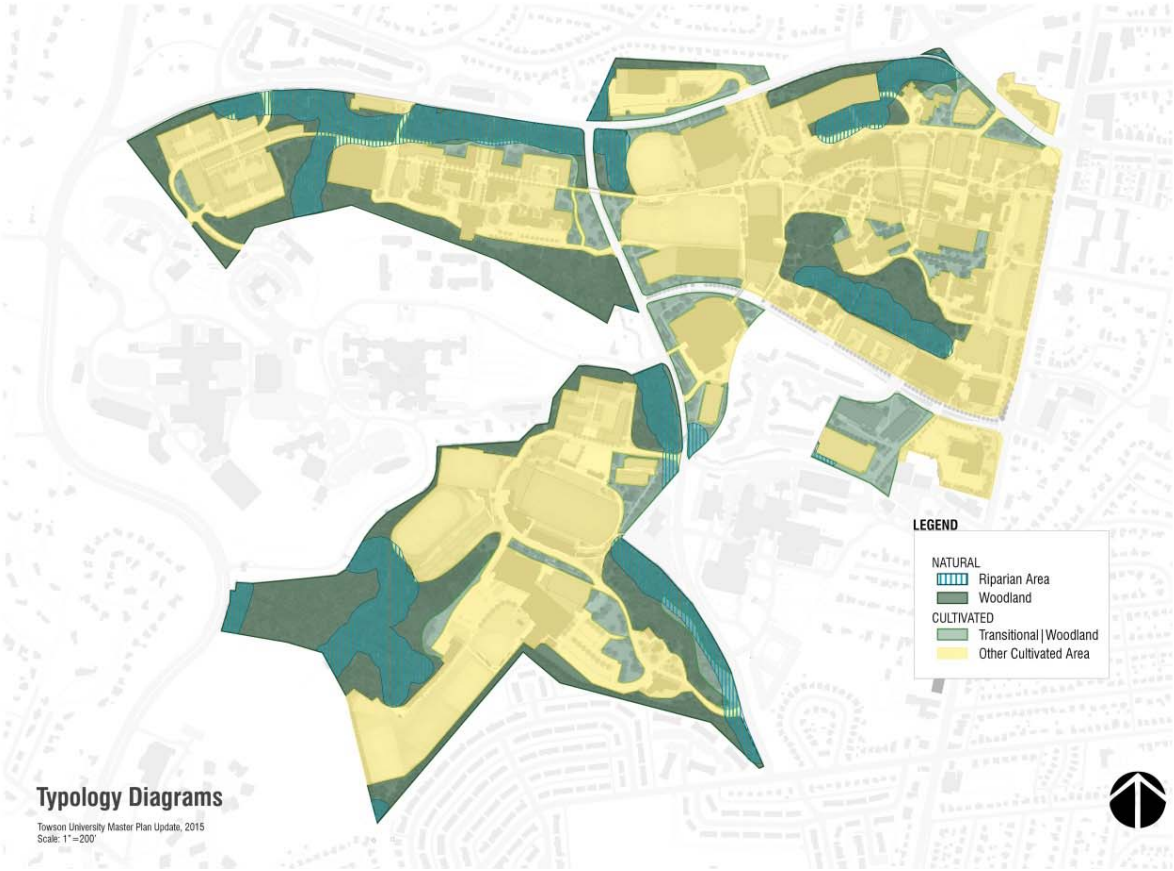
Academic Core: Proposed Aerial View

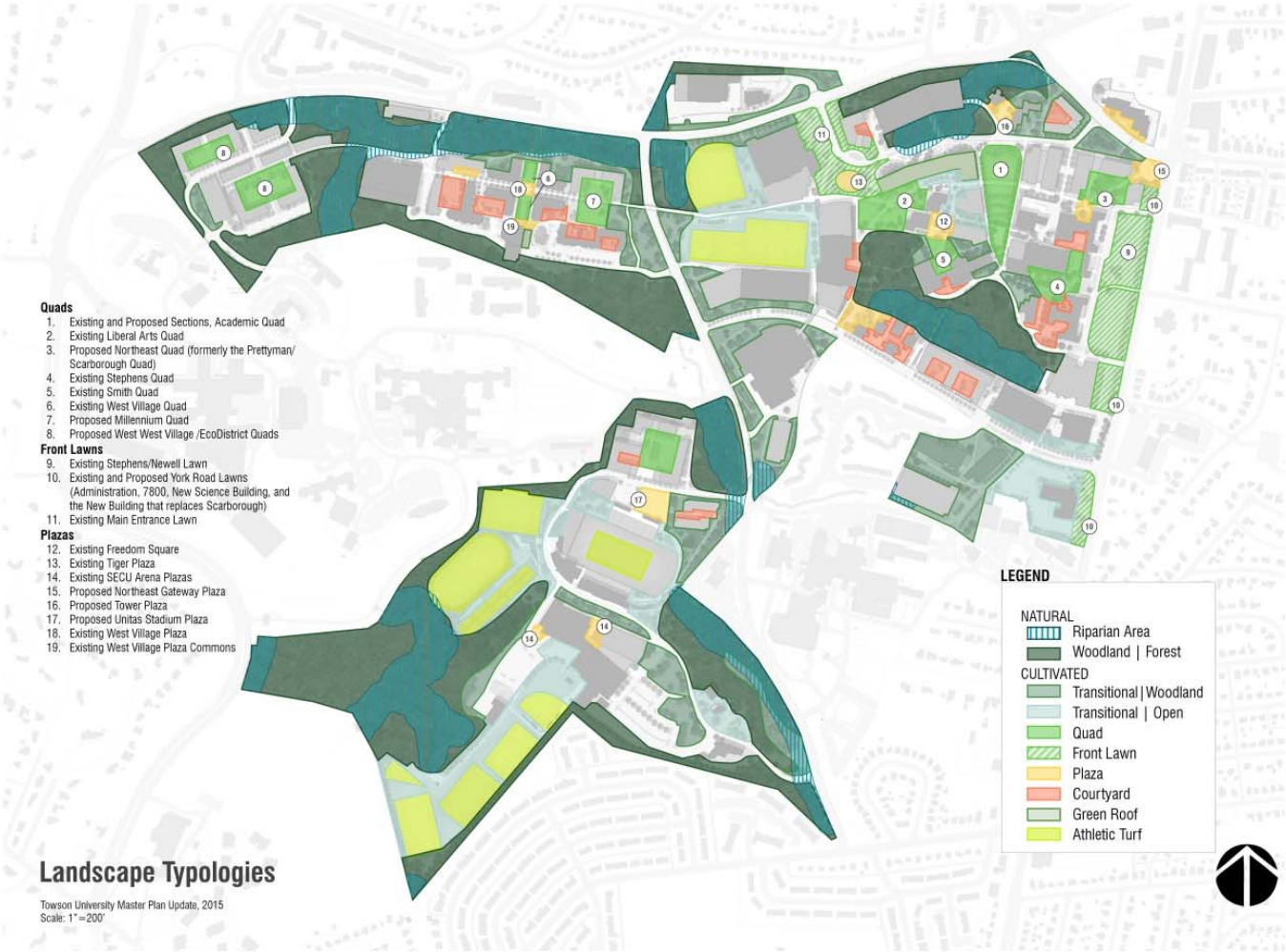
Landscape / Open Space Considerations

The open space system and landscape establishes the framework around which the university is developed. A well-defined and designed open space system will help the university function better as a place of study and social interaction. The best way to create strong open spaces is through the placement of buildings; however, landscape design plays an important role as well. Trees can be used to define edges or reinforce them. Conversely, inappropriately situated landscapes can weaken the campus fabric and erode a sense of organization. While the design of open spaces can vary greatly throughout a campus, the fundamental components of successful campus landscapes are large canopy trees and open lawn. Based on this premise, it is important to understand basic landscape design principles, the functional aspects of landscape and specific landscape typologies as they apply to Towson University. It is important to note that the university, in recent years, has been greatly enhancing the aesthetics and functionality of the campus open space network and landscape. The narrative that follows below and/or that follows in the *Section 6, Design Guidelines* is supported by imagery of open spaces and landscapes utilized on campus, as well as images of precedents from other institutions.

Landscape Typologies

It is important to consider the landscape design principles and functional aspects of landscape for each space within the campus. In addition, the design of spaces will vary greatly from one to the other considering their overall context—including location, adjacent buildings, program elements, and landform. Following is a discussion of the different landscape typologies that comprise the Towson University campus and how they are currently successful or could be improved and reinforced. The two primary typologies include natural and cultivated landscape.





Natural:

The natural landscapes primarily include riparian areas and woodlands. The Master Plan illustrates existing woodlands and areas where woodlands should be extended, or new woodlands created. The intent of natural landscape enhancement and expansion is to provide stabilization of slopes and to reduce soil erosion, protect water quality, reduce thermal impacts, improve air quality, cycle nutrients, provide wildlife habitat, enhance native biodiversity, and enhance the campus image, particularly along its perimeters.

Cultivated:

Cultivated landscapes are manipulated landscapes that transition between natural areas, accommodate activities, or that enhance the campus image. The cultivated landscapes vary greatly throughout the campus and may have a formal, informal, or naturalistic design, or they may be a combination of the three design types. In addition, cultivated landscapes could be predominantly paved or planted, depending on the function of the space. The Master Plan identifies several new open spaces around which new building development is being structured, in addition to those recently implemented.

The following typologies all fall under the classification of “cultivated landscapes”.

Transitional Open: Transitional open landscapes are those landscapes that connect natural areas with grassy meadows, “limited mow” areas or open lawns. They are typically not gathering spaces. These landscapes provide some opportunities to utilize vegetation other than manicured lawns where extensive tree cover is not appropriate.

Transitional Woodland:
Transitional Woodlands are those landscapes that extend the existing natural woodland canopies into the cultivated landscapes through the use of tree groves. These groves will be used in areas where it is important to provide a canopy and aesthetic connection to natural woodlands while maintaining an open ground plane with clear sight lines. This treatment is appropriate for some street edges and within quads where it is not critical to provide broad open areas offering maximum flexibility for programming.

This area connecting the amphitheater to the Glen is appropriate for tree groves that could extend the woodland canopy while preserving sightlines. The Grove at the University of Mississippi illustrates the potential effect.

The Grove at the University of Mississippi

Many of the setbacks along Osler Drive could be enhanced with tree groves to connect disparate sections of existing woodland.

Quadrangles:

Quadrangles or “Quads” include the larger open spaces that are well-defined by groupings of buildings. Generally, these are the most public of the open spaces located within the campus. The design of quads can be informal or formal, predominantly open or treed and the ground plane is predominantly manicured lawn. Generally, quads should be predominantly open where it is important to maximize flexibility for outdoor programming, informal recreation or exposure to sunshine. Treed quads, planted with groves, are appropriate where they do not need to be heavily programmed. Enhanced and proposed quadrangles include the following and are identified on the Landscape Typologies Diagram

A. Existing and Proposed Sections, Academic Quad
B. Existing Miracle Mile
C. Proposed Northeast Quad (formerly the Prettyman/Scarborough Quad)
D. Stephens Quad
E. Existing Smith Quad / Amphitheater
F. Existing and Proposed West Village Quad
G. Proposed “Beach”
H. Proposed West of West Village Quads

Campus Quads

Front Lawns:

The manicured landscape in front of Cook Library.

Stephens Hall & Newell Lawns along York Road.

Lawns can be very broad, such as the Stephens/Newell Lawn, or very narrow if they are primarily a setback area. Regardless of size, these areas are characterized by open, manicured lawn punctuated by canopy trees, and provide a positive campus image where significant architecture and landscape form a cohesive composition. The landscape goal for lawns is to place trees so that they frame buildings rather than screen them. In situations where parking occurs within the front lawn area (e.g., 7800 York Road), low hedges should be used to screen the parking while also maintaining views to the building. The Master Plan incorporates the following front lawns:

- Existing Stephens/Newell Lawn
- Existing and Proposed York Road Lawns including the Administration Building, 7800 York Road, the new Science Building, and the New Buildings that replaces Prettyman and Scarborough
- Existing Towsontown Boulevard Entrance Lawn

Plazas:

Plazas are those areas that need to accommodate large crowds of people. They are often associated with programmed events or daily campus activities. Usually, plazas are located at significant nodes, building entrances, and intersections of multiple circulation routes. They are typically comprised of significant amounts of paving and may include low walls, water features, public art, kiosks, and outdoor seating, and should encourage social interaction. The most significant existing and proposed plaza spaces include:

- Existing Freedom Square
- Existing Tiger Plaza
- Existing SECU Arena Plazas
- Proposed Northeast Gateway Plaza
- Proposed Tower Plaza
- Proposed Unitas Stadium Plaza

Courtyards:

Courtyards are semi-private or private in nature and relate closely to the building(s) with which they are associated. The design of these spaces should be closely related to the associated buildings and the functions therein.

Green Roofs

The university has already implemented several green roofs, some of which include outdoor gathering spaces, such as at the West Village Commons. While the current Master Plan does not identify specific opportunities for new green roofs, as buildings become projects, opportunities should be explored to incorporate them into the design.

West Village Commons Green Roof

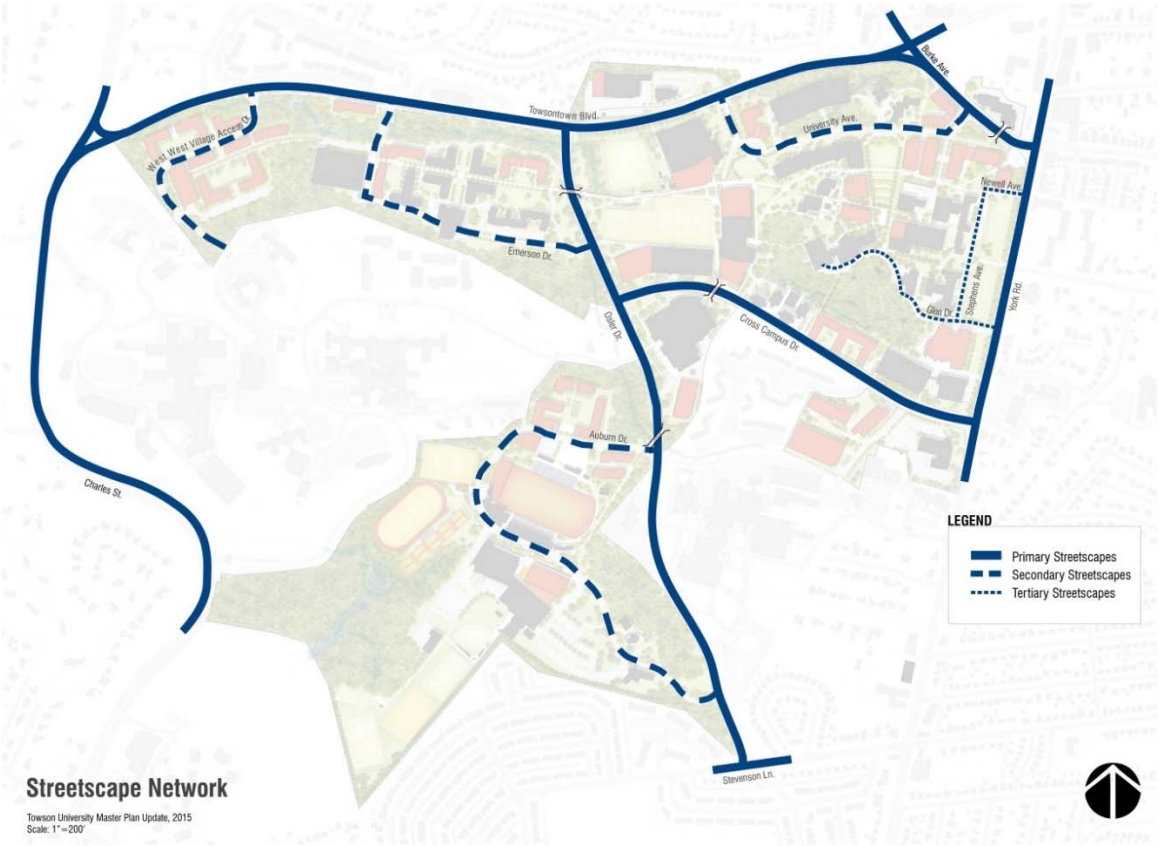
Transit Stops:

Transit stops occur within many different landscape environments. If they are part of a streetscape, they should incorporate a wider sidewalk area, bus shelter, and some ornamental planting to provide seasonal interest and to help identify the stop. If they occur within or adjacent to a quadrangle or plaza, they should be incorporated into the overall design of the space itself and located so as not to obstruct significant views into the space.

Focal Points/Special Places:

Focal points and special places are those areas that are unique and warrant a higher level of design detailing. They are places where public art, water features, seasonal flowers, and unique design materials are most appropriate. They are located at important nodes where they will have a lot of exposure and be symbolic of the institution. As described in the assessment, existing spaces include the Alumni Garden and the University Union Plaza. Others may be considered (either by themselves or part of another landscape typology) as individual site and building projects are implemented.

Streetscape Considerations



The streetscapes are important components of the campus landscape as they reinforce circulation systems, visually reduce barriers between different parts of the campus, connect tree canopies of fragmented woodlands, and enhance the overall image of the campus. Specific recommendations for each streetscape are included in *Section 6, Design Guidelines.*

Primary Streetscapes

The primary streets are those that service the local community and the university. The Master Plan identifies extensive street tree planting along these streets in formal and/or informal arrangements, as appropriate, where it is particularly important to reduce their formidable scale and to establish a positive image for the campus. Primary streets include York Road, Burke Avenue, Towsontown Boulevard, Osler Drive, and Cross Campus Drive.

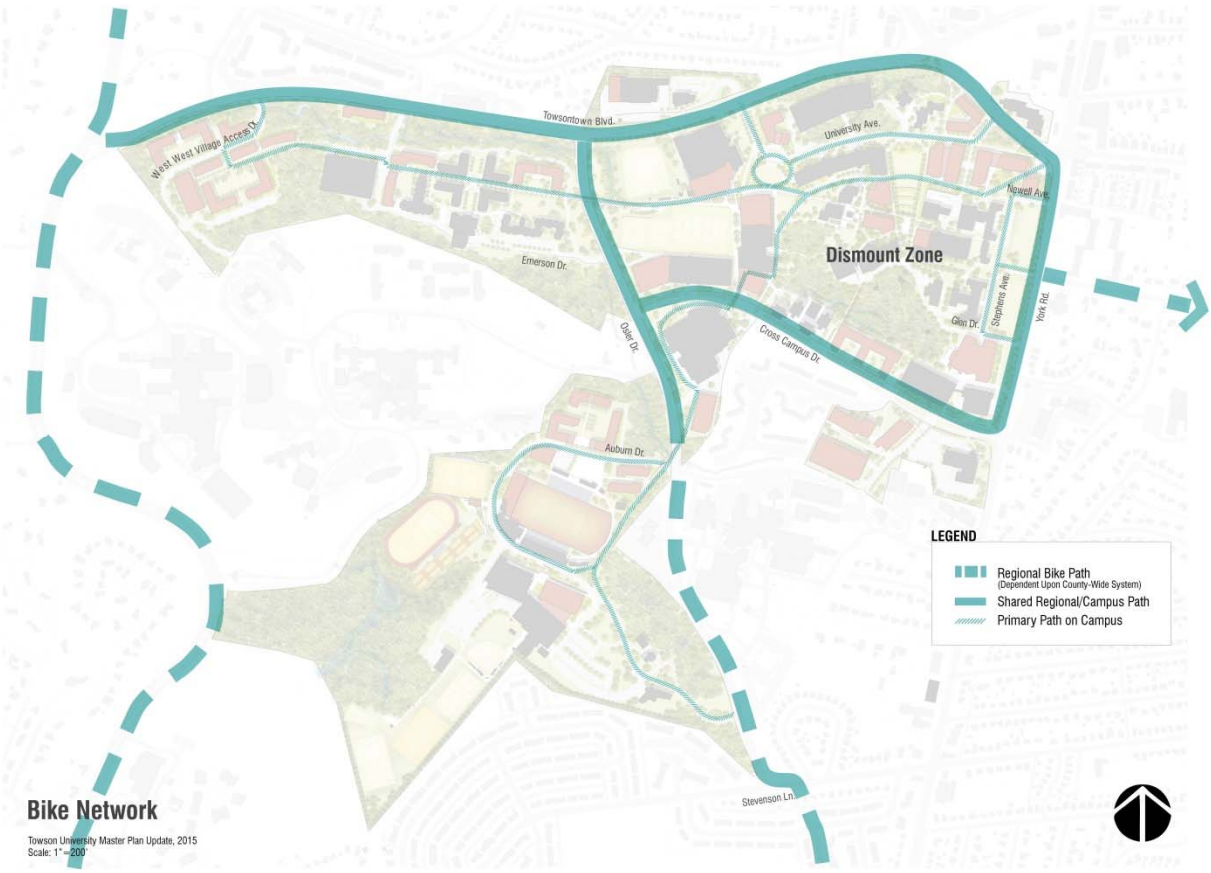
Secondary Streetscapes

The secondary streets are those through streets that primarily service the campus. The Master Plan maintains Auburn Drive as a secondary street, one that primarily services the campus. For the Auburn Drive streetscape, it is particularly important to maintain the park-like character of the landscape while accentuating the landform. University Avenue and Emerson Drive also remain as secondary streets.

Tertiary Streetscapes

Tertiary streets are those that provide access to specific buildings, services, and parking areas. Tertiary streets that will remain as part of the Master Plan include Glen Drive, Newell Avenue, and Stephens Avenue. The streetscapes of each of these will respond to the overall landscape design of the spaces through which they pass.

Bicycles



As the diagram above illustrates, dedicated campus bike paths will continue to be created as part of a campus-wide and regional bike network. For the regional network, two-way dedicated bike lanes are proposed to run on campus property along the York Road, Burke Avenue, Osler Drive, and Towsontown Boulevard frontages (additional information on the regional network is outlined below). For the campus-wide network, bikes will be accommodated on most of the primary walkways to facilitate easy movement among the three precincts of campus. While some paths may be exclusively designed as trails, secondary and tertiary paths are designed to also accommodate bicycles. The Academic Core of campus is proposed to be a “dismount zone,” so bike traffic will remain on the edges along University Avenue, along the north/south primary walk, and along the York Road frontage. A more detailed description of bicycle paths on campus is included in *Section 6, Design Guidelines.*

The regional bike network described above is proposed to tie into a County-wide bike system. While this regional system is not fully developed, there are some initial thoughts that should continue to be considered. Following is a description of some of the initial thinking from completed studies.

The Eastern Baltimore County Pedestrian and Bicycle Access Plan, dated November 6, 2006, (www.baltimorecountymd.gov/go/bikeped) includes Towson at the edge of its study area and identifies Charles Street, Towsontown Boulevard, Burke Avenue, and Osler Drive as regional bicycle routes. However, there has been very little implementation of this plan. A second study, the *West County Pedestrian and Bicycling Master Plan,* began in 2009 and included Towson within its boundaries as well considering that Towson was at the edge of the eastern county study. In discussions with the Bicycle/Pedestrian Planner for Baltimore County and the Bicycle Planner for Baltimore City during the last Master Planning effort, the following continues to be considered:

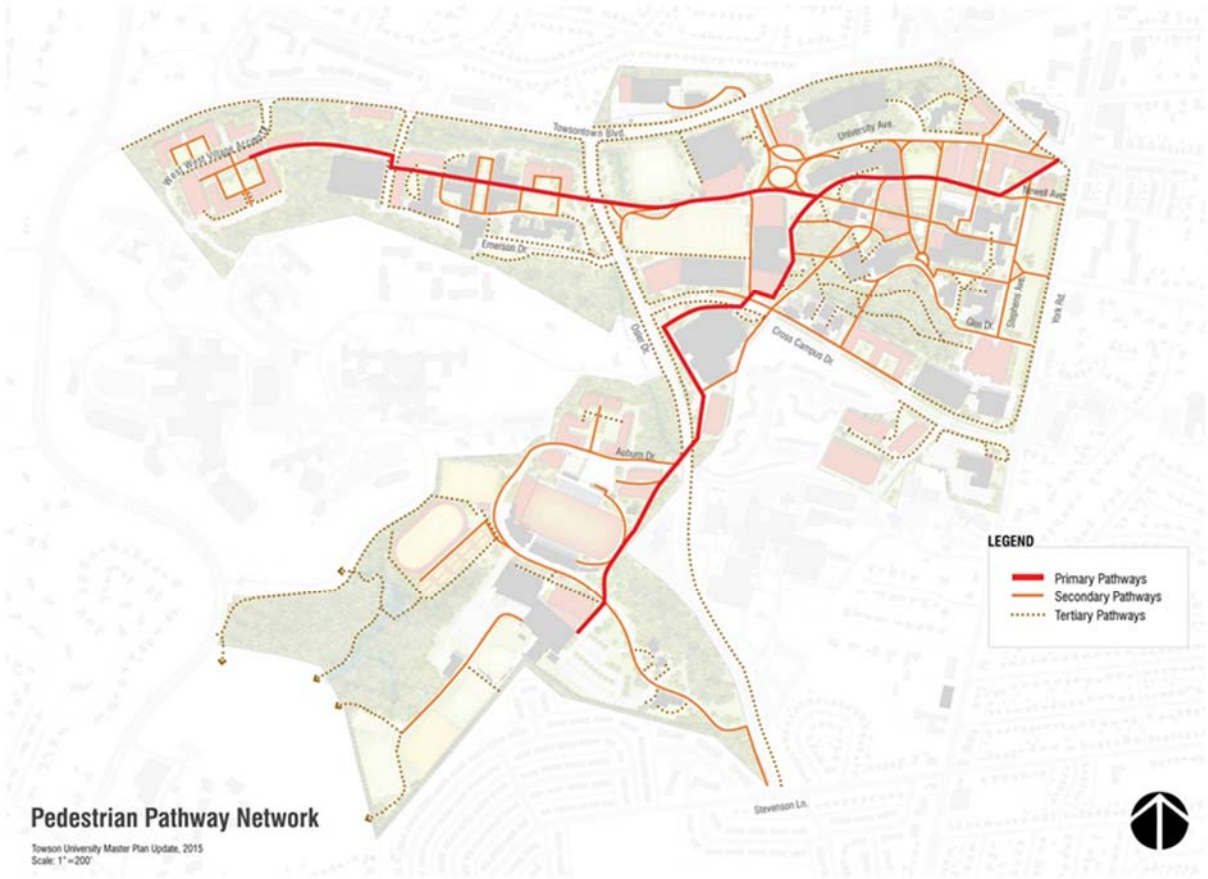
- An idea has been proposed in bicycle planning meetings in both Baltimore City and Baltimore County to direct the East Coast Greenway (or USBR-1) through or near Towson University before connecting to the Jones Falls Trail. The internal bike routes proposed east-west and north-south bike routes on the Towson University campus to accommodate connections to a number of different routes that might be considered for this greenway, including a leg along Charles Street.

- Roland Avenue is currently the north/south Collegetown connection within Baltimore City. There is a Lake Avenue bike route in the Baltimore City system which can connect to Towson University by way of Pinehurst and Heathfield to Osler Drive. These are currently labeled on the 2012 edition of the Baltimore Bike Map as “Routes Commonly Used by Cyclists.” Pinehurst and Heathfield are low volume residential streets. While they are one-way, signage can be added to indicate “Except Bicycles” located beneath the “Do Not Enter” signs. This supports the Eastern Baltimore County bike plan, which identifies Osler as a bike route. The city and county planners discourage using Charles Street or York Road for the Collegetown connection.

- Connections to Goucher College (and possibly a bike-sharing program with Goucher College) should also be considered. Discussions for making the connection between Goucher College and Towson University have included the following route from Towson University: Aigburth Road to Maryland Avenue to Virginia Avenue, and counter-clockwise around Towson Town Center to Goucher Blvd. and Dulaney Valley Road (sidewalk area) to the front gate (the 2012 Baltimore Bike Map shows the connection from Virginia Avenue via East Joppa Road, Providence Road, and Goucher Boulevard to the rear gate). With this connection in mind, and other regional connections along Burke Avenue and Osler Drive, it continues to make sense to also include Cross Campus Drive and the Towson University frontage of York Road as bike routes, as shown on the Bike Network diagram above.

The above ideas represent continuing discussions. As Towson University continues to move forward on implementation of the Master Plan, discussions should be held with the County and City bicycle planners to understand the most current bicycle planning initiatives.

Pedestrian Circulation



Pedestrian circulation is one of the most important components of a campus. The clearly defined, aesthetically pleasing pedestrian network that the university has been implementing (and continues to implement) during the past several years enriches campus life as well as helps reduce dependency on the automobile. The Master Plan recommends continuing to build upon a hierarchy of pedestrian pathways, as described below. Materials and specific design standards are described in *Section 6, Design Guidelines*.

Primary Paths/Site Service:

The primary pedestrian paths are campus-wide pathways that link different campus precincts. They are designed as broad pedestrian walkways that can also accommodate service, emergency and transit vehicles, and bicycles along all or a portion of their length. The Campus Master Plan proposes to continue implementing two primary pedestrian paths. The primary east/west link, Towson Way, currently extends from just west of York Road through the new Academic Quad, through the Liberal Arts Quad, and across the Osler Drive Bridge through the West Village. As proposed as part of this Master Plan, Towson Way will continue to the west to connect to the West of West Village and to the east where it will split to ultimately connect to York Road and the Burke Avenue/York Road intersection at the proposed Northeastern Gateway Plaza.

The second primary pedestrian path will connect the Academic Core with the South Campus along a north-south alignment from Towson Way (in the vicinity of Tiger Plaza) to the University Union. This section is currently completed. The Master Plan proposes extending this primary path across Cross Campus Drive, to and around the Center for the Arts, and across Osler Drive to the SECU Arena and

Unitas Stadium. With two proposed pedestrian bridges across Cross Campus Drive and Osler Drive, roadway and topographical barriers will be eliminated between these two parts of the campus. Because of topographical constraints and the two pedestrian bridges, this path will be designed to accommodate emergency and service vehicles only in limited areas. Bicycles, however, will be accommodated along the entire length of the north-south path.

Secondary Paths

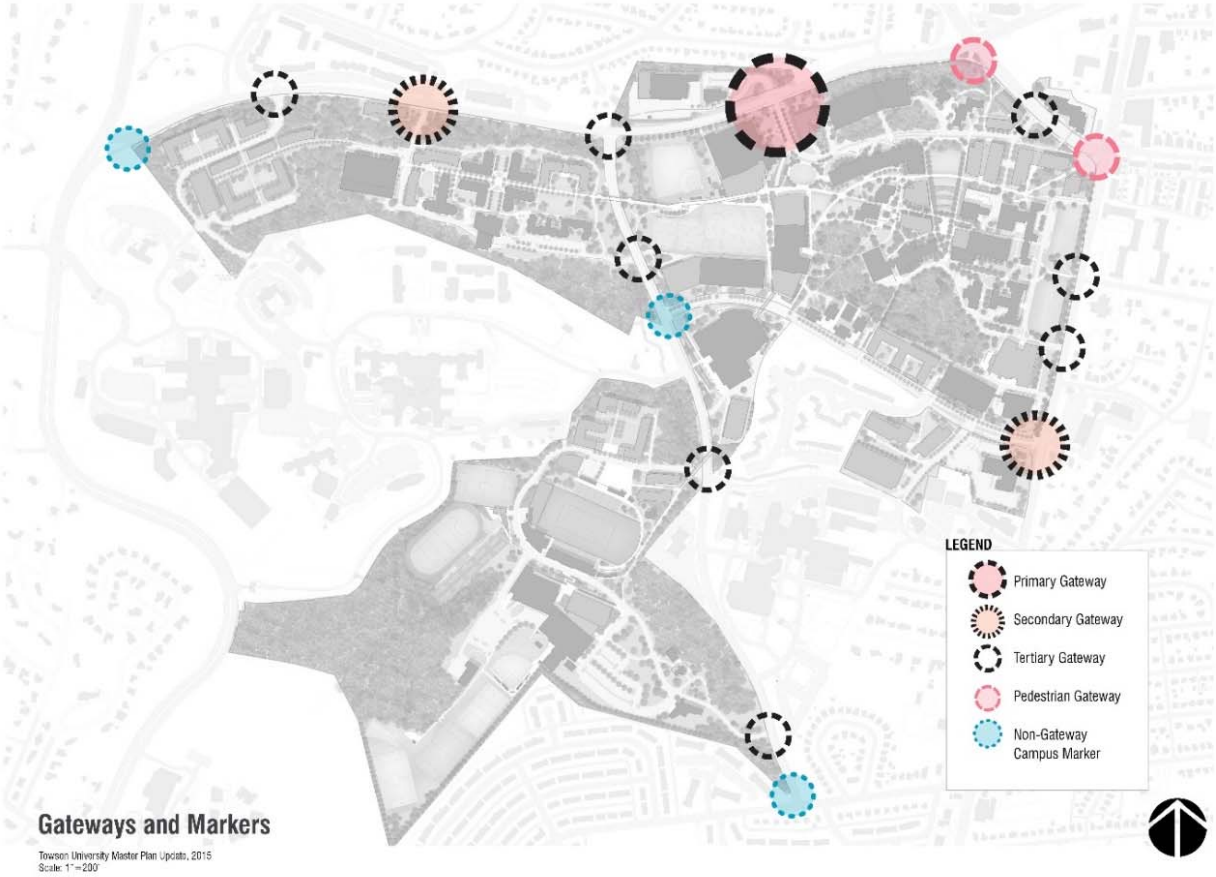
Secondary paths link areas/buildings within a specific space as well as link specific spaces within a precinct, but do not directly link campus precincts. They also include their own hierarchy as some are more significant than others. The design of these paths should be consistent within a single precinct, but may change from space to space. For example, the secondary paths currently implemented and proposed within the Academic Core are constructed of concrete paver “bricks” while secondary pathways within the West and South Campus precincts are constructed of scored concrete. This helps to elevate the importance of the Academic Core. The Master Plan illustrates general locations of secondary paths. While the actual location may change as the Master Plan is implemented, it is important to maintain the intent of the secondary paths as they help to define spaces and create clear linkages between spaces.

Tertiary Paths

Tertiary paths are relatively short segments that link buildings, parking areas and smaller spaces to the primary and secondary pathway system. Designs could vary greatly among tertiary paths as they should respond to the buildings and spaces they serve; however, within the Academic Core, tertiary paths will also be constructed of concrete unit pavers. The Master Plan illustrates where the tertiary paths might be located; however, their actual locations will be determined by the specific building designs as the Master Plan is implemented.

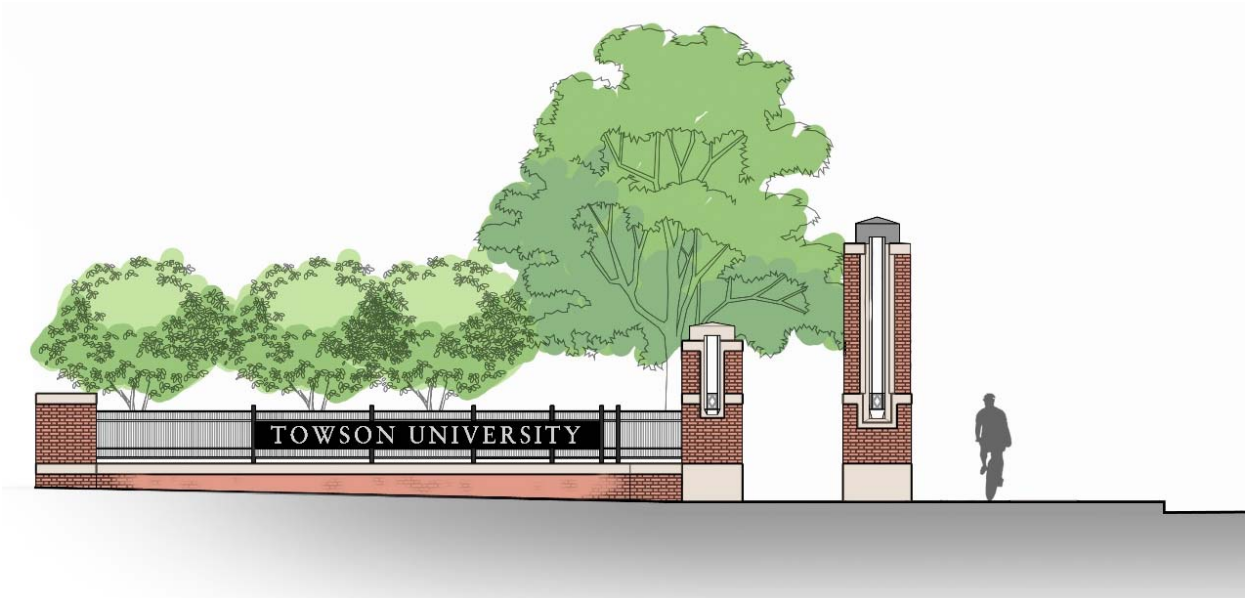
Gateways and Boundary Markers

Gateways are important transition points between the surrounding community and the campus and help provide a sense of arrival and orientation for visitors. As described earlier, the university has implemented the main entrance gateway at Towsontown Boulevard and university Avenue. The Master Plan proposes a hierarchy of gateway treatments that utilize the design elements and materials of this main entrance to different degrees and scales, as appropriate, to establish a unified image. Gateways are divided into five categories, as described below and illustrated *in Section 6, Design Guidelines*:



Primary: The main entrance at Towsontown Boulevard and University Avenue is the only primary gateway. Other gateways, as described below, will utilize the same design aesthetic and materials—however, to a lesser degree so that this entrance maintains its prominence.

Secondary: Secondary gateways are located at York Road/Cross Campus Drive and at Towsontown Boulevard/Emerson Drive. These gateways should include wall elements, piers, signage, and landscape to reinforce the identity established at the main entrance described above.



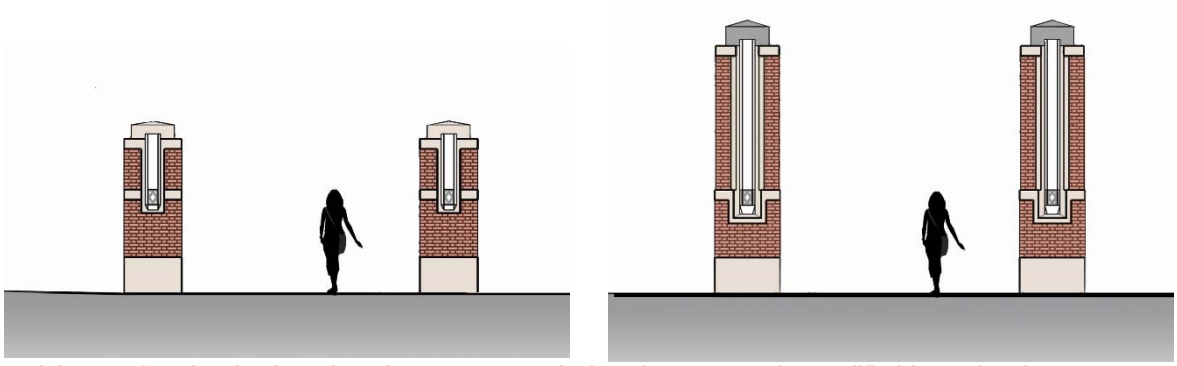
Potential example showing how the primary entrance design can be modified for secondary entrances. The actual scale and design will be determined at the time the secondary entrances are implemented.

Tertiary: Tertiary entrances are more numerous and include eight locations as outlined below. The design of each should include signage and wall or pier elements, depending upon the unique characteristics of each location.

- Towsontown Boulevard/West of West Village Entrance Drive
- Towsontown Boulevard/Osler Drive
- Burke Avenue/University Avenue
- York Road/Proposed Stephens Avenue Connection
- York Road/Glen Drive
- Osler Drive/Auburn Drive (South)
- Osler Drive/Auburn Drive (North)
- Osler Drive/Emerson Drive

Potential example showing how the primary entrance design can be modified for tertiary entrances. The actual scale and designs will be determined at the time the tertiary entrances are implemented.

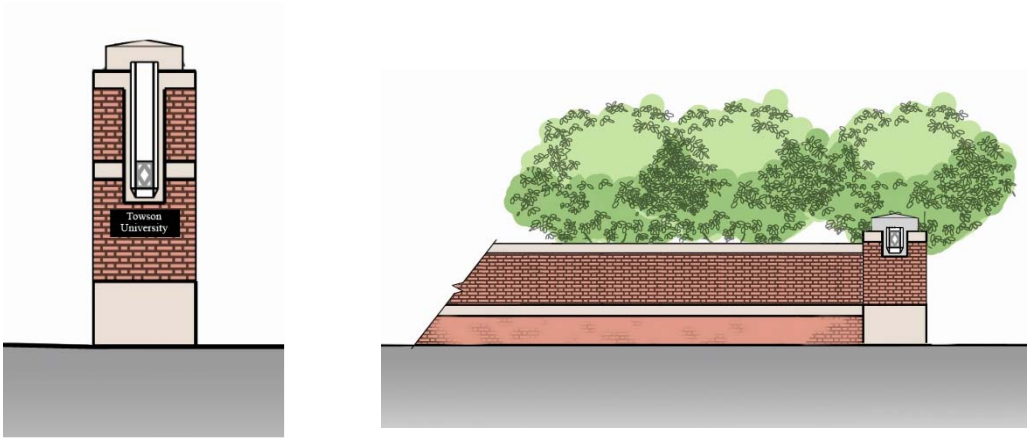
Pedestrian Only Gateways: While all gateways need to respond to both vehicular and pedestrian traffic, some gateways will be for pedestrians only. The two existing pedestrian gateways are located along Burke Avenue: one at Burke Avenue/Towsontown Boulevard and the other, a more significant gateway, at Burke Avenue/York Road.



Potential examples showing how the primary entrance design elements can be modified for pedestrian entrances. The actual scale and designs will be determined at the time the tertiary entrances are implemented.

Non-Gateway Campus Markers: In addition to physical gateways, markers will be located at three intersections to identify the campus. These include:

- Stephenson Lane/Osler Drive
- Osler Drive/Cross Campus Drive
- Charles Street/Towsontown Boulevard



Potential examples showing how the primary entrance design elements can be modified for campus markers. The actual scale and designs will be determined at the time the tertiary entrances are implemented.

Gateways Guidelines

- Gateways should be designed in a hierarchy of primary, secondary, tertiary and pedestrian-only gateways and non-gateway campus markers following the standards set with the main entrance. The level of detailing and scale of each will be appropriate to the hierarchy. Regardless of the scale and level of detailing, it should be visually clear that all gateways are part of the same design family established by the main entrance. These different classifications are described and illustrated in more detail below.

- All gateways will include Towson University identification signage, the scale of which will be determined by the hierarchy of the gateway.

- In addition to identification signage, directional signage should be located within the gateway area and thoughtfully incorporated into the overall gateway design.

- Special planting should be incorporated into the overall gateway design and scaled appropriately for the hierarchy. Planting should be done in simple massings and beds that visually support the gateway design. Overly detailed and residential-scaled planting designs that are visually distracting should be avoided at gateways. The goal should be simplicity.

Landscape Elements

Landscape elements include site furniture, lighting, signage, special features, paving, and walls. The goals of the Campus Master Plan continue to include use of a primary palette of landscape elements to unify the campus. Beginning with the first development projects in the West Village, the university has successfully incorporated unified standards throughout the campus. Proposed development projects included in this Master Plan should continue to do so in terms of site furnishings, lighting, signage, and paving. Unique designs should still be considered, however, for special places within the campus where an individual identity is important and unity with the rest of the campus is not critical. Landscape elements are described in detail in *Section 6, Design Guidelines.*



New landscape elements, such as planting and benches, are visible in West Village. Towson University has been successfully unifying the campus over the past several years with standard lighting, site furnishings, signage, and paving.

4.8 Ecological Considerations

Soil Erosion Control and Amendments

The Campus Master Plan recommends woodland management on slopes, including supplemental plantings, forestation and reforestation, that will go a long way to stabilize slopes and reduce erosion. Additionally, suggested stream restoration measures, riparian enhancements and stormwater management best management practices (BMPs) will also have a major impact on reducing erosion. Defined paths and reduction of mowed areas by conversion to landscaping and habitat areas will reduce overall soil compaction. Additionally, soils in planting and disturbed areas can be augmented with organic matter such as composted leaf mulch. Other soil enhancements such as fertilization need to be related to a comprehensive soils testing standard (See ecological management guidelines for suggestions).

Woodland Management

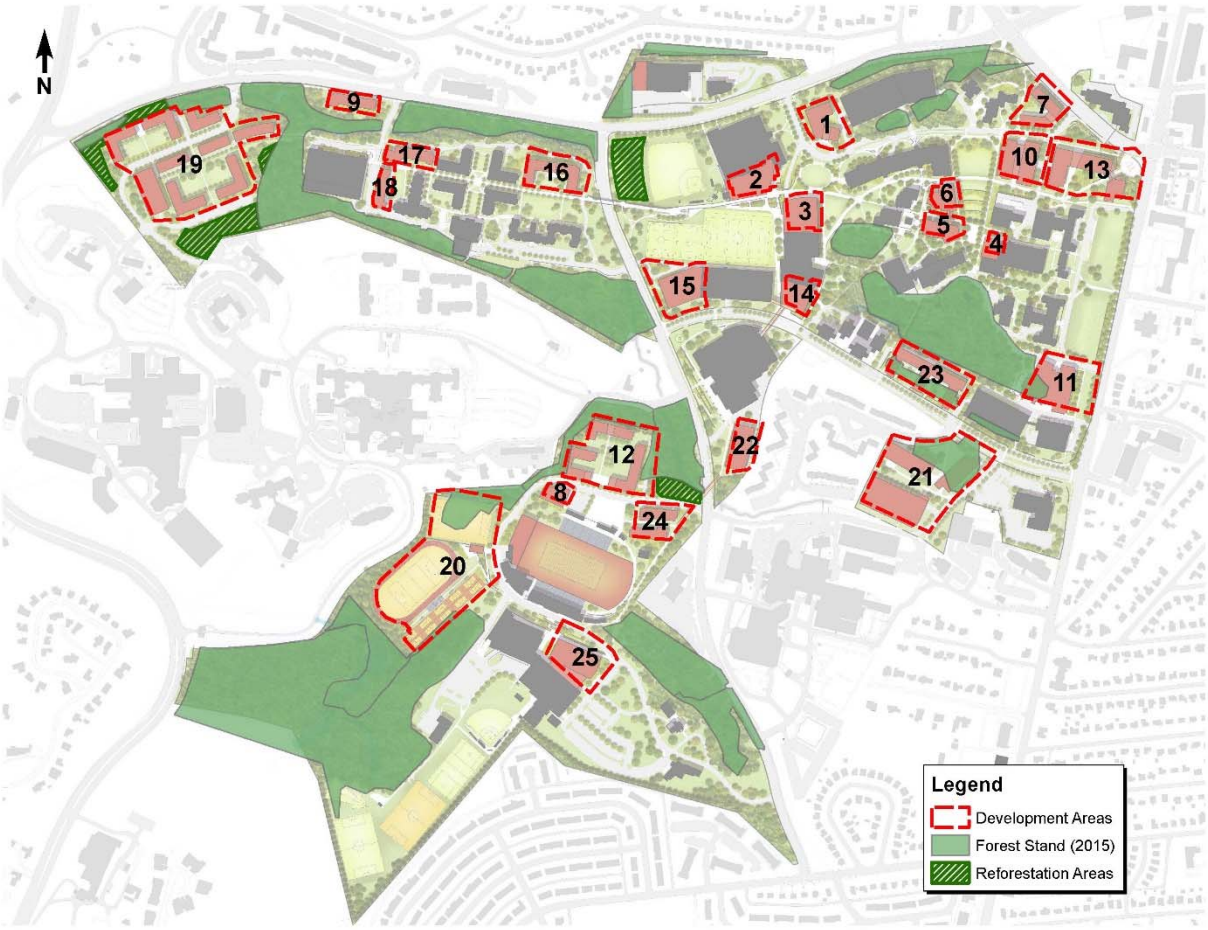
As part of this Master Plan update effort, existing forest resources were reviewed and evaluated in the context of changes from prior planning and woodland assessment efforts as well as in the context of understanding what if any forest mitigation needs might exist in association with new growth proposed under this plan update.

A total of approximately 70 acres of forest exist across the Towson University. Approximately 27 of these acres are currently in Forest Conservation Easement (FCE), of which there are currently 9.5 acres which TU can use to satisfy its future forest conservation requirements.

An analysis to determine whether the 9.5 acres was sufficient to cover proposed growth under this plan update was conducted. Computations were based on assumed disturbance footprints and using GIS overlays. A summary table with the computations associated with each proposed project is presented below along with a plan which identifies the proposed future projects

The analysis indicates that the university has sufficient banked forest conservation easement resources to cover the projected growth for the next decade. This suggests that moving forward there is not a pressing need for the university to take active steps to place additional woodlands into easement in the near future; however, the planning for some future action is warranted.

This analysis also involved research into whether a forest conservation master plan would be a better campus wide strategy to pursue for forest mitigation requirements associated with future planned growth. After conducting research and inquiries with the Maryland Department of Natural Resources it was determined that greater planning flexibility is realized by continuing to address forest mitigation on a project by project basis as opposed to pursuing an approved forest conservation master plan.



Campus Development Zones

Woodland Management Recommendations

Based on woodland assessment and analysis completed, the following actions should be considered by the university:

- Update forest stand delineations to better understand forest age, composition, and health
- Develop and implement a campus-wide woodland management plan to manage invasive, ensure health of native stands, and reforest areas as needed. Such a plan also supports carbon action plan strategies that quantify offsets for forest resources.
- Identify and implement strategies for reforestation in targeted zones to increase overall forest stock on campus.

Towson University 2015 Master Plan

Forest Conservation Requirements

Development Identification	Project	Lot Size (SF)	Existing Impervious Area (SF)	Net Tract (SF)	Existing Forest Stand (SF)	Reforestation Requirements (SF)	Afforestation Requirements (SF)	Total FCA Req'd (SF)	Total FCA Req'd (Acres)
Current Projects									
2	Burdick Addition	42,900	900	42,000	-	-	6,300	6,300	0.14
11	New Science	107,200	2,300	104,900	12,300	24,600	3,435	28,035	0.64
17	West Housing Ph IV	34,600	30,000	4,600	-	-	690	690	0.02
18	West Housing Ph III	24,100	15,500	8,600	-	-	1,290	1,290	0.03
				Phase Subtotal		**24,600**	**11,715**	**36,315**	**0.83**
			2015 FCA Easement Bank (Acres)						**9.45**
				Remaining Bank					**8.62**
Five Year Projects									
3	Union Addition North	41,900	5,000	36,900	-	-	5,535	5,535	0.13
7	North Res Hall	60,000	39,500	20,500	-	-	3,075	3,075	0.07
10	Health Professions	69,900	500	69,400	-	-	10,410	10,410	0.24
				Phase Subtotal		**-**	**19,020**	**19,020**	**0.44**
				Subtotal plus previous		**24,600**	**30,735**	**55,335**	**1.27**
			2015 FCA Easement Bank (Acres)						**9.45**
				Remaining Bank					**8.18**
Ten Year Projects									
1	Enrollment Services	59,900	1,500	58,400	-	-	8,760	8,760	0.20
4	Library Expansion	11,400	600	10,800	-	-	1,620	1,620	0.04
12	South Campus Housing A	188,200	6,100	182,100	15,800	31,600	11,515	43,115	0.99
15	Union Garage Addn	90,900	1,400	89,500	-	-	13,425	13,425	0.31
20	Athletic Fields	396,900	28,100	368,800	-	-	55,320	55,320	1.27
23	Glen Housing	96,100	47,600	48,500	31,200	24,775	-	24,775	0.57
24	South Campus Housing B	57,300	46,600	10,700	-	-	1,605	1,605	0.04
26	General Services Addn	13,500	13,500	-	-	-	-	-	-
				Phase Subtotal		**56,375**	**92,245**	**148,620**	**3.41**
				Subtotal plus previous		**80,975**	**122,980**	**203,955**	**4.68**
			2015 FCA Easement Bank (Acres)						**9.45**
				Remaining Bank					**4.77**
Long-term Projects									
5	Future Academic	28,800	8,100	20,700	-	-	3,105	3,105	0.07
6	Future Academic	23,400	11,000	12,400	-	-	1,860	1,860	0.04
8	Athletic Support	15,300	1,600	13,700	-	-	2,055	2,055	0.05
9	Towsontown Housing	31,700	-	31,700	-	-	4,755	4,755	0.11
13	Future Academic	158,200	3,200	155,000	-	-	23,250	23,250	0.53
14	Union Addn South / CEP	32,700	9,100	23,600	-	-	3,540	3,540	0.08
16	West Housing Ph V	74,800	200	74,600	-	-	11,190	11,190	0.26
19	West of West	422,800	-	422,800	-	-	63,420	63,420	1.46
21	Cross Campus Dev	267,700	56,100	211,600	76,200	93,110	-	93,110	2.14
22	CFA Parking Deck	41,900	29,800	12,100	-	-	1,815	1,815	0.04
25	Towson Center Addn	95,200	14,500	80,700	-	-	12,105	12,105	0.28
27	Johnny Unitas Stadium Addn	28,100	4,900	23,200	-	-	3,480	3,480	0.08
				Phase Subtotal		**93,110**	**130,575**	**223,685**	**5.14**
				Subtotal plus previous		**174,085**	**253,555**	**427,640**	**9.82**
			2015 FCA Easement Bank (Acres)						**9.45**
				Remaining Bank					**(0.37)**

Climate Commitment

Woodland management also factors strongly into the university's Climate Action Plan (CAP), in particular related to potential carbon offsets that can be tracked and documented related to forest conservation areas, forest management, and opportunities for reforestation. A focused assessment of this offset potential was conducted as part of this master plan update. Based on the assessment, the following recommendations were developed:

- As much as the budget allows, and land is available, reforesting areas of campus is recommended. It is a straightforward process that would not only increase on-campus carbon offsets, but also increases available ecological habitat. Students could be involved in reforestation efforts providing opportunity for climate and sustainability education.
- Developing an improved forest management plan for all existing/future Towson University forest resources is also recommended. However, limited implementation of the plan to certain areas could be an option if budget was not available to manage all forested areas.
- The university should annually take credit for existing forest resources on campus at a rate that represents the additional carbon sequestered each year by growth of the forest.

The offset potential associated with woodland assets on campus are presented in the following table:

Potential Carbon Sequestration Credits from Proposed Options

	Area for Credit (acres)	**Sequestration Rate Range* (MTCO2e/acre/year)**	**Carbon Offset Credit Range (MTCO2e/year)**
Reforestation			
All Areas with Potential for Reforestation	**5.17†**	**1.6-5.85**	**8.3-30.2**
Improved Forest Management			
Existing Forest Resources (FCA Easement Areas and Existing Forest Stand)	**70.37**	**0.5-2.6**	**35.2-183.0**
Future Forest Resources from Reforestation	**5.17**	**0.5-2.6**	**2.6-13.4**
Forest Conservation			
Existing Forest Resources (FCA Easement Areas and Existing Forest Stand)	**70.37**	**1.22-2.97**	**85.9-209.0**
Total Potential On-Campus Carbon Offsets from Forests (MTCO2e/year)			**132.0-435.6**

**See Appendix A for explanation of rate ranges. Sources: Center for Climate and Energy Solutions 2015, US EPA 2015, Ravin and Raine 2007.*

† These 5.17 acres would be in addition to the 70.37 existing forest resources.

The offset potential associated with campus woodlands is small overall compared to University emission. Taking credit for all potential carbon offsets and assuming the highest sequestration rates in the ranges in the above table, at most Towson University could offset 435.6 MTCO2e from on-campus forest

resources. This represents 0.5% of the 2014 total emissions. However, despite the small contribution, it is an important component of the overall University CAP, as it links to a broader sustainability and environmental stewardship commitment by the university.

Stream and Wetland Restoration

An important component of the Master Plan is preservation of streams, like those in the Glen.

A few good opportunities were identified during targeted field reconnaissance in the spring of 2015 related to riparian corridor and stream restoration on campus. Towson has a strong history with pursuing stream restoration and the incentive to continue finding opportunities has increased in recent years due to Chesapeake Bay restoration targets and new regulatory guidance. Specific locations identified for restoration include Towson Run along Towsontown Boulevard and a Towson Run tributary along Osler Drive. In addition to stream restoration, opportunities to restore and repair lined drainage conveyances on campus were identified. These locations lend themselves well to retrofitting and becoming an accepted stormwater best management practice referred to as regenerative stormwater conveyance (RSC). RSCs help improve ecological conditions along linear flow paths by slowing down and filtering flows, while often times restoring these ephemeral drainage systems back to the headwater streams that they once were.

Stormwater Management

As described in Section 3, planning for Stormwater Management is a significant component of the Campus Master Plan. Environmental Site Design (ESD) practices will need to be applied throughout the campus to manage stormwater in terms of both quality and quantity. Because of the number of individual facilities that will ultimately be required throughout the campus, the potential impact to the campus open space is significant. It is, therefore, critical to manage not only the quantity and quality of the stormwater, but also the aesthetics and functionality of the facilities themselves. There are numerous types of ESD practices that can be applied, depending upon a number of site considerations. These include the use of green roofs and permeable paving, micro-bioretention, rain gardens, vegetated swales, landscape infiltration, flow –through planters, and created wetlands to name a few.

As each new development project occurs, the design process for that project should evaluate which ESD practices are most appropriate for the site. It will be critical to integrate facilities into the overall site, landscape and even architectural design, rather than develop in a manner where the facilities appear to be afterthoughts. Stormwater management facilities can be developed as focal points within the landscape, integrated with pathways so that pedestrians can be engaged in the unique landscapes, developed with interpretative opportunities and designed as architectural extensions of the buildings to which they are adjacent. Regardless of the type of stormwater facility used, the ESD practices must be responsive to the overall site context. Design considerations and precedent images for various facilities are outlined in more detail in *Section 6, Design Guidelines.*

In addition to the integrated and distributed stormwater management elements that will be required for most new construction projects across campus that will emphasize environmental site design, there are also opportunities across campus to provide improved water quality and flow management where no treatment or management currently exists. This is often the case with older areas of campus (buildings, courtyards, parking lots) and street right-of-ways. These locations are often good candidates for stormwater retrofits where water quality improvement can be achieved at the same time as a site enhancement. Examples include creating shade and landscaping in a parking lot or converting a steep hill of turf grass to a terraced rain garden or collecting rooftop drainage in a cistern for reuse such as irrigation.

As part of this Master Plan update, a rapid retrofit study was conducted that identified some of these opportunities in parking lots and along roads across campus. These opportunities are interesting in that they may be pursued by the university at strategic times to either offset, or otherwise bank stormwater management in a similar way as a forest conservation easement. Alternatively, it may be the case that the university's municipal separate storm sewer system (MS4) permit will become more stringent with its next issuance and could require the university to treat runoff from older areas. In this case, these retrofit opportunities serve as a strong initial inventory to consider for such permit compliance.

Examples of how ESD practices can be integrated into the overall landscape and building design, including the use of planters at Towson University's SECU Arena

Methodology

MDE Regulations

As Towson University expands, each new campus development project will prepare site-specific stormwater management plans and will submit those plans to the Maryland Department of the Environment (MDE) for permitting review. The State of Maryland's Stormwater Management Act of 2007 (formally adopted in 2009) places increasing emphasis on the implementation of "Environmental Site Design" (ESD) practices designed to manage stormwater more immediately and more sensitively. This initiative seeks to treat rainwater "where it falls" by using ESD techniques to the maximum extent practicable. Engineers may select from a variety of sanctioned ESD practices such as micro- bioretention filters, landscape infiltration areas, rain gardens, green roofs, permeable pavements, and a number of other options that are designed to keep water slowly percolating through the ground. The sanctioned ESD practices are outlined in chapter 5 of the MDE manual.

The ESD "ethic" is a departure from former stormwater management techniques where rainwater is funneled off-site as rapidly as possible through underground conveyance or, in some instances, impounded at the low point of the site in one large detention pond. These "traditional" Best Management Practice (BMP) devices are still available for site designers as a "last resort" when the ESD options have been fully exhausted. For example, "wet ponds," "micropool extended detention ponds," and "pocket ponds" are categorized in the MDE manual as "practices that have a permanent pool…" (Section 3.1 in MDE Manual) and for many years these types of impoundments were commonplace installations in large developments. Since a pond with standing water generally requires a sizable area, it is not feasible to recommend such a practice on a campus that needs as much space as possible for architectural programmatic needs. Furthermore, planners are reluctant to recommend a permanent pool facility when it is clear that MDE reviewers expect to see ESD devices that preserve the overall rainfall management intent ("treat it where it falls"). Finally, a "wet pond" may be subject to further regulatory scrutiny, depending upon the ultimate design (NRCS-MD 378 Pond Code Standards and Specifications for Small Pond Design). For these reasons, the master plan analysis does not recommend installing any stormwater practices from the general "wet pond" category.

There are some practices categorized as "Stormwater Filtering Systems," including surface sand filters, underground sand filters, organic filters, and so on. For years these practices were quite common in urban settings and a tour of Baltimore would reveal ubiquitous installations of underground sand filters in various buildings or parking decks downtown. In the current regulatory environment, however, MDE will occasionally (and rarely) approve these structural filtering devices only if the applicant can demonstrate that an exhaustive attempt to incorporate ESD measures has not completely satisfied the calculated requirements. Even though these traditional stormwater practices remain viable alternatives, MDE rules obligate designers to design ESD practices first. MDE expects to see development proposals that exhaust all environmentally sensitive options before "resorting to" structural filtering systems. Therefore, it would be in Towson University's best interest to set aside appropriate spaces near each new campus building in order to anticipate stormwater management installations that are proven, MDE-compliant, campus precedents.

Quality Control

Stormwater engineers first assess the size of impervious surfaces on an existing project site and then follow MDE guidelines to categorize the project as either “New Development” (if the majority of the site is grass/woods) or “Redevelopment” (if most of the site is covered by asphalt or concrete). This “New Development” versus “Redevelopment” determination must occur on a case-by-case basis and has a dramatic impact on the stormwater management plan for each project. In this master plan, each sub-campus (Core, South, and West) has stormwater facility layouts arranged under the assumption of the “new development” designation. This assumption anticipates more intensive stormwater management needs and thereby creates an allowance for more stringent regulations.

However, there are a few specific instances where the existing site features (especially large parking lots) suggest that the “redevelopment” category is possible for that particular proposed building project. In those few instances where redevelopment seems likely, the number of stormwater facilities has been slightly reduced in an effort to be as realistic as possible. Stormwater engineering has many variables that make detailed design practically impossible during the master planning stage, but for long-range planning purposes Towson University should assume that each proposed project in the 2015 study will need an array of sizeable ESD facilities in order to comply with MDE statutes.

The ESD practices espoused in the MDE manual represent efforts to improve the quality of stormwater runoff before the runoff reaches nearby waterways. By allowing infiltration through a special soil/mulch bioretention medium (or through the natural earth), water undergoes a filtration process for pollutant removal. Each individual device (micro- bioretention, rain garden, bioswale, etc.) has specific design parameters and drainage area restrictions. These practices are typically selected and tailored for the unique constraints encountered on a per-project basis. For master planning purposes, it is more important to simply designate “placeholder” areas that are generally sized to anticipate the most likely devices that engineers will need to specify. The micro-bioretention practice seems most appropriate for designating stormwater management placeholder spaces throughout Towson University’s campus because this practice handles a reasonably-sized drainage area and can be customized to fit a variety of site conditions.

Quantity Control

In addition to managing water quality, Towson University must also take steps to handle “quantity control.” The purpose of quantity control is to ensure that stormwater runoff doesn’t leave the project site at an accelerated discharge rate (causing scouring and erosion along the way). According to Maryland’s Stormwater Management and Erosion & Sediment Control Guidelines for State and Federal Projects (February 2015), “projects located in designated inter-jurisdictional Flood Hazard Watersheds are required to provide management measures necessary to maintain the post-development peak discharges for the 100-year 24-hour frequency storm event at a level that is equal to, or less than, the 100-year 24-hour pre-development peak discharge rates” (Section 4.1 - A.7). Since the entire Towson University campus is located in the Jones Falls Watershed, the university will likely need to designate certain spaces for stormwater detention on a per-project basis.

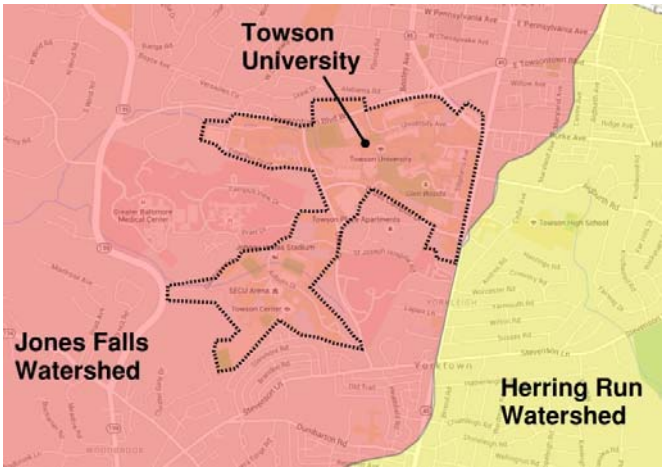


Image: Google Maps

Examples of such detention facilities include large-diameter underground pipe arrays or a subterranean cavity filled with a water storage manufacturer's product. This precedent exists on campus already, as the Public Safety project (north of Towsontown Boulevard) has a series of large-bore thermoplastic pipes for water storage under the parking lot. If underground storage is less desirable, there are at-grade options such as "dry ponds" which are depressions that remain dry until a storm event temporarily fills them with water. Dry ponds are designed to slowly release detained water at a prescribed discharge rate.

Facility Selection Rationale

For master planning purposes, the design team crafted a strategy seeking to harmonize regulatory requirements, architectural wishes, topographic realities, and engineering constraints. To accomplish this, designers emphasized certain "tenets" or "design parameters" derived directly from prior experience with MDE preferences and mandates. Some of these design parameters included observations regarding facility selection (the reasons why certain ESD practices should be chosen). In this study, the rationale for stormwater device selection included the following tenets:

1. Any new project must attempt to incorporate "ESD" practices to the "maximum extent practicable" before considering traditional ("structural") stormwater devices.
2. Three key technical parameters for "ESD" selection are:
3. Size of the contributing drainage area
4. Depth of the water table
5. Soil types in that location
6. Proposed ESD facilities should blend with the natural topography and pedestrian circulation on campus as much as possible.
7. When topography creates a challenging condition, a micro-bioretention facility that is contained between retaining walls (perhaps as part of the exterior architecture) may be selected in lieu of a graded depression with sloped sides. This retaining-wall-style precedent exists in front of Towson Arena.
8. When selecting ESD practices for master planning on the Towson University campus designers should focus on facilities that are commonly utilized in urban spaces.
9. Assume the proposed development will be categorized as "New Development" in order to anticipate a more intensive stormwater layout.

When designers examine these tenets for the Towson University campus, certain ESD practices become less desirable while others emerge as more viable candidates. For example, there are probably not many opportunities to employ the "submerged gravel wetland" practice because that specific device requires a high water table in order to function properly. It is more likely that the university will need to install a series of micro-bioretention facilities of various sizes and in customized configurations around each new building footprint, parking deck enlargement, and parking lot surface. Therefore, the proposed quality-control facilities indicated in this analysis represent microbioretention features. Quantity control facilities may be either underground or at-grade features.

Facility Size and Placement

In addition to selection criteria, there are certain caveats designers observe when deciding about number, size, and placement of selected ESD facilities. Some of those tenets include:

1. Proposed ESD facilities must be located near the contributing drainage areas. Often the contributing drainage area for each device includes some measure of roof square footage, so the ESD feature needs to be relatively close to one (or more) downspouts.

2. The estimated number of ESD facilities is based upon potential project disturbance square footages. The placeholder facilities shown in this master plan represent a reasonable approximation of how proposed projects might ultimately look upon completion. The actual number and size of facilities will ultimately depend upon very specific design computations performed on a per-project basis
3. Proposed ESD facilities should ideally be on the same side of the building as the ultimate outfall. This is an engineering constraint driven primarily by soil type. If the soils are poor, then ESD facilities require a perforated underdrain, which, in turn, must have gravity flow to a nearby outfall. With this tenet in mind, it's helpful to arrange the ESD practices so that the drain lines can be linked to efficiently convey runoff toward a lower outfall.
4. Try to locate ESD practices in areas that are less congested with existing utilities. In spaces with unavoidable utilities, the spots with more "minor" electric, telecommunications, or water lines are better candidates. Areas with sanitary lines or a more robust collection of concrete-encased duct banks are less preferable because they would likely be more expensive and disruptive to relocate.
5. Set aside some area for underground detention in order to satisfy the "quantity control" mandate in the MDE regulations.

Additional Design Considerations

General Campus-wide Soil Considerations

The soil variations on Towson University's campus generally reflect patterns one would expect to see in the Maryland piedmont. While campus soils may be generally adequate for ornamental plantings and reforestation, they are not optimal for stormwater infiltration. Broadly speaking, a review of the USDA Web Soil Survey database reveals some noteworthy parameters for planners to consider. Some key soil-related factors impacting the decision to develop target areas on campus are:

1. Hydrologic Soil Group – This factor assigns an alphabetical grade to the soil's percolation properties. Soils in group "A" or "B" allow infiltration more smoothly than "C" or "D" soils, which tend to "pond" water more quickly.

2. Depth to Restrictive Feature – USDA information will sometimes list the depth to "fragipan," a dense layer within soil stratification that resists water and root penetration. In general it's preferable to have any restrictive soil layer deeper in the ground rather than close to the surface.

3. Farmland Classification – This factor is most notable if the land is designated as "prime farmland" (per USDA definition, this is "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses."). Also, farmland classification is an element of the U.S. Green Building Council's LEED program. Within LEED's "New Construction" rating system, the "Site Assessment" credit requires documentation of a territory's farmland status. Towson University has one soil type classified as prime farmland (Glenville silt loam located in the heart of Glen Arboretum and also the Glenville soils in low areas).

4. Land Capability Classification – Obviously, certain soil groups are more fertile than others. Soils with a classification of "1" have very few limitations preventing use for cultivated crop production. Soils classified as "4" or higher have limitations restricting crop production. The highest classification of "8" means there are severe limitations.

5. Slope Percentages and Erodible Soils - Some soils resist erosion better than others. Soil scientists can quantify this characteristic, but for master planning purposes, one can generally link the erosion potential with the slope percentages. Mapping the steep slopes on the campus provides a good snapshot of the places where development would be challenging for both topographic and erosion potential reasons.

In general, the lower elevations on campus (stream corridors in Glen Arboretum, west of Osler Drive, and southwest of the West Village Garage) have soils in the "Glenville" series ("GhB," or "GhC") which are listed as "prime farmland" or "farmland of statewide importance "even though the hydrologic soil group is classified "C." The prime farmland is a single 3-acre wooded section in the middle of Glen Arboretum. The "farmland of statewide importance" totals roughly acres but that acreage is divided among 6 stream corridor sections, with the bulk of that acreage in three "strips" of land at the westernmost edges of campus.

Core Campus Soils and Slopes

According to USDA Web Soil Survey mapping, the predominant soil type in the majority of Towson's academic area is classified in the "Urban" series. The "Urban land" (Ur) and "Urban land – Udorthents" (UuB, UuC) designations are described as "human transported material" that is not prime farmland. The urban classifications are listed as hydrologic soil group "D" soils, which means they exhibit poor percolation properties and are therefore not suitable for stormwater management facilities that require infiltration (unless the facilities are equipped with an underdrain system). For example, any micro-bioretention areas that would be proposed around the perimeter of new (or expanded) buildings in the core campus would require underdrains linked to a nearby storm drain. From a master planning perspective, this means that university staff and consultants must anticipate the need to create room for more underground storm drain infrastructure connectivity in areas that may already be congested with various utilities.

Soils "Ur" and "UuC" in the heart of the campus core

From a purely agricultural standpoint, the "Urban" soils are not prime farmland and have land capability classifications in the "6" to "8" range, signifying land that is very poor for commercial plant production. As a result, the academic campus area is well-suited for the expansion of existing buildings or the construction of new buildings. The grounds around these new facilities, however, may require adding soil amendments or importing better topsoil in order to optimize the growth potential for ornamental plantings.

Regarding topography, the core campus has significant elevation changes requiring steps and ramps for pedestrian traffic. From the eastern end of the College of Liberal Arts to Cook Library's entrance there is a vertical elevation change of roughly 40 to 45 feet. This topographic reality would appear more pronounced if Linthicum Hall is removed (as the 2009 Master Plan recommends). In the event that Linthicum Hall is eliminated, the clearing would reveal a noticeable slope (currently behind Linthicum) with stately oaks at the top of the hill. This hillside would be a part of an area that is slated to become a grand, green quad. This may afford an opportunity for planners to create a dramatic vista from the "plateau" area bounded by Cook Library and Smith Hall, with a sweeping panorama toward the north across a widening green quadrangle.

The portion of campus formed by the Center for the Arts, the Student Union, Burdick Hall, and the east edge of Osler Drive has a large section of Baile-Urban ("BbB") and Glenville-Urban ("GkB") soils. Neither of these is considered "prime farmland" and both have hydrologic soil group ratings of "C" or "D." Both of these soils exist in the area for the Burdick Hall expansion and for the future expansion of the Student Union. The Glenville-Urban type, in particular, is listed as having a "depth to restrictive feature" in the 24" to 39" range, suggesting that this factor, combined with the "C" hydrologic soil group grade, makes the area particularly challenging for any future stormwater management infiltration facilities. However, the large underground stream culvert running through this part of campus affords an opportunity to take new

underdrains (necessary due to poor soils) from proposed micro-bioretention facilities and connect them to the largest existing drainage conveyance on campus

South Campus Soils and Slopes

USDA Web Soil Survey mapping shows the "Manor" series as the most common soil type throughout the southern campus. These specific Manor soil units ("MaE," MdE," and "MeB") are classified in hydrologic soil group "B" and are not considered prime farmland. The USDA database also indicates a depth of 80 inches or more before reaching a restrictive feature, so it appears that the soils in the south campus are a little more conducive to plant propagation when compared to other areas. However, the land capability class is poor for commercial agriculture and the slopes tend to be steeper in the Manor groups. As expected, the worst soils are the "Ur" and "UuC" areas (up around SECU Arena, the Towson Center, and also under parking lots #13 and #14).

Slopes around the football stadium and Towson Arena are quite undulating, with the steepest topography on the hillside just west of the Arena (30% - 40% slopes). The recreation fields below this hillside are quite flat and represent one of the lowest places on campus (elevation 355 +/-). From this flood plain, the topography rises up to the point where Auburn Drive loops around the western end of the stadium (elevation 375 +/-) and begins rising steadily between the two major athletic complexes, past the Towson Center, peaking near the Auburn House (around elevation 455 +/-).

West Campus Soils and Slopes

USDA Web Soil Survey mapping lists the soils as "Ur" in the area where buildings exist now, indicating urban land that is not prime farmland. Beyond this zone, the Manor loam ("MaD") type is prevalent in the strip of woods along the southern property line beside Sheppard-Pratt, and also in the large open area west of the garage. Manor loam soils are not prime farmland, but they are listed as hydrologic soil group "B," they have a land capability classification of "4e," and are shown to have more than 80 inches of depth to a restrictive feature. This suggests that the soils along the southern and western sides of the West Village are more favorable for plant growth when compared to other parts of campus.

Campus-wide Utilities

In order for planners to evaluate Towson University's future development footprint, it is useful to incorporate utility information into the analysis process. Campus utilities are obviously quite dendritic, with underground storm drains, sanitary lines, water lines, electric conduits, telecommunications duct banks, and steam routes all intersecting or crossing at various elevations and angles. Designers developed a composite base map with as much utility information as possible to inform master plan decision-making. This approach involved the following steps:

1. Planners gathered utility information in electronic (CAD) form for multiple campus projects. The CAD base development effort merged vector information from existing electronic sources or traced raster data as needed. All of the linework became consolidated into one grand composite utility file. The composite file accounts for the following:
    a. Property line delineation (per Baltimore County GIS)
    b. West Village Student Housing
    c. West Village Commons
    d. Site and Safety (all phases)
    e. Commemorative Garden
    f. College of Liberal Arts
    g. CUPA Utility Expansion
    h. Towson Public Safety
    i. Fiber Duct Bank (from Cook to Health Bldg.)
    j. Burdick Recreation Fields
    k. Burdick Hall Expansion
    l. New Science Building
    m. Child Care Center area
    n. Towson Center area
    o. Towson Arena
    p. 13kv Electric Feeder through campus

q. Baltimore County Sanitary Key Sheets
r. Baltimore County Water Key Sheets
s. Linework from “Existing Conditions” as surveyed for above projects
t. Inclusion of Google Earth aerial imagery as one layer
u. Inclusion of 2015 Master Plan on pertinent layers

2. Using the 2015 Master Plan, planners superimposed utility mapping to identify significant places where infrastructure alignments conflict with proposed building footprints. Designers used this “layered” mapping technique to isolate pinch points where utilities are especially congested.

The Towson University campus, like most college settings, has locations where underground utilities are especially congregated. For planning and budgetary purposes, it is useful to highlight areas where piping is particularly “clustered” underground. It is also noteworthy to identify areas where utility alignments happen to be oriented in a manner that might make future development more onerous. Such exercises are helpful at a master planning level, with the understanding that some existing utilities may be undersized if more detailed, project-specific design efforts reveal the need to increase capacities. Campus planners may determine that an area slated for expansion might introduce unusual site development costs because the area is uncommonly congested underground. When merged with CAD-based utility line composites, the 2015 Master Plan imagery informs planners regarding the degree of difficulty anticipated as utility lines may need alteration, re-alignment, or abandonment in order to realize grand campus visions.

When planners propose development for a given project location, it is customary to evaluate all the utilities, but they typically scrutinize “gravity” systems more closely. Storm drainage and sanitary effluent rely on gravity to function properly, so the drain lines must have some degree of vertical drop as they are routed away from proposed buildings.
This functional requirement is often a significant design consideration for engineers because other utilities (water, electrical, telecommunications, etc.) don’t need gravity assistance in order to operate, so designers can usually manipulate those horizontal routes more easily. Since sanitary and storm drain line alignments are driven largely by topography (the ability to “drop” or “fall” a certain vertical distance over a certain horizontal distance), the location and arrangement of these gravity lines became a primary consideration for the Towson University study. In particular, the proximity of an “outfall point” for stormwater management facilities became a significant factor for the master planning effort.

The master plan maps for each specific “sub-campus” (Core, West, and South) highlight potential utility difficulties and opportunities unique to that portion of campus.

Precedent Campus Benchmarks

In order to establish some broad stormwater “benchmarks” for future analysis, it is informative to note the results of recent design efforts on campus. For example, the SECU Arena project represents a building footprint of approximately 62,000 square feet. After factoring the associated pavement around the building, the SECU design team evaluated stormwater management options and derived a strategy involving 4 surface bioretention facilities and 1 underground infiltration trench. Engineers determined that this solution was the best way to solve myriad considerations that were specific for the SECU site. Topographic constraints, the “high-profile” nature of the design, and the permitting realities to achieve regulatory compliance were just a few factors shaping stormwater management decisions.

Similarly, the Burdick Hall expansion project involved roughly 45,000 s.f. of building area plus additional paved spaces (walkways, plazas, etc.). Once engineers evaluated all the site parameters governing

stormwater management, they designed 4 surface bioretention facilities and 1 underground detention unit.

As future projects develop around campus, the square footages of impervious areas will obviously vary per project. However, it is useful to recognize that there are campus precedents for projects requiring at least 4 surface facilities and an additional detention facility. The ultimate number and size of stormwater management facilities is heavily dependent upon many variables, making precise prediction very difficult. The proposed Science Building near York Road, is currently designed to have roughly 9 surface microbioretention facilities, a testament to the size of the ambitious project.

Future Facilities Mapping Legend

The analysis mapping in this study depicts potential layouts for anticipated stormwater management facilities on a project-by-project basis. The legend below applies to all the following mapping pages and identifies the general nature of the structures without determining which ones may ultimately reside underground. Quantity facilities, for example, are sometimes underground, but under the right circumstances can be situated at-grade instead.

The number and sizing of proposed ESD practices is based upon impervious area estimates for each specific building project and is intended to be a general guide for master planning purposes. The final selection, number, and sizing of stormwater facilities will be dependent upon more refined design studies as each individual project develops.

Proposed Quantity Facility
(At-grade or underground)

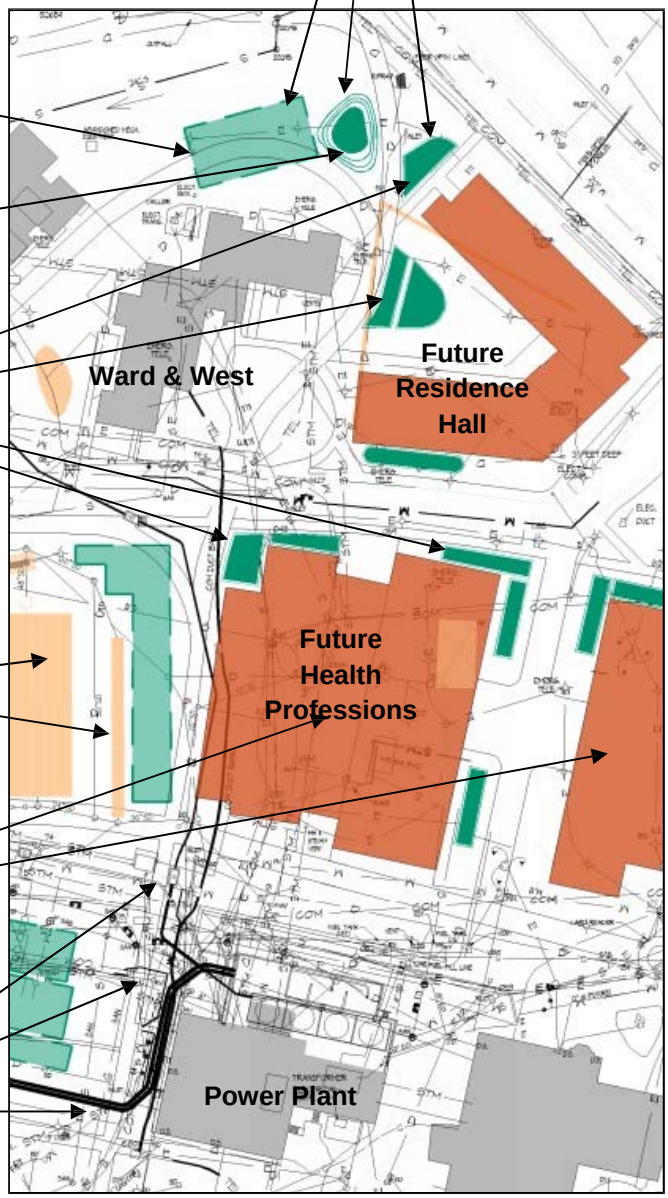
Proposed Quality Facility
(Graded Depression)

Proposed Quality Facility
(At-grade or above-grade, possibly integrated with architecture)

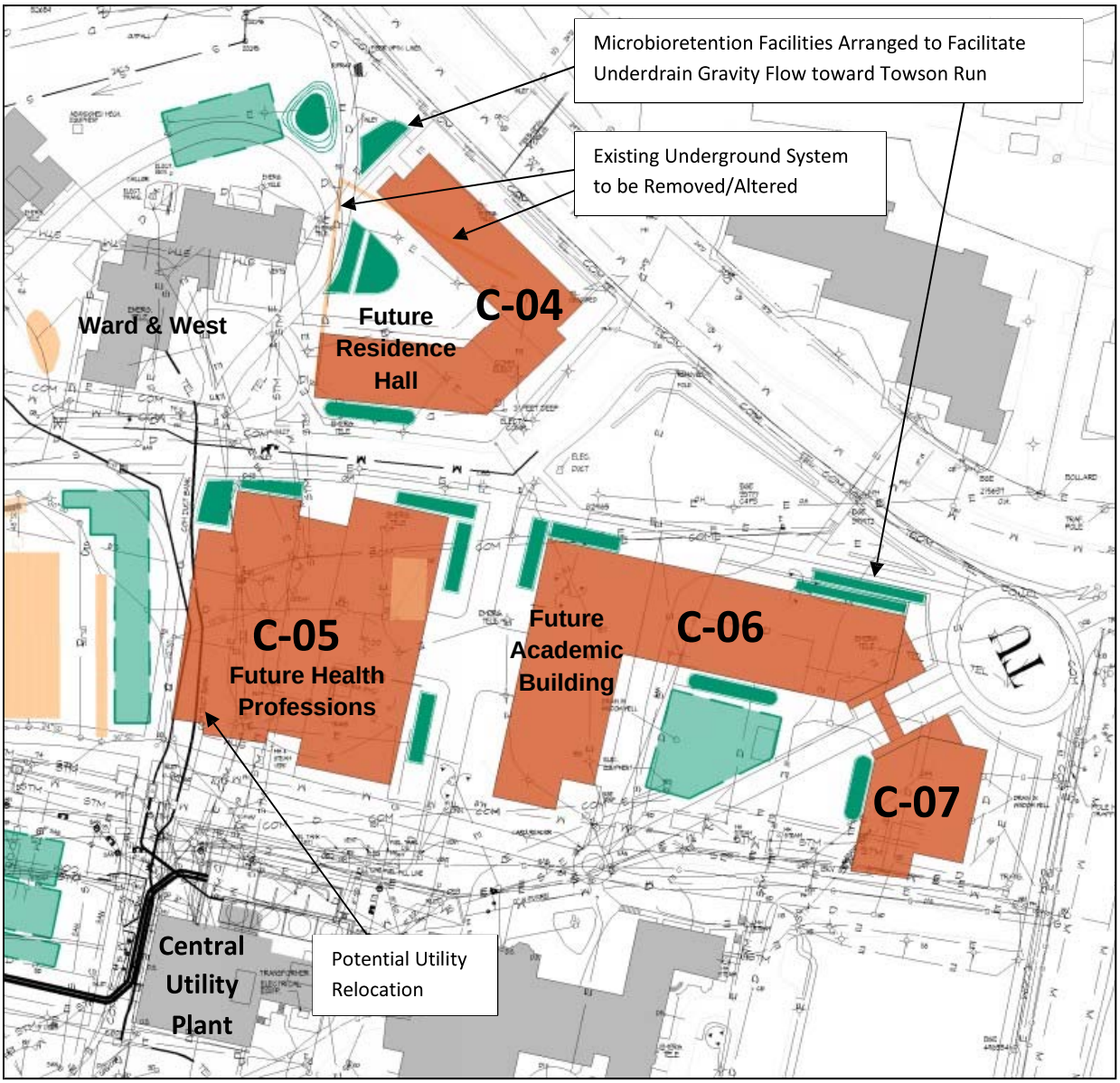
Existing Stormwater Facilities

Proposed Building
(per Master Plan)

Various Utilities



Core Campus Facilities – Buildings C-04, C-05, C-06 & C-07

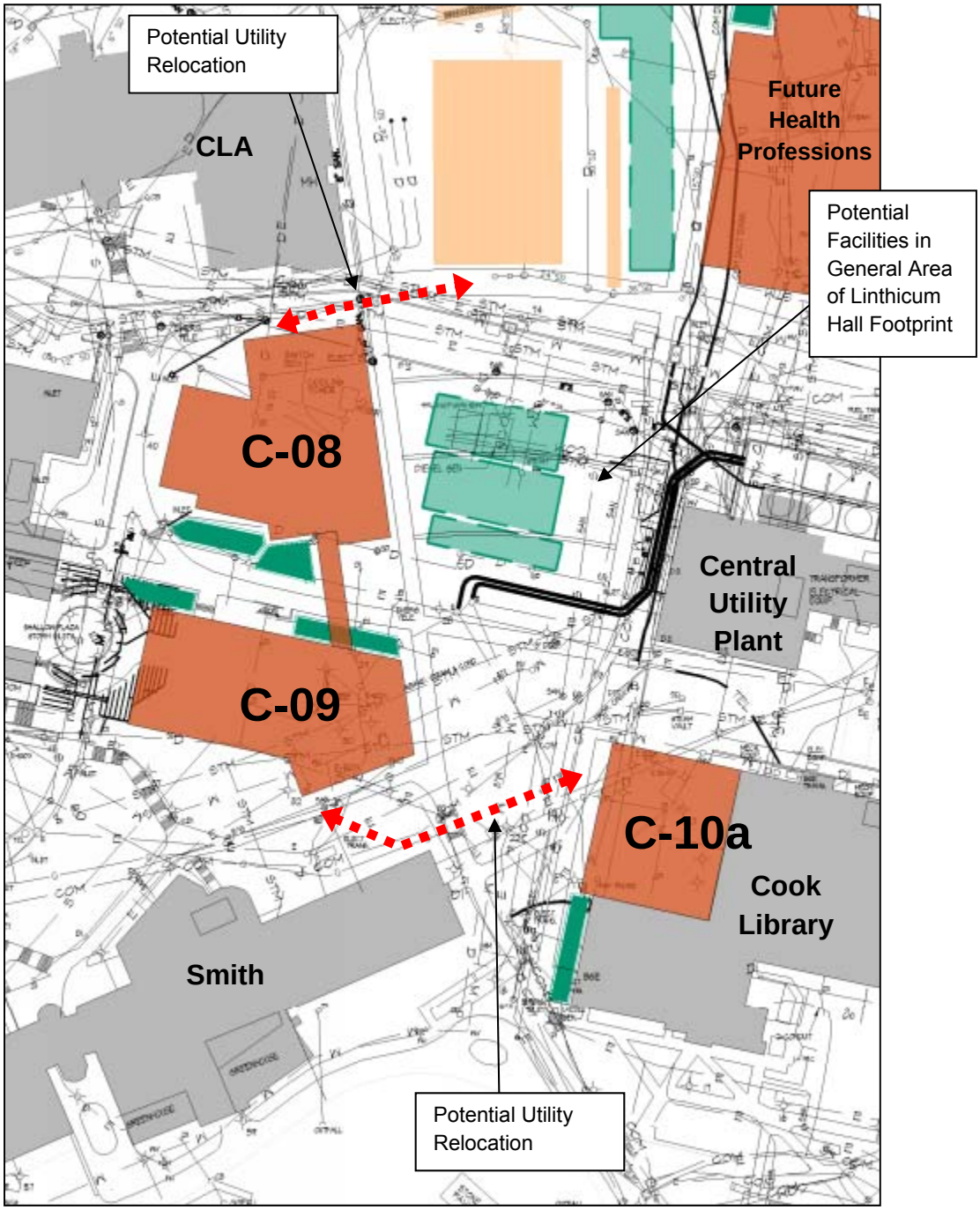


The proposed new residence hall near the Towson Bypass/Burke Avenue right-of-way would occupy a space that is currently covered with asphalt parking. Since there is a high percentage of existing impervious, it is possible that this specific project could be classified as "redevelopment," and would therefore not need quite as many stormwater management facilities. Campus drawings indicate the presence of an existing underground stormwater management system in the parking lot, so there is the potential that some existing infrastructure would need to be converted/updated to accommodate the proposed residence hall.

The Master Plan recommends a new College of Health Professions Building located south of University Avenue, oriented so that it formalizes the new green “quad” anchoring the academic precinct. In order to create the utility clearances necessary for this proposed building, there are water, steam, electric, and sanitary lines that require relocation. Also, in 2014 a campus project to expand telecommunications capability created a concrete duct bank of fiber-optic conduits from Cook Library to the Health and Counseling Center. This duct bank is a “6-way” (3 conduits wide by 2 conduits high) attached to an existing telecom duct bank near Cook Library, then turning north to wind its way between Linthicum Hall and the Power Plant. It eventually connects to an existing duct bank in University Avenue, just south of the counseling center. Since this new communications duct bank encroaches the potential Health Professions footprint, there may need to be a significant utility relocation effort (depending upon the final configuration of the proposed building).

From a stormwater management perspective, it is advisable to keep the necessary facilities on the north side of the buildings as much as possible. Given the soil conditions, it is likely that micro-bioretention facilities will require underdrains, so the natural topographic slope toward the north/northwest would facilitate storm drain design and help establish the requisite invert elevations for proper drainage.

Core Campus Facilities – Buildings C-08, C-09 & C10a



It is logical that an aggregation of underground infrastructure would exist in the campus core, but there is a particularly tight “nucleus” of utilities near the Central Utility Plant. On the northern side of the building, there are utilities of practically every type, including some significant conduit duct banks for electric and telecommunications services. There are also storm drain and gravity lines in this area, making this location especially challenging for proposed new construction or expansion of existing buildings.

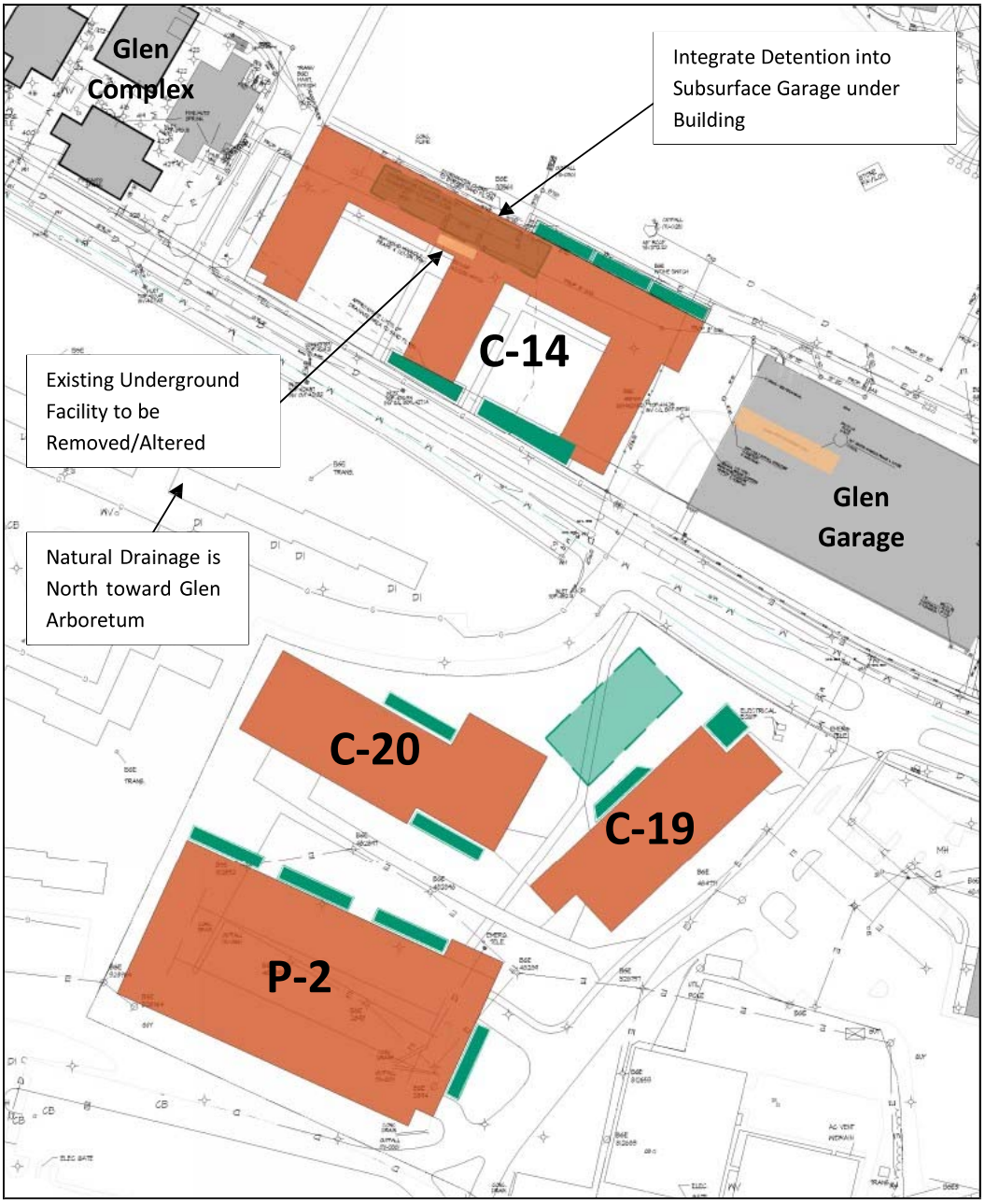
The 2015 Master Plan recommends demolition of Linthicum Hall in order to establish a central green space that would represent an academic “quad” for the core. Converting the Linthicum footprint space to a campus quad could be beneficial in many respects, and would likely present a somewhat lessened utility relocation conundrum when compared to space conversion for a new architectural purpose.

However, the area immediately adjacent to the utility plant itself would be a challenging location for any construction activity. Altering utilities here could be a significant undertaking, possibly necessitating a stand-alone utility relocation effort.

In order to expand/renovate Lecture Hall or create a new building on a portion of the old Linthicum footprint, several utilities will require relocation. There are water, storm drain, electric, and steam lines that designers must re-route through a new “corridor” formed between Smith Hall and Lecture Hall. It is likely that stormwater management facilities in this area would need to be more “architectural” in nature, with the filter media contained inside constructed “seat wall” structures or delineated within interstitial spaces between decorative retaining walls, walkway edges or a building facade. There is not much room in this part of campus for naturally-graded depressions or micro-bioretention cells with smooth side slopes gently rolling over expansive terrain. While constructed micro-bioretention facilities would be designed to handle the quality control components of stormwater regulations, there would still need to be space set aside for quantity control. The demolition of Linthicum Hall may provide an opportunity to install underground detention in the grand green space that represents the new “quad” in the academic precinct.

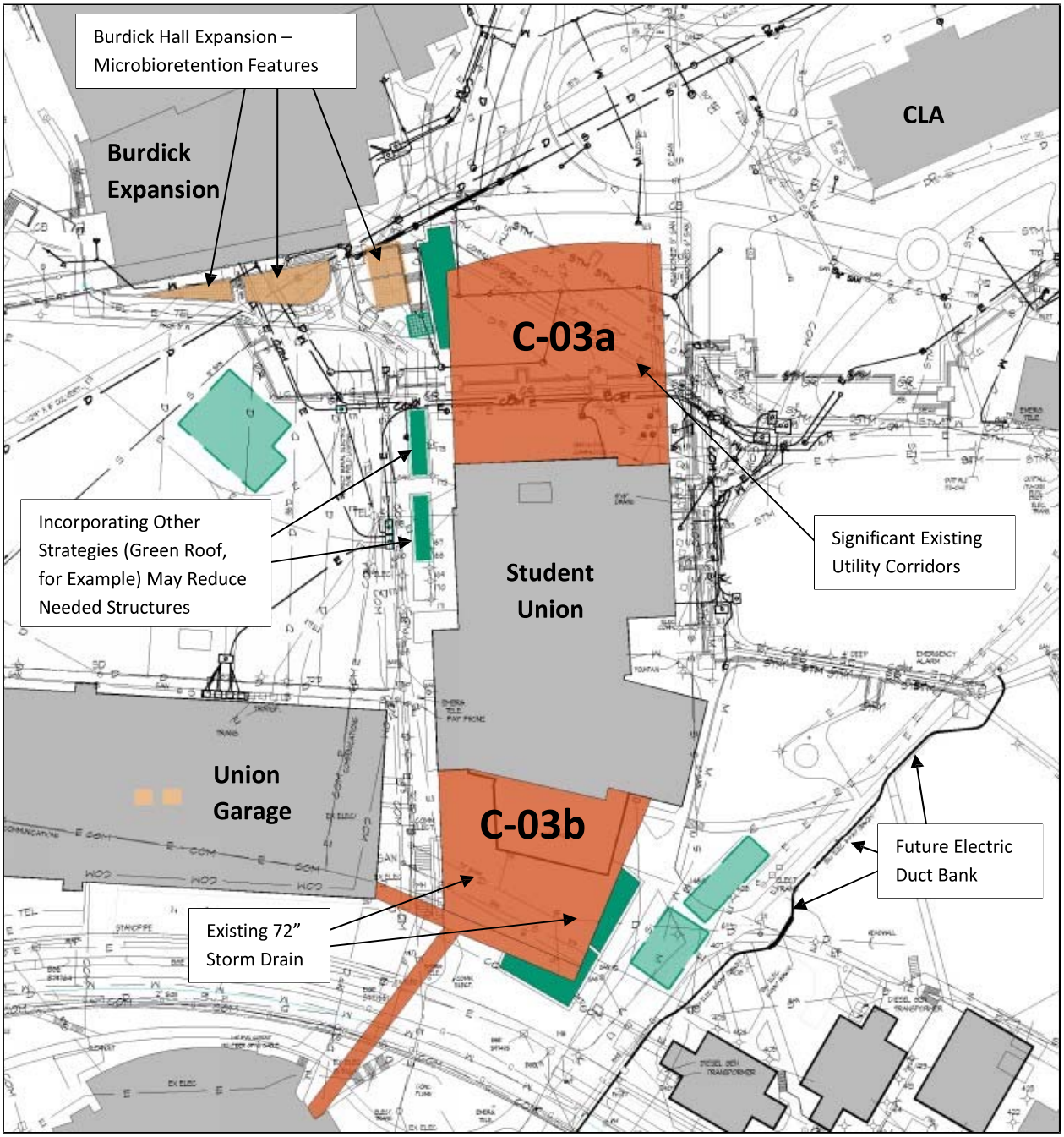
The Master Plan also recommends expanding Cook Library on the northwest corner. The current utility arrangement immediately near the building does not appear to present as many obstructions as other places. However, in the northwest plaza near the library’s main entrance, there is a water line, a gas line, an electric line, and some storm drains that will likely require re-routing.

Core Campus Facilities – Buildings C-14, C-20, C-19 & P-2



Between Cross Campus Drive and the Arboretum there is an existing parking lot slated for removal so that a new residence hall may expand the on-campus housing options for students. The proposed facility would be constructed on top of a new parking deck, so stormwater engineers may be able to exploit some of the "voids" created in various niches or alcoves throughout the deck and perhaps install some detention features to assist with quantity management. The quality features (micro-bioretention, for example) could be situated along the arboretum side of the building. The natural grades in this area slope toward the creek in the arboretum, so runoff finds its way to the north. There is a stormwater system in place already to handle the drainage from the existing parking lot.

Core Campus Facilities – Buildings C-03a & C-03b



The area immediately north and east of the University Union has a rather crowded nucleus of electric, telecommunications, steam, water and chilled water utilities. This is noteworthy because the Master Plan recommends expanding the University Union footprint toward the north. There are "corridors" of utility lines radiating from this infrastructure cluster, extending toward the northwest and toward the west, through potential building expansion space. In order to accommodate expansion of the Union's northern facade, the university would need to examine the realignment of these systems or possibly consider the ramifications of building over top of them. The logistics, complexity, and expense associated with relocations of this magnitude may steer the university to consider simply constructing the Union expansion over the lines. While the "leave them where they are and build over them" approach has merit

in some respects, it has potential problems. Structural engineers will have a challenge placing column footings in the proper arrangements if they have to navigate around these systems. Also, if there's architecture over top of the infrastructure, the utility lines may be difficult to access in the event repairs are necessary.

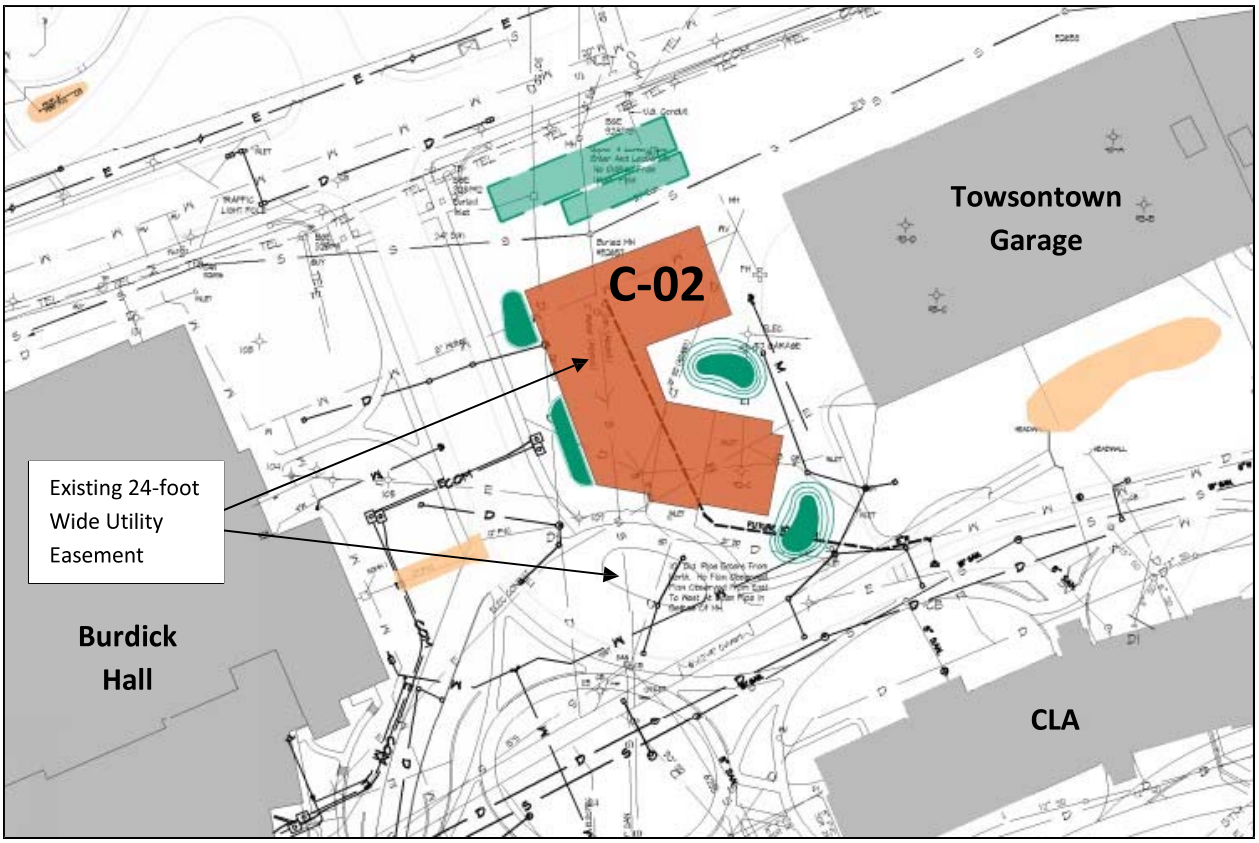
Based on current mapping information, there are existing storm drains that might require alteration unless Towson University elects to leave it all in place. From a stormwater management perspective, the potential expansion area is currently a parking lot (completely impervious), therefore it is likely that a Union enlargement project would fall in the "redevelopment" category. This classification means the stormwater management requirements would be less stringent, so there may not be as many micro-bioretention facilities needed to comply with MDE regulations.

Near the northwest corner of this study area, the university will soon begin construction of an expanded Burdick Hall. This expansion will occur on the south side of the building and there are a number of utilities in this zone that will require relocation. Since this project is nearing the construction phase, university planners are aware of the utility ramifications and are working with engineers and architects to modify utilities in this location as necessary.

On the south side of the Union, the Master Plan proposes a new building in an area that is currently vacant. From a topographic standpoint, this campus location lends itself well to a multi-story facility and could also be designed to provide pedestrian connectivity over Cross Campus Drive. There are gravity-flow utilities under this vacant land, including an 8-inch sanitary line and a 6-foot diameter storm drain pipe (conveying the creek from the Glen Arboretum valley). This large drain line may need to be re-aligned, presumably along a straighter course between the Union and the proposed building. Sanitary sewer lines would likely require similar relocation in a manner that effectively establishes a more formal utility "corridor" between the existing Union's southern façade and the new building's northern wall.

Electric and telecommunications lines here would perhaps pose a somewhat less intensive challenge, but they too would require re-alignment, and if the conduits are concrete-encased then altering those alignments would obviously add cost to any utility relocation endeavor.

Core Campus Facilities – Building C-02

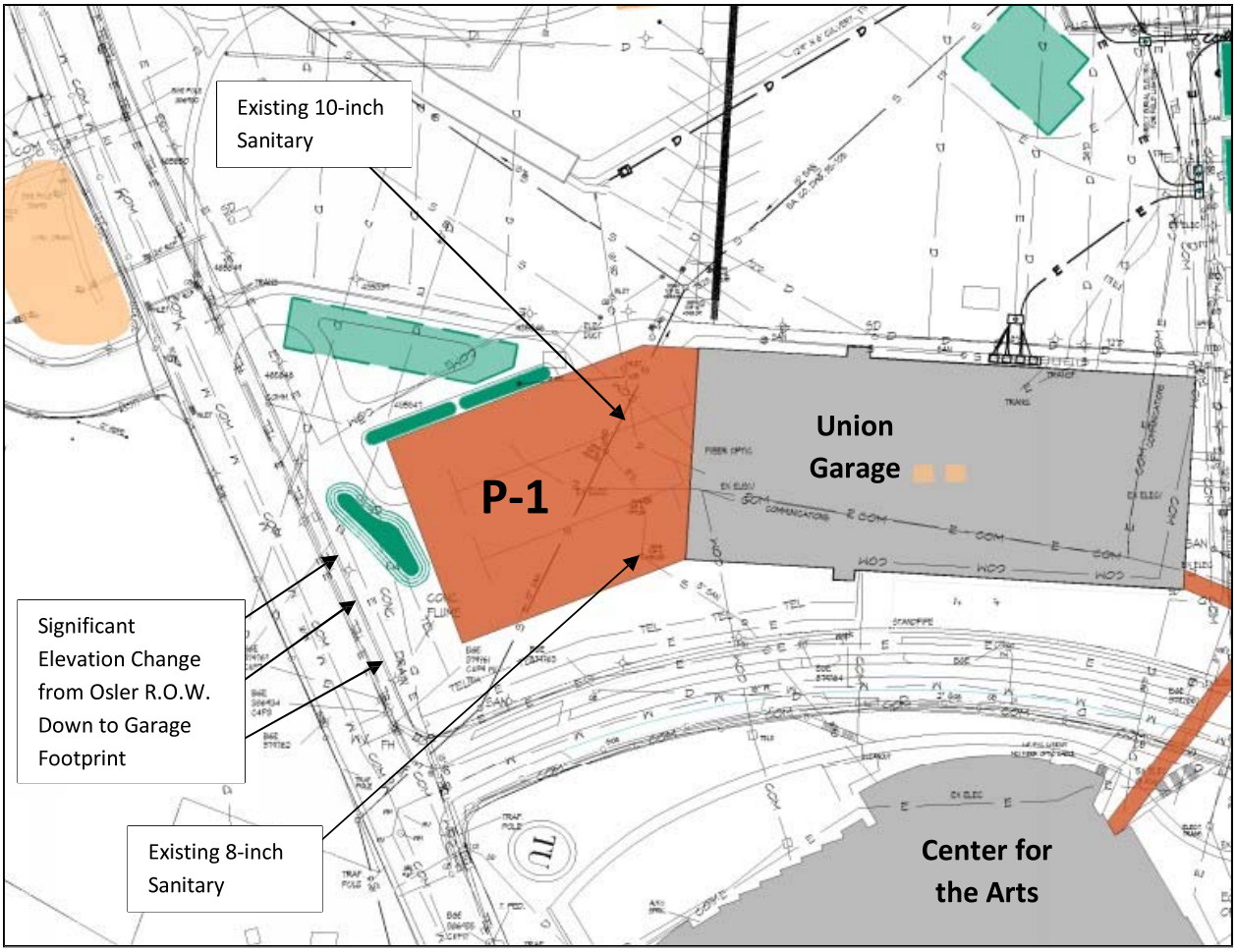


The Master Plan recommends constructing the new Enrollment Services building in the space immediately east of the main entrance from Towsontown Boulevard. There is an existing 24-foot wide utility easement through that area with sanitary lines (labeled as abandoned). The remaining utilities in that area appear to be water and electric lines that might require rearranging, depending upon the ultimate building shape.

As a result of the Site and Safety effort, the university has a renovated “front door” for visitors arriving from Towsontown Boulevard. The Master Plan recommends reinforcing this gateway experience by constructing a new Enrollment Services building just east of University Avenue. In order to “open up” this space for development, the university will first need to extinguish an existing 24-foot wide utility easement that effectively bifurcates the space. Mapping records list the water and sanitary utilities in this easement as abandoned. Once this easement is eliminated, there are some electric lines and water lines requiring relocation in order to accommodate the proposed building footprint.

Stormwater management facilities could be creatively fashioned to fit available niches and alcoves surrounding the building footprint. Designers would likely need to route the underdrains from these facilities toward the large underground culvert or perhaps to nearby “tributary” lines that ultimately drain into the big culvert.

Core Campus Facilities – Building P-1

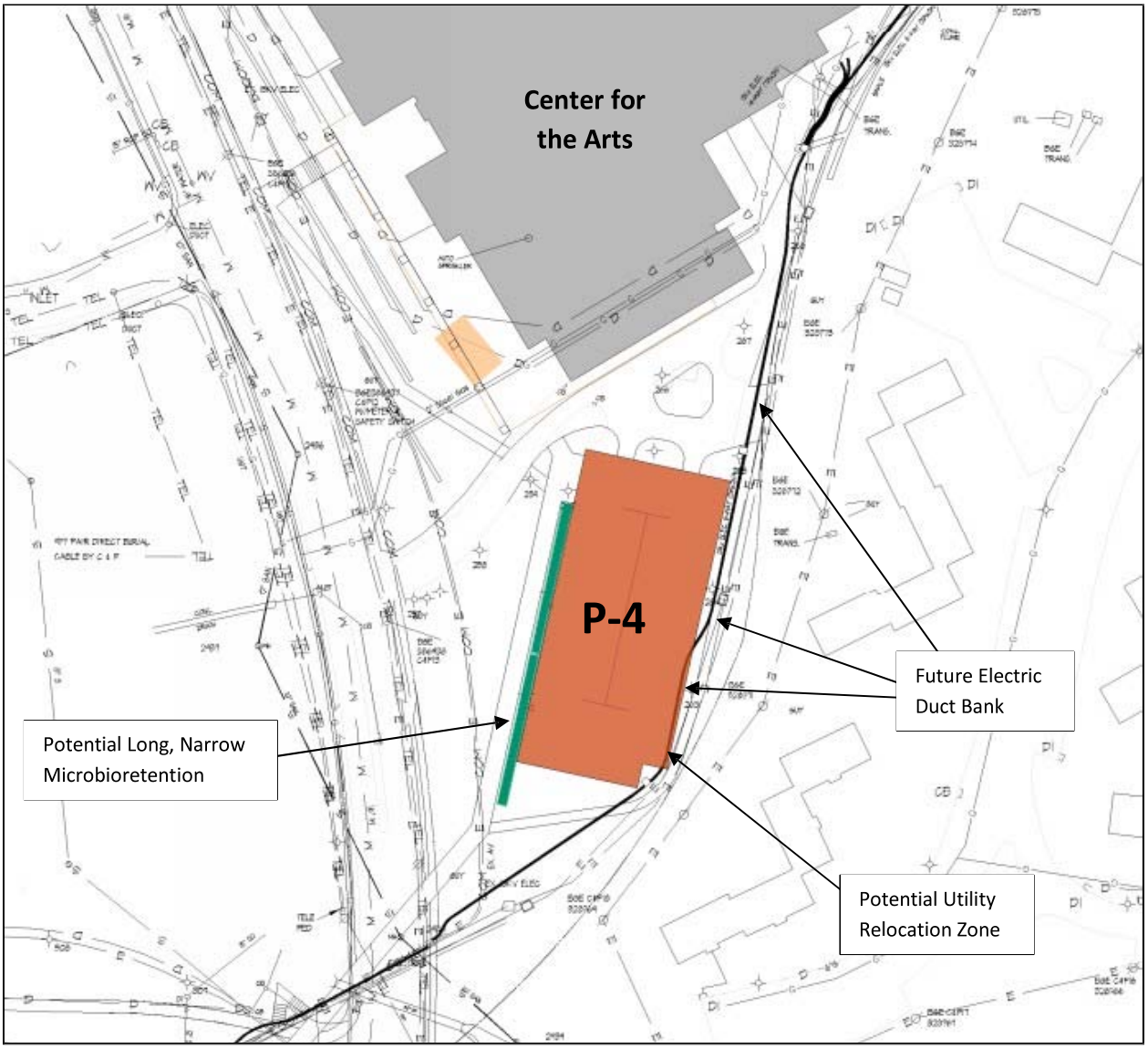


Expanding the Union Garage toward the west would likely require relocating existing 10-inch and 8-inch sanitary lines. If the invert elevations are accommodating, the relocation could potentially sweep around the western side of the expansion. The expansion westward may be limited somewhat by topography, since Osler Drive is significantly higher in elevation than the garage's lowest level. There would need to be some space between the garage expansion and Osler Drive to allow grading adjustments and potentially some space for stormwater management facilities.

The existing Union garage occupies an area (roughly elevation 345 +/-) lower than the nearby Osler Drive / Cross Campus Drive intersection (elevation 370 +/-). A western expansion of this garage would place the new structure at the bottom of a 25-foot slope. In order to create space for the requisite stormwater management, it may be advisable to leave enough room on the western façade for some micro-bioretention facilities.

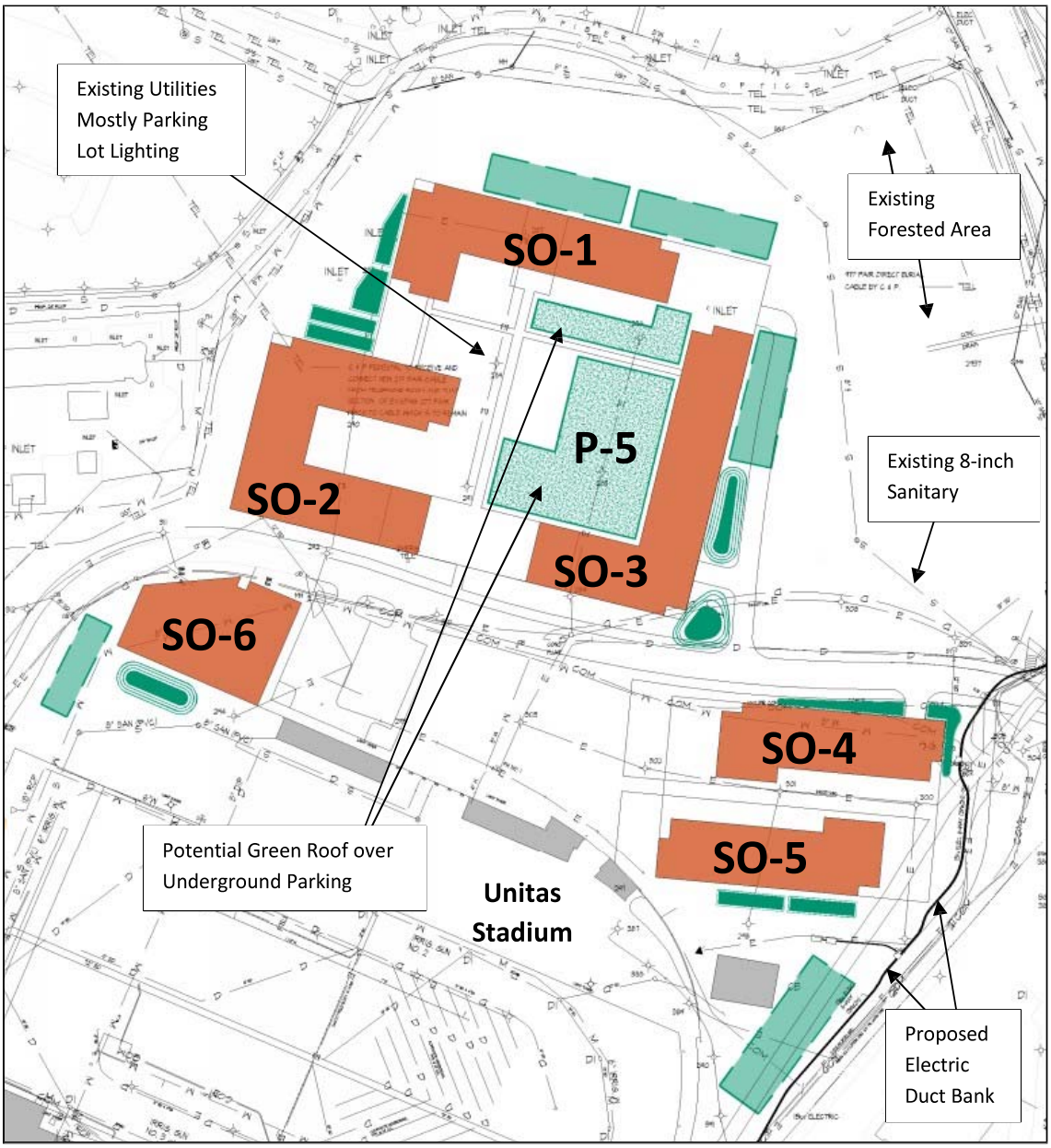
Additionally, there are existing 10-inch and 8-inch sanitary lines crossing this site, so those gravity lines may need to be re-aligned around the expansion. In the event that invert elevations prohibit proper re-alignment, planners may need to examine how to alter the existing sanitary piping in order accommodate active service lines that cross under the new garage.

Core Campus Facilities – Building P-4



A proposed garage south of the Center for the Arts building would need to be positioned to avoid a major electric duct bank being installed along the eastern property edge. There appears to be space for designers to work with the parking deck envelope and the overall deck orientation to avoid a utility conflict. Since the area naturally drains toward the creek on the west side of Osler Drive, it is logical to position stormwater management facilities on that side of the deck. Such positioning would allow underdrains to be oriented toward the west and would also avoid the nearby electric duct bank.

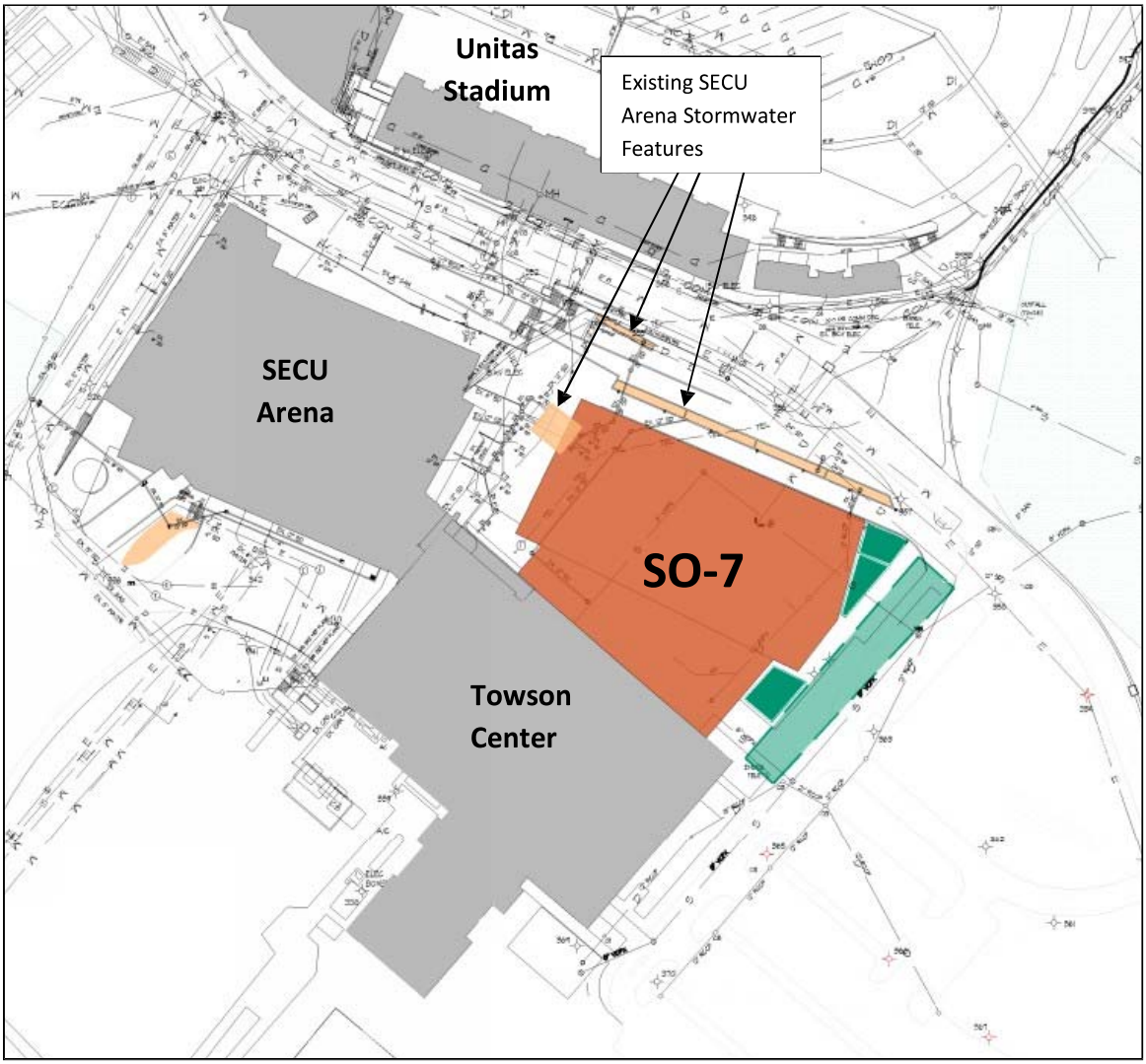
South Campus Facilities – Buildings SO-1 to SO-6



The Lot #14 and #13 areas are predominantly impervious parking in their current conditions. Therefore, it is possible that projects in this area could be categorized as “Redevelopment” and be subject to reduced stormwater requirements. Also, this particular part of campus is less “urban” and may afford opportunities to introduce micro-bioretention features that are graded more naturally into the landscape. In the event that a subterranean parking deck takes advantage of the significant topography here, a green roof on top of the parking deck would help reduce the scale of other stormwater facilities.

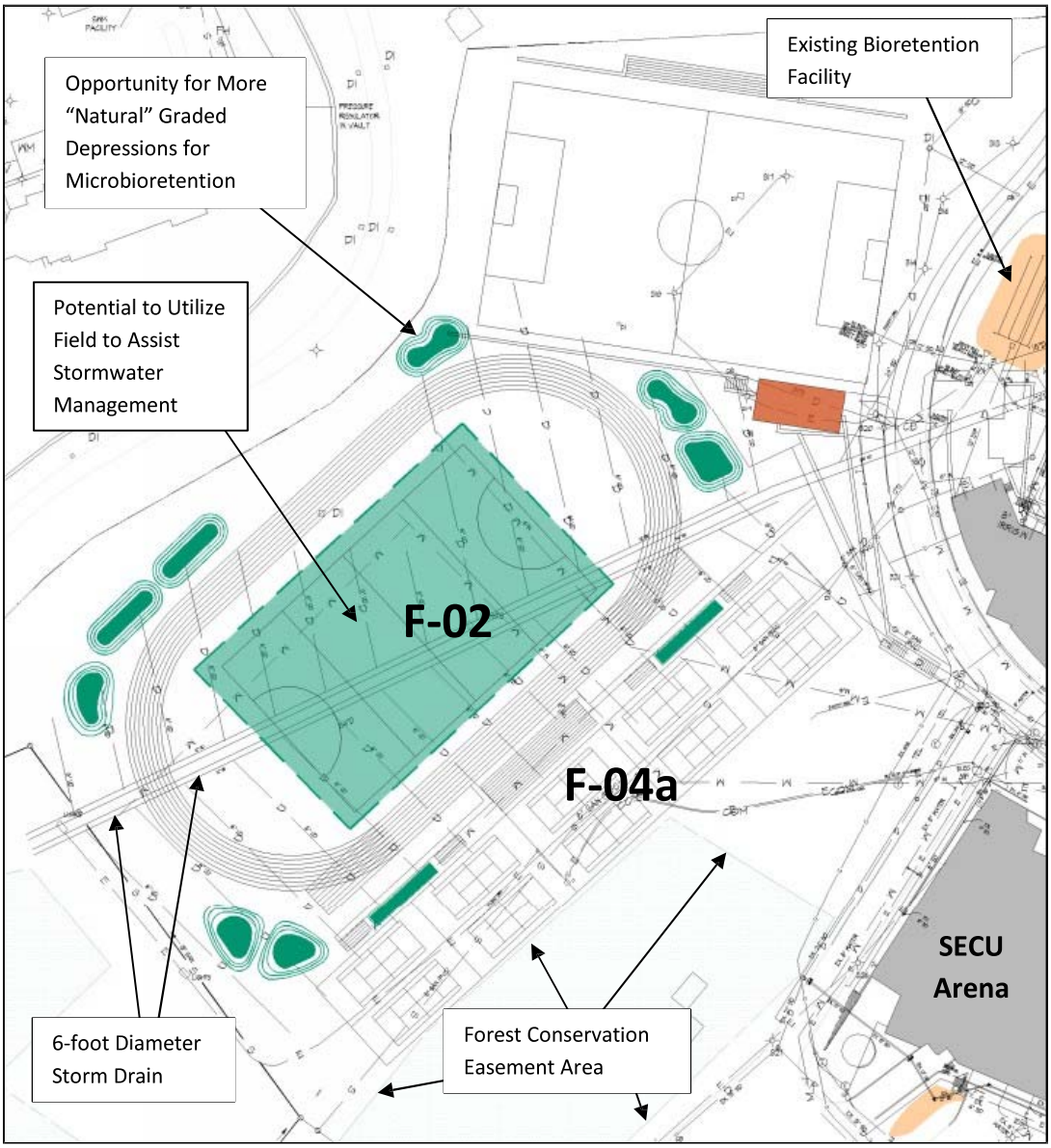
The most significant utility issues would likely be various electrical lines, including the new duct bank that is proposed on the eastern side of the property.

South Campus Facilities – Building SO-7



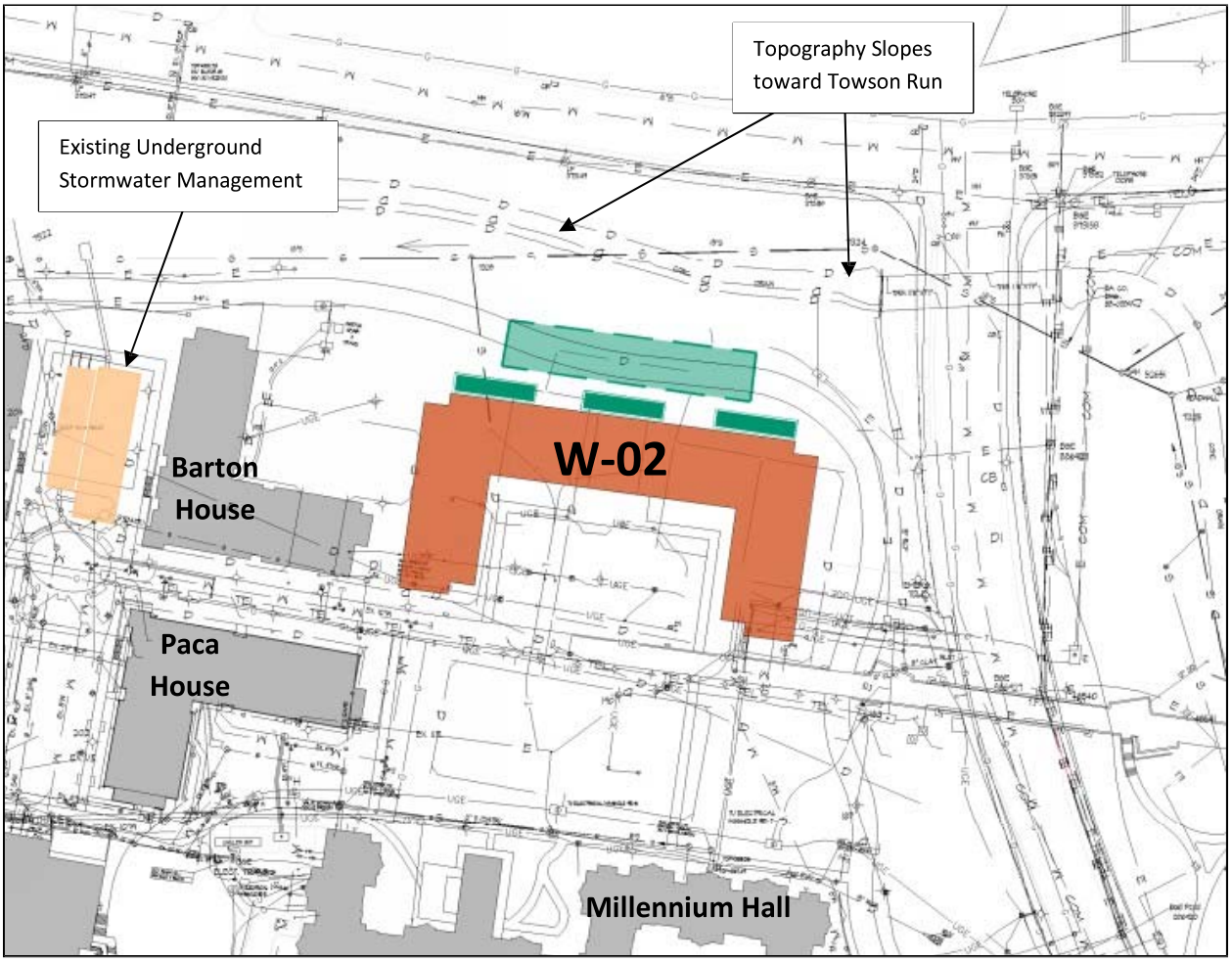
The proposed addition to the Towson Center would occur on the northeast wall, maximizing space currently occupied by a smaller wing of the center. Since the existing stormwater management features associated with SECU Arena were designed to handle computations for the Arena only, it is unlikely that a Towson Center expansion could introduce additional runoff loads into existing facilities. For this reason it would be advisable to set aside some spaces along the southeastern façade as designated stormwater management features.

South Campus Facilities – Recreation Fields



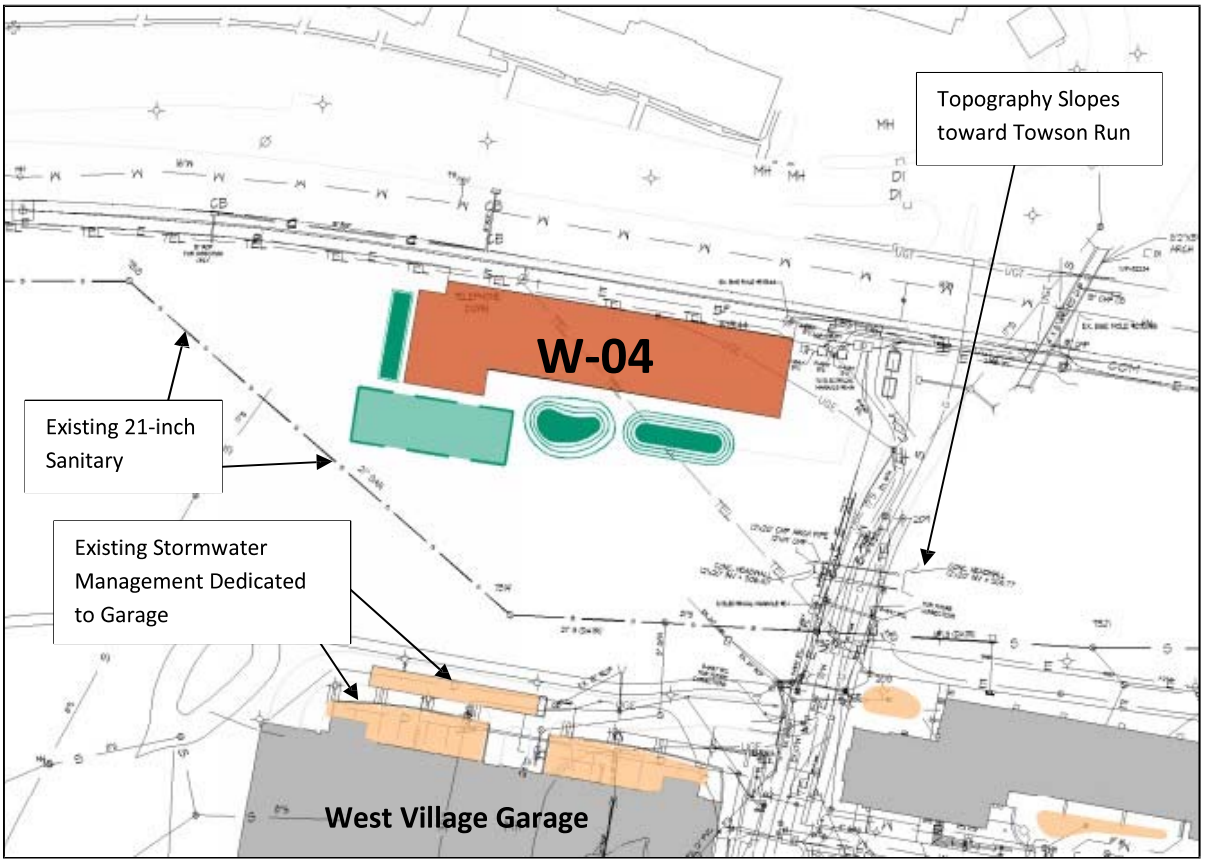
In the event that the recreation area has new impervious area introduced, it is possible that the impervious surfaces associated with the track, grandstand, walkways, and tennis courts will require a number of ESD practices. It may be possible to utilize the field inside the track as a stormwater management facility. If Towson officials choose to install a synthetic turf field, there is an opportunity to design the layers under the playing surface so that rainwater filtering through the top turf layer moves laterally through drainage stone and eventually seeps into stone trenches flanking the field. These trenches have perforated underdrains to direct runoff away from the field. There are also spaces around the outside track perimeter to introduce micro-bioretention features as required. Integrating ESD practices near the tennis courts may require creative thinking, especially since there is a forest conservation easement directly adjacent to the courts.

West Campus Facilities – Building W-02



The project that is proposed to replace the current Enrollment Services building could potentially fall under the "redevelopment" category and therefore have fewer required stormwater management practices. For the practices that are required, it would be logical to position them on the northern side of the building so that any underdrains would have the most direct path to an outfall point near Towson Run. Likewise, a potential detention facility would benefit from such positioning on the site.

West Campus Facilities – Building W-04



For a building positioned at this location near Towsontown Boulevard, the natural drainage is south toward Towson Run. It would help to orient any new ESD features so that potential underdrains may have more direct outfall to the creek. This general creek corridor also has a 21-inch sanitary line so there is the possibility that some degree of sanitary line realignment may be necessary, depending upon the final building configuration.

West Campus Facilities – Buildings A-1 to A-8

The proposed buildings along the Gilchrist driveway represent an opportunity to design a small campus community in a unified, holistic manner. Potential stormwater management facilities may be linked together in a way that realizes runoff efficiencies and saves material costs during construction. The terrain is quite hilly in this location, so there is the real possibility that constructing relatively level (or gently sloping) building pads will require modest retaining walls. These retaining walls can be skillfully utilized for “urban-style” rectilinear micro-bioretention features.

Future Facilities Inventory

	2015 Master Plan - Proposed SWM Projects				Status	Quality Facility #	Quantity Facility #	Surface	Under-ground
Core	C-04	TBD	North Residence Hall - Surface SWM	Proposed Residence Hall near Towson Bypass	Proposed	5		5	
		TBD	North Residence Hall - Detention	West of proposed Residence Hall	Proposed		1	•	•
	C-05	TBD	Health Professions Bldg. - Surface SWM	Just east of green space beside CLA	Proposed	5		5	
		TBD	Health Professions - Detention	In green space by CLA - near existing UG system	Proposed		1	•	•
	C-06	TBD	Academic - Surface SWM	Near York/Bypass Intersection	Proposed	5		5	
		TBD	Academic - Detention	Behind proposed building	Proposed		1	•	•
	C-07	TBD	Academic - Surface SWM	York Road - at Scarborough demo location	Proposed	1		1	
		TBD	Academic - Detention	Combined with detention for C-06	Proposed		◊◊	◊◊	◊◊
	C-08	TBD	Academic - Surface SWM	Location of Linthicum demo	Proposed	2		2	
		TBD	Academic - Detention	Under old Linthicum footprint - green quad space	Proposed		1	•	•
	C-09	TBD	Academic - Surface SWM	Location of Lecture Hall demo	Proposed	2		2	
		TBD	Academic - Detention	Combined with detention for C-08	Proposed		◊◊	◊◊	◊◊
	C-10a	TBD	Cook Library Addition - Surface SWM	Library entrance	Proposed	1		1	
		TBD	Cook Library Addition - Detention	Combined with detention for C-08	Proposed		◊◊	◊◊	◊◊
	C-14	TBD	Residence Hall at Glen - Surface SWM	South of Arboretum	Proposed	5		5	
		TBD	Residence Hall at Glen - Detention	Integrated with proposed parking deck under bldg.	Proposed		1	•	•
	C-02	TBD	New Visitor Center - Surface SWM	Main campus entrance at Towsontown Blvd.	Proposed	4		4	
		TBD	Visitor Center - Detention	Main campus entrance at Towsontown Blvd.	Proposed		1	•	•
	C-03a	TBD	Union Addition North - Surface SWM	Immediately north of existing Student Union	Proposed	3		3	
		TBD	Union Addition North - Detention	Potentially in play fields beside Union	Proposed		1	•	•
	C-03b	TBD	Union Addition South - Surface SWM	Immediately south of existing Student Union	Proposed	2		2	
		TBD	Union Addition South - Detention	Potentially between Union and Glen bldgs.	Proposed		1	•	•
	P-1	TBD	Union Parking Addition - Surface SWM	West side of existing deck	Proposed	3		3	
		TBD	Union Parking Addition - Detention	West side of existing deck	Proposed		1	•	•
	P-4	TBD	Center for the Arts Deck - Surface SWM	South of Center for the Arts Building	Proposed	2		2	
		TBD	Center for the Arts Deck - Detention	South of Center for the Arts Building	Proposed		1	•	•
	C-19	TBD	Academic - Surface SWM	Area west of York Road Admin. Building	Proposed	2		2	
		TBD	Academic - Detention	Area west of York Road Admin. Building	Proposed		1	•	•
	C-20	TBD	Academic - Surface SWM	Area west of York Road Admin. Building	Proposed	2		2	
		TBD	Academic - Detention	Combined with C-19	Proposed		◊◊	◊◊	◊◊
	P-2	TBD	Administration Deck - Surface SWM	Area west of York Road Admin. Building	Proposed	4		4	
		TBD	Administration Deck - Detention	Combined with C-19	Proposed		◊◊	◊◊	◊◊
South	S-01	TBD	Residential Housing - Surface SWM	In area of existing Lot #14	Proposed	2		2	
		TBD	Residential Housing - Detention	Potentially integrated with new parking deck	Proposed		1	•	•
	S-02	TBD	Residential Housing - Surface SWM	In area of existing Lot #14	Proposed	2		2	
		TBD	Residential Housing - Detention	Potentially integrated with new parking deck	Proposed		1	•	•
	S-03	TBD	Residential Housing - Surface SWM	In area of existing Lot #14	Proposed	2		2	
		TBD	Residential Housing - Detention	Potentially integrated with new parking deck	Proposed		1	•	•
	P-5	TBD	Parking Deck - SWM	Potential to integrate green roofing to mitigate SWM	Proposed	1		1	
		TBD	Parking Deck - Detention	Detention potentially integrated	Proposed		◊◊	•	•
	S-06	TBD	South Campus Dining - Surface SWM	West of football stadium	Proposed	1		1	
		TBD	South Campus Dining - Detention	West of football stadium	Proposed		1	•	•
	S-04	TBD	Residential - Surface SWM	Portion of Lot #13	Proposed	2		2	
		TBD	Residential - Detention	Portion of Lot #13	Proposed		1	•	•
	S-05	TBD	Residential - Surface SWM	Portion of Lot #13	Proposed	2		2	
		TBD	Residential - Detention	Portion of Lot #13 - combined with S-04	Proposed		◊◊	◊◊	◊◊
	S-07	TBD	Natatorium - Surface SWM	North of existing Towson Center	Proposed	3		3	
		TBD	Natatorium - Detention	North of existing Towson Center	Proposed		1	•	•
	F-02	TBD	Track and Field Hockey - Surface SWM	Area of existing recreation fields	Proposed	5		5	
		TBD	Track and Field Hockey - Detention	Area of existing recreation fields	Proposed		1	•	•
	F-04a	TBD	Tennis Complex - Surface SWM	Area of existing recreation fields	Proposed	5		5	
		TBD	Tennis Complex - Detention	Combined with track detention	Proposed		◊◊	◊◊	◊◊
	F-03	TBD	Soccer with Seating - Surface SWM	West of football stadium	Proposed				
		TBD	Soccer with Seating - Detention	West of football stadium	Proposed			•	•
West	W-02	TBD	Phase 5 Housing - Surface SWM	Footprint of existing enrollment services	Proposed	3		3	
		TBD	Phase 5 Housing - Detention	Footprint of existing enrollment services	Proposed		1	•	•
	W-04	TBD	Phase 6 Housing - Surface SWM	Beside Towsontown Blvd.	Proposed	3		3	
		TBD	Phase 6 Housing - Detention	Beside Towsontown Blvd.	Proposed		1	•	•
	A-1 thru A-8	TBD	Residential Buildings - Surface SWM	Westernmost campus - currently undeveloped	Proposed	17		17	
		TBD	Residential Buildings - Detention	Westernmost campus - currently undeveloped	Proposed		4	•	•
	P10	TBD	Parking Deck - Surface SWM	Western side of new developed area	Proposed	2		2	
		TBD	Parking Deck - Detention	Western side of new developed area	Proposed			•	•
	P-11	TBD	Surface Parking - Surface SWM	South of new developed area	Proposed	4		4	
		TBD	Surface Parking - Detention	South of new developed area	Proposed			•	•

Legend

◊◊ = Facility linked to another

• = Facility potentially surface or subsurface - TBD during design

2015 Master Plan Subtotals:	102	24
Total Estimated (All Facilities - Quality and Quantity)	126	

Stormwater Management – Grand Inventory and Mapping

Combining the tally of existing and proposed facilities yields a projection of total stormwater management features on the Towson University campus. The result of this effort provides a prognostication that will assist university planners during crucial decision-making stages as campus development advances. The full inventory is shown on following pages.

Project	Code	Established SWM Facilities	Location	Status	Quality Facility #	Quantity Facility #	Surface	Under-ground
	SWM-001	Surface Facility	Near Entrance to Glickstein Center	Active	1		1	
	SWM-002	Surface Facility	West campus near pedestrian bridge over Osler	Active	1		1	
	SWM-003	Precast UG Sand Filter	Near main driveway entrance from Towsontown Blvd.	Active	1			1
	SWM-004	Oil-Grit Separator	Union garage	Active	1			1
	SWM-005	Fine Arts UG Vault	Underground vault at Fine Arts - Osler site	Active	1			1
		Infiltration Trench - old facility	North of parking lot next to Linthicum Hall	Removed				
	SWM-006	Surface Facility	Just south of Towsontown Garage	Active	1		1	
	SWM-007	Surface Facility	West of Ward West	Active	1		1	
	SWM-008	Ward-West Parking Lot UG Storage	Under parking east of Ward-West	Active		1		1
	SWM-009	UG Storage	Parking lot behind Prettyman Hall	Active		1		1
	SWM-010	UG Sand Filter	Parking lot east of Glen Complex Bldg. D	Active	1			1
	SWM-011	UG Vault	Glen garage	Active	1			1
	SWM-012	Stadium Bioretention	West of Unitas Stadium	Active	1		1	
	SWM-013	Swale Structure	South of SECU Arena - next to Landscape Services	Active	1		1	
				Established SWM Facilities Subtotals	11	2	6	7

		Recent SWM Projects			Quality Facility #	Quantity Facility #	Surface	Under-ground
WVI	TBD	West Village Infrastructure - Quality	Between Douglass and Barton Residence Halls	Active	1			1
	TBD	West Village Infrastructure - UG Detention	Between Douglass and Barton Residence Halls	Active		1		1
WVH-II	TBD	West Village Student Housing II	Connected to facility between Douglass and Barton	Active	00			00
WVC	TBD	West Village Commons - Quality	Filterra devices along Emerson edge	Active	3			3
	TBD	West Village Commons - Quantity	UG Storage	Active		1		1
WVG	TBD	West Village Garage - Bioretention	Along north wall of garage	Active	2		2	
	TBD	West Village Garage - Detention	Just beyond north wall of garage	Active		1		1
WVH-III & IV	TBD	West Village Housing III & IV	East of WV garage	Proposed	3		3	
	TBD	West Village Housing III & IV - Detention						
CUPA	TBD	Utility Plant Expansion - SWM	Linked to CLA underground facility	Active	00			00
CLA	TBD	College of Liberal Arts - UG Sand Filter	Lawn area east of CLA	Active	1			1
	TBD	College of Liberal Arts - UG Detention	Lawn area east of CLA	Active		1		1
SECU	TBD	SECU Arena - Surface SWM	Long, narrow microbioretention in front of Arena	Active	4		4	
	TBD	SECU Arena - Detention	UG facility in front of Arena	Active		1		1
PS	TBD	Public Safety Microbioretention	Just east of Public Safety building	Active	1		1	
	TBD	Public Safety UG Detention	Under the Public Safety parking lot	Active		1		1
C-01	TBD	Burdick Hall Expansion - Surface SWM	Immediately south of Burdick Hall	Proposed	4		4	
	TBD	Burdick Hall Expansion - UG Detention	Just west of new expansion portion	Proposed		1		1
C-13	TBD	Science Center - Surface SWM	York Road side of proposed building	Proposed	9		9	
	TBD	Science Center - UG Detention	west side of proposed building footprint	Proposed		1		1
				Recent SWM Facilities Subtotals	28	7	23	12

			2015 Master Plan - Proposed SWM Projects			Quality Facility #	Quantity Facility #	Surface	Under-ground
Core	C-04	TBD	North Residence Hall - Surface SWM	Proposed Residence Hall near Towson Bypass	Proposed	5		5	
		TBD	North Residence Hall - Detention	West of proposed Residence Hall	Proposed		1	•	•
	C-05	TBD	Health Professions Bldg. - Surface SWM	Just east of green space beside CLA	Proposed	5		5	
		TBD	Health Professions - Detention	In green space by CLA - near existing UG system	Proposed		1	•	•
	C-06	TBD	Academic - Surface SWM	Near York/Bypass Intersection	Proposed	5		5	
		TBD	Academic - Detention	Behind proposed building	Proposed		1	•	•
	C-07	TBD	Academic - Surface SWM	York Road - at Scarborough demo location	Proposed	1		1	
		TBD	Academic - Detention	Combined with detention for C-06	Proposed		00	00	00
	C-08	TBD	Academic - Surface SWM	Location of Linthicum demo	Proposed	7		7	
		TBD	Academic - Detention	Under old Linthicum footprint - green quad space	Proposed		1	•	•
	C-09	TBD	Academic - Surface SWM	Location of Lecture Hall demo	Proposed	2		2	
		TBD	Academic - Detention	Combined with detention for C-08	Proposed		00	00	00
	C-10a	TBD	Cook Library Addition - Surface SWM	Library entrance	Proposed	1		1	
		TBD	Cook Library Addition - Detention	Combined with detention for C-08	Proposed		00	00	00
	C-14	TBD	Residence Hall at Glen - Surface SWM	South of Arboretum	Proposed	5		5	
		TBD	Residence Hall at Glen - Detention	Integrated with proposed parking deck under bldg.	Proposed		1	•	•
	C-02	TBD	New Visitor Center - Surface SWM	Main campus entrance at Towsontown Blvd.	Proposed	4		4	
		TBD	Visitor Center - Detention	Main campus entrance at Towsontown Blvd.	Proposed		1	•	•
	C-03a	TBD	Union Addition North - Surface SWM	Immediately north of existing Student Union	Proposed	3		3	
		TBD	Union Addition North - Detention	Potentially in play fields beside Union	Proposed		1	•	•
	C-03b	TBD	Union Addition South - Surface SWM	Immediately south of existing Student Union	Proposed	7		7	
		TBD	Union Addition South - Detention	Potentially between Union and Glen bldgs.	Proposed		1	•	•
	P-3	TBD	Union Parking Addition - Surface SWM	West side of existing deck	Proposed	3		3	
		TBD	Union Parking Addition - Detention	West side of existing deck	Proposed		1	•	•
	P-4	TBD	Center for the Arts Deck - Surface SWM	South of Center for the Arts Building	Proposed	2		2	
		TBD	Center for the Arts Deck - Detention	South of Center for the Arts Building	Proposed		1	•	•
	C-19	TBD	Academic - Surface SWM	Area west of York Road Admin. Building	Proposed	2		2	
		TBD	Academic - Detention	Area west of York Road Admin. Building	Proposed		1	•	•
	C-20	TBD	Academic - Surface SWM	Area west of York Road Admin. Building	Proposed	2		2	
		TBD	Academic - Detention	Combined with C-19	Proposed		00	00	00
	P-2	TBD	Administration Deck - Surface SWM	Area west of York Road Admin. Building	Proposed	4		4	
		TBD	Administration Deck - Detention	Combined with C-19	Proposed		00	00	00
South	S-01	TBD	Residential Housing - Surface SWM	In area of existing Lot #14	Proposed	2		2	
		TBD	Residential Housing - Detention	Potentially integrated with new parking deck	Proposed		1	•	•
	S-02	TBD	Residential Housing - Surface SWM	In area of existing Lot #14	Proposed	2		2	
		TBD	Residential Housing - Detention	Potentially integrated with new parking deck	Proposed		1	•	•
	S-03	TBD	Residential Housing - Surface SWM	In area of existing Lot #14	Proposed	2		2	
		TBD	Residential Housing - Detention	Potentially integrated with new parking deck	Proposed		1	•	•
	P-5	TBD	Parking Deck - SWM	Potential to integrate green roofing to mitigate SWM	Proposed	1		1	
		TBD	Parking Deck - Detention	Detention potentially integrated	Proposed		00	•	•
	S-06	TBD	South Campus Dining - Surface SWM	West of football stadium	Proposed	1		1	
		TBD	South Campus Dining - Detention	West of football stadium	Proposed		1	•	•
	S-04	TBD	Residential - Surface SWM	Portion of Lot #13	Proposed	2		2	
		TBD	Residential - Detention	Portion of Lot #13	Proposed		1	•	•
	S-05	TBD	Residential - Surface SWM	Portion of Lot #13	Proposed	2		2	
		TBD	Residential - Detention	Portion of Lot #13 - combined with S-04	Proposed		00	00	00
	S-07	TBD	Natatorium - Surface SWM	North of existing Towson Center	Proposed	3		3	
		TBD	Natatorium - Detention	North of existing Towson Center	Proposed		1	•	•
	F-02	TBD	Track and Field Hockey - Surface SWM	Area of existing recreation fields	Proposed	5		5	
		TBD	Track and Field Hockey - Detention	Area of existing recreation fields	Proposed		1	•	•
	F-04a	TBD	Tennis Complex - Surface SWM	Area of existing recreation fields	Proposed	5		5	
		TBD	Tennis Complex - Detention	Combined with track detention	Proposed		00	00	00
	F-03	TBD	Soccer with Seating - Surface SWM	West of football stadium	Proposed				
		TBD	Soccer with Seating - Detention	West of football stadium	Proposed			•	•
West	W-02	TBD	Phase 5 Housing - Surface SWM	Footprint of existing enrollment services	Proposed	3		3	
		TBD	Phase 5 Housing - Detention	Footprint of existing enrollment services	Proposed		1	•	•
	W-04	TBD	Phase 6 Housing - Surface SWM	Beside Towsontown Blvd	Proposed	3		3	
		TBD	Phase 6 Housing - Detention	Beside Towsontown Blvd	Proposed		1	•	•
	A-1 thru A-8	TBD	Residential Buildings - Surface SWM	Westernmost campus - currently undeveloped	Proposed	17		17	
		TBD	Residential Buildings - Detention	Westernmost campus - currently undeveloped	Proposed		4	•	•
	P10	TBD	Parking Deck - Surface SWM	Western side of new developed area	Proposed	2		2	
		TBD	Parking Deck - Detention	Western side of new developed area	Proposed			•	•
	P-11	TBD	Surface Parking - Surface SWM	South of new developed area	Proposed	4		4	
		TBD	Surface Parking - Detention	South of new developed area	Proposed			•	•
				2015 Master Plan Subtotals		102	24		
				Campus-Wide Estimated Totals (per type)		141	33		
				Grand Total Estimate (All Facilities - Quality and Quantity)		174			

Legend

00 = Facility linked to another

• = Facility potentially surface or subsurface - TBD during design

Inventory of Existing Facilities

Inventory of Proposed Facilities

Combining Existing Facilities with Proposed Yields a Total of 174 Stormwater Management Features (Assuming Full Build-out of Master Plan)

Towson University Stormwater Management Facilities

	Project	Code	Established SWM Facilities	Location	Status	Quality Facility #	Quantity Facility #	Surface	Under-ground
	SWM-001	Surface Facility	Near Entrance to Gilchrist Center	Active	1		1		
	SWM-002	Surface Facility	West campus near pedestrian bridge over Osler	Active	1		1		
	SWM-003	Precast UG Sand Filter	Near main driveway entrance from Towsontown Blvd.	Active	1			1	
	SWM-004	Oil-Grit Separator	Union garage	Active	1			1	
	SWM-005	Fine Arts UG Vault	Underground vault at Fine Arts - Osler side	Active	1			1	
		Infiltration Trench - old facility	North of parking lot next to Linthicum Hall	Removed					
	SWM-006	Surface Facility	Just south of Towsontown Garage	Active	1		1		
	SWM-007	Surface Facility	West of Ward-West	Active	1		1		
	SWM-008	Ward-West Parking Lot UG Storage	Under parking east of Ward-West	Active		1		1	
	SWM-009	UG Storage	Parking lot behind Prettyman Hall	Active		1		1	
	SWM-010	UG Sand Filter	Parking lot east of Glen Complex Bldg. D	Active	1			1	
	SWM-011	UG Vault	Glen garage	Active	1			1	
	SWM-012	Stadium Bioretention	West of Unitas Stadium	Active	1		1		
	SWM-013	Swale Structure	South of SECU Arena - next to Landscape Services	Active	1		1		
					11	**2**	**6**	**7**	

Established SWM Facilities Subtotals:

			Recent SWM Projects			Quality Facility #	Quantity Facility #	Surface	Under-ground
WVI	TBD	West Village Infrastructure - Quality	Between Douglass and Barton Residence Halls	Active	1			1
	TBD	West Village Infrastructure - UG Detention	Between Douglass and Barton Residence Halls	Active		1		1
WVH-II	TBD	West Village Student Housing II	Connected to facility between Douglass and Barton	Active	◊◊			◊◊
WVC	TBD	West Village Commons - Quality	Filterra devices along Emerson edge	Active	3			3
	TBD	West Village Commons - Quantity	UG Storage	Active		1		1
WVG	TBD	West Village Garage - Bioretention	Along north wall of garage	Active	2		2	
	TBD	West Village Garage - Detention	Just beyond north wall of garage	Active		1		1
H-III & IV	TBD	West Village Housing III & IV	East of WV garage	Proposed	3		3	
CUPA	TBD	Utility Plant Expansion - SWM	Linked to CLA underground facility	Active	◊◊			◊◊
CLA	TBD	College of Liberal Arts - UG Sand Filter	Lawn area east of CLA	Active	1			1
	TBD	College of Liberal Arts - UG Detention	Lawn area east of CLA	Active		1		1
SECU	TBD	SECU Arena - Surface SWM	Long, narrow microbioretention in front of Arena	Active	4		4	
	TBD	SECU Arena - Detention	UG facility in front of Arena	Active		1		1
PS	TBD	Public Safety Microbioretention	Just east of Public Safety building	Active	1		1	
	TBD	Public Safety UG Detention	Under the Public Safety parking lot	Active		1		1
C-01	TBD	Burdick Hall Expansion - Surface SWM	Immediately south of Burdick Hall	Proposed	4		4	
	TBD	Burdick Hall Expansion - UG Detention	Just west of new expansion portion	Proposed		1		1
C-13	TBD	Science Center - Surface SWM	York Road side of proposed building	Proposed	9		9	
	TBD	Science Center - UG Detention	west side of proposed building footprint	Proposed		1		1
					28	**7**	**23**	**12**

Recent SWM Facilities Subtotals:

			2015 Master Plan - Proposed SWM Projects			Quality Facility #	Quantity Facility #	Surface	Under-ground
Core	C-04	TBD	North Residence Hall - Surface SWM	Proposed Residence Hall near Towson Bypass	Proposed	5		5	
		TBD	North Residence Hall - Detention	West of proposed Residence Hall	Proposed		1	●	●
	C-05	TBD	Health Professions Bldg. - Surface SWM	Just east of green space beside CLA	Proposed	5		5	
		TBD	Health Professions - Detention	In green space by CLA - near existing UG system	Proposed		1	●	●
	C-06	TBD	Academic - Surface SWM	Near York/Bypass Intersection	Proposed	5		5	
		TBD	Academic - Detention	Behind proposed building	Proposed		1	●	●
	C-07	TBD	Academic - Surface SWM	York Road - at Scarborough demo location	Proposed	1		1	
		TBD	Academic - Detention	Combined with detention for C-06	Proposed		◊◊	◊◊	◊◊
	C-08	TBD	Academic - Surface SWM	Location of Linthicum demo	Proposed	2		2	
		TBD	Academic - Detention	Under old Linthicum footprint - green quad space	Proposed		1	●	●
	C-09	TBD	Academic - Surface SWM	Location of Lecture Hall demo	Proposed	2		2	
		TBD	Academic - Detention	Combined with detention for C-08	Proposed		◊◊	◊◊	◊◊
	C-10a	TBD	Cook Library Addition - Surface SWM	Library entrance	Proposed	1		1	
		TBD	Cook Library Addition - Detention	Combined with detention for C-08	Proposed		◊◊	◊◊	◊◊
	C-14	TBD	Residence Hall at Glen - Surface SWM	South of Arboretum	Proposed	5		5	
		TBD	Residence Hall at Glen - Detention	Integrated with proposed parking deck under bldg.	Proposed		1	●	●
	C-02	TBD	New Visitor Center - Surface SWM	Main campus entrance at Towsontown Blvd.	Proposed	4		4	
		TBD	Visitor Center - Detention	Main campus entrance at Towsontown Blvd.	Proposed		1	●	●
	C-03a	TBD	Union Addition North - Surface SWM	Immediately north of existing Student Union	Proposed	3		3	
		TBD	Union Addition North - Detention	Potentially in play fields beside Union	Proposed		1	●	●
	C-03b	TBD	Union Addition South - Surface SWM	Immediately south of existing Student Union	Proposed	2		2	
		TBD	Union Addition South - Detention	Potentially between Union and Glen bldgs.	Proposed		1	●	●
	P-1	TBD	Union Parking Addition - Surface SWM	West side of existing deck	Proposed	3		3	
		TBD	Union Parking Addition - Detention	West side of existing deck	Proposed		1	●	●
	P-4	TBD	Center for the Arts Deck - Surface SWM	South of Center for the Arts Building	Proposed	2		2	
		TBD	Center for the Arts Deck - Detention	South of Center for the Arts Building	Proposed		1	●	●
	C-19	TBD	Academic - Surface SWM	Area west of York Road Admin. Building	Proposed	2		2	
		TBD	Academic - Detention	Area west of York Road Admin. Building	Proposed		1	●	●
	C-20	TBD	Academic - Surface SWM	Area west of York Road Admin. Building	Proposed	2		2	
		TBD	Academic - Detention	Combined with C-19	Proposed		◊◊	◊◊	◊◊
	P-2	TBD	Administration Deck - Surface SWM	Area west of York Road Admin. Building	Proposed	4		4	
		TBD	Administration Deck - Detention	Combined with C-19	Proposed		◊◊	◊◊	◊◊
South	S-01	TBD	Residential Housing - Surface SWM	In area of existing Lot #14	Proposed	2		2	
		TBD	Residential Housing - Detention	Potentially integrated with new parking deck	Proposed		1	●	●
	S-02	TBD	Residential Housing - Surface SWM	In area of existing Lot #14	Proposed	2		2	
		TBD	Residential Housing - Detention	Potentially integrated with new parking deck	Proposed		1	●	●
	S-03	TBD	Residential Housing - Surface SWM	In area of existing Lot #14	Proposed	2		2	
		TBD	Residential Housing - Detention	Potentially integrated with new parking deck	Proposed		1	●	●
	P-5	TBD	Parking Deck - SWM	Potential to integrate green roofing to mitigate SWM	Proposed	1		1	
		TBD	Parking Deck - Detention	Detention potentially integrated	Proposed		◊◊	●	●
	S-06	TBD	South Campus Dining - Surface SWM	West of football stadium	Proposed	1		1	
		TBD	South Campus Dining - Detention	West of football stadium	Proposed		1	●	●
	S-04	TBD	Residential - Surface SWM	Portion of Lot #13	Proposed	2		2	
		TBD	Residential - Detention	Portion of Lot #13	Proposed		1	●	●
	S-05	TBD	Residential - Surface SWM	Portion of Lot #13	Proposed	2		2	
		TBD	Residential - Detention	Portion of Lot #13 - combined with S-04	Proposed		◊◊	◊◊	◊◊
	S-07	TBD	Natatorium - Surface SWM	North of existing Towson Center	Proposed	3		3	
		TBD	Natatorium - Detention	North of existing Towson Center	Proposed		1	●	●
	F-02	TBD	Track and Field Hockey - Surface SWM	Area of existing recreation fields	Proposed	5		5	
		TBD	Track and Field Hockey - Detention	Area of existing recreation fields	Proposed		1	●	●
	F-04a	TBD	Tennis Complex - Surface SWM	Area of existing recreation fields	Proposed	5		5	
		TBD	Tennis Complex - Detention	Combined with track detention	Proposed		◊◊	◊◊	◊◊
	F-03	TBD	Soccer with Seating - Surface SWM	West of football stadium	Proposed				
		TBD	Soccer with Seating - Detention	West of football stadium	Proposed			●	●
West	W-02	TBD	Phase 5 Housing - Surface SWM	Footprint of existing enrollment services	Proposed	3		3	
		TBD	Phase 5 Housing - Detention	Footprint of existing enrollment services	Proposed		1	●	●
	W-04	TBD	Phase 6 Housing - Surface SWM	Beside Towsontown Blvd.	Proposed	3		3	
		TBD	Phase 6 Housing - Detention	Beside Towsontown Blvd.	Proposed		1	●	●
	thru A- 8	TBD	Residential Buildings - Surface SWM	Westernmost campus - currently undeveloped	Proposed	17		17	
		TBD	Residential Buildings - Detention	Westernmost campus - currently undeveloped	Proposed		4	●	●
	P10	TBD	Parking Deck - Surface SWM	Western side of new developed area	Proposed	2		2	
		TBD	Parking Deck - Detention	Western side of new developed area	Proposed			●	●
	P-11	TBD	Surface Parking - Surface SWM	South of new developed area	Proposed	4		4	
		TBD	Surface Parking - Detention	South of new developed area	Proposed			●	●

Legend

◊◊ = Facility linked to another
● = Facility potentially surface or subsurface - TBD during design

2015 Master Plan Subtotals:	**102**	**24**
Campus-Wide Estimated Totals (per type):	**141**	**33**
Grand Total Estimate (All Facilities - Quality and Quantity)	**174**	

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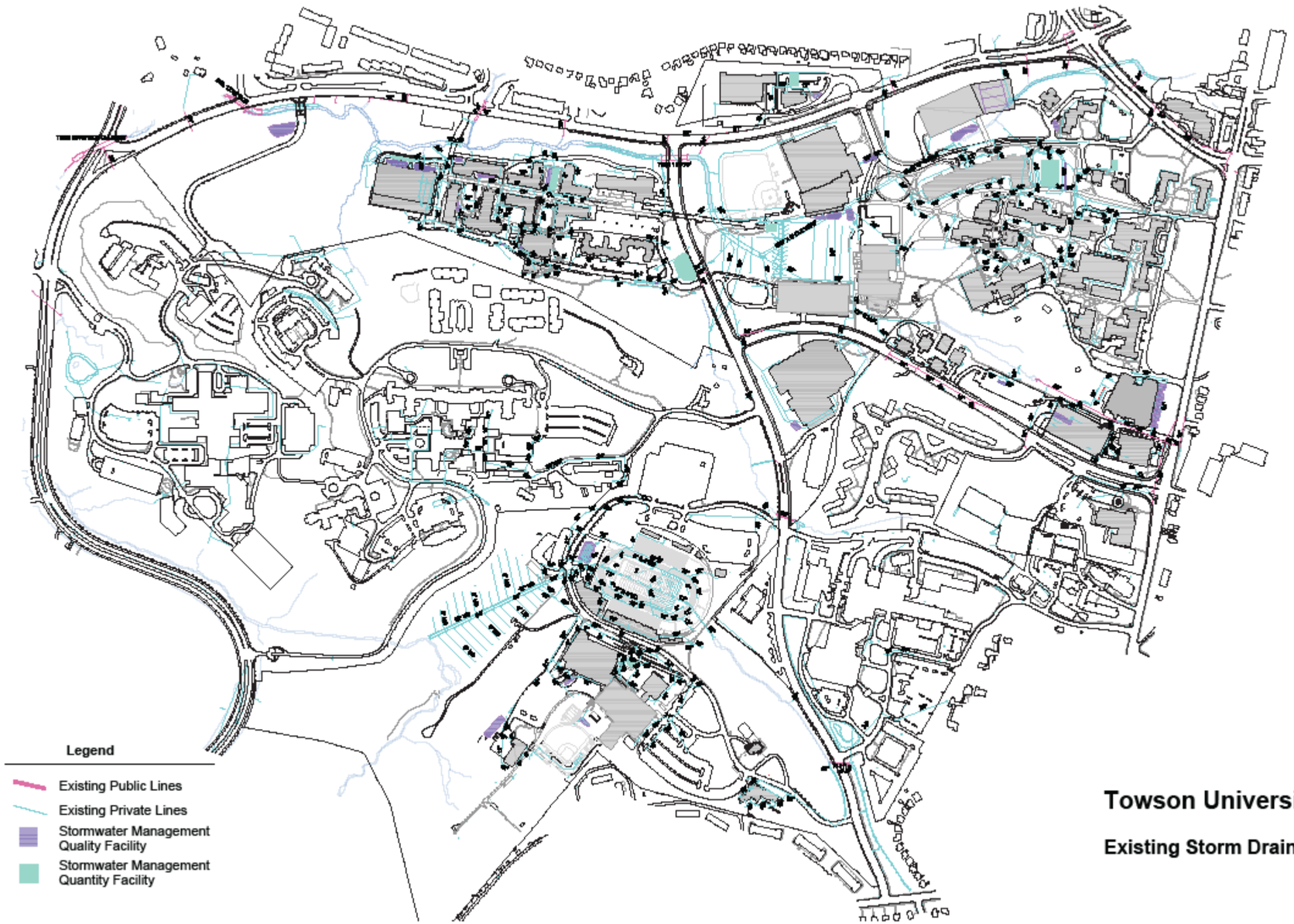

Towson University

Existing Storm Drains

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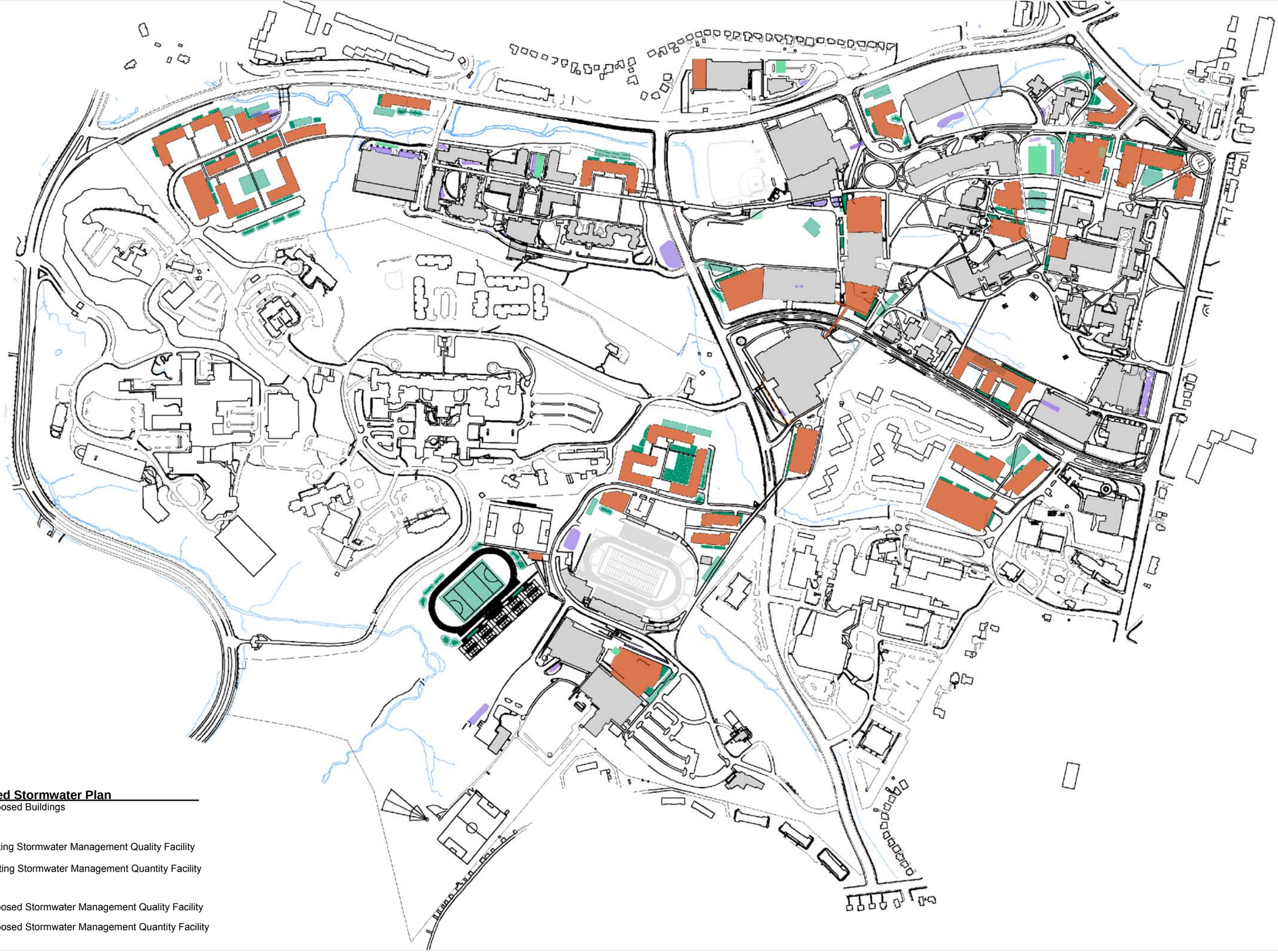
Proposed Stormwater Plan
Proposed Buildings
Existing Stormwater Management Quality Facility
Existing Stormwater Management Quantity Facility
Proposed Stormwater Management Quality Facility
Proposed Stormwater Management Quantity Facility

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Additional Considerations for the Future

The Water Quality "Bank"

Stormwater engineers want to position ESD facilities as close to new development as possible, but project sites rarely present designers with ideal situations. MDE recognizes the unique nature of a large campus setting and will occasionally allow a "banking" procedure for more regional-scale stormwater management. Towson University maintains a water quality "bank" and has the ability to selectively deduct available credits when necessary. This tally is administered through MDE and any proposed debits from the campus stormwater management bank would require MDE approval. For master planning purposes, it is recommended that the banking system be treated as a secondary, or perhaps tertiary, option to be invoked when a specific project has thoroughly evaluated ESD possibilities and is still encountering site constraints that pose significant hardship.

The current status of the university's stormwater "bank" is as follows:

	PROJECT NAME	MDE #	DATE	Debit (Ac)	Credit (Ac)
1	West Village Student Housing	07-SF-0161	6/21/07		0.75
2	West Village Infrastructure	07-SF-0308	11/1/07		0.84
3	West Village-Emerson Rd widening	08-SF-0077	10/2/07	0	
4	West Village Parking Garage	10-SF-0277	7/22/10		0.59
5	Public Safety Building	11-SF-0226	7/26/11	-0.86	
6	Newell & Richmond Halls	11-SF-0212	12/14/11	-0.241	
7	Ward & West Halls/Health Counselling Cente	12-SF-0200	7/3/12	-0.017	
8	Towson Site And Safety - Phase 2	13-SF-0060	5/20/13		0.03
9	West Village Housing 3 & 4	14-SF-0172	1/16/15		0.11
10	Burdick Hall Expansion	15-SF-0161	6/25/15	-0.24	
11	CLA	07-SF-0076	2/2/07	0	0
12	Commemorative Garden	09-SF-0413	4/11/11	0.03	
13	West Village Commons	09-SF-0242	9/30/10		
14	West Village Student Housing Phase II	09-SF-0277	8/6/09	0	0
15	Site and Safety Improvements	09-SF-0278	6/30/09	0	0
16	Towson Center Arena	11-SF-0168	7/16/11	0	0
				-1.328	2.32
	Current Watershed Balance		**0.992**		

Integrated Water Strategies

Landscape Management

Landscape management includes establishing, protecting and enhancing natural areas on the campus including forest corridors, streams and wetlands and associated buffers. In addition to reforestation, managing the landscape can include areas of other kinds of habitats including scrub-shrub and warm-season grassy meadows, and transitional landscaping of tree and shrub masses to connect the built systems to the natural environment. The previously suggested invasive species management plan is also another component of managing the landscape for multiple ecological benefits and can be a companion to developing an integrated/organic pest management plan and protocols for nutrient management. The overall approach to developing and implementing these management plans is to protect natural systems including plant health and water quality and to ultimately reduce maintenance costs and labor efforts, and reduce pesticide, herbicide and fertilizer use.

Other benefits to enhanced natural areas and increased landscape plantings depicted in the Master Plan include reduction of thermal or 'heat islands' impacts, improving air quality, enhancing aesthetics, reducing run-off and sequestering nutrients and other compounds.

Campus Sustainability

Ecological sustainability of the Campus Master Plan not only includes the direct physical footprint of the planned infrastructure and natural areas, but also is related to the materials and energy used, and waste generated, by campus operations and maintenance. There are a number of available techniques and resources for assessing and improving the environmental consequences of campus performance. The campus operations and functions that can benefit from ecologically sustainable improvements include material procurement, landscaping, infrastructure and energy systems, and food services, among others. These initiatives not only provide opportunities for ecological stewardship, but also can result in some reduced capital, maintenance and operating costs. See the ecological management guidelines for detailed descriptions.

Addressing broader ecological impacts of campus development and operation is an important step towards implementing the Executive Order mandating green development requirements for all State agency buildings to achieve LEED Silver rating or IgCC Building Standards. This will involve the need to utilize not only sensitive site planning and smart growth principles, but also incorporation of renewable, recycled and recyclable materials for construction, and the integration of water and energy efficient building systems.

4.9 Master Plan Transportation Recommendations

The transportation section of the Campus Master Plan includes capital improvement projects, recommendations for operational changes, and proposed policy changes that are synchronized with the goals, land use, and growth forecasts presented in other sections. The combined effect of these recommendations is intended to create a transportation network in and around the campus that effectively serves Towson University, its neighbor institutions, and local residents.

The driving factor of the Master Plan with the most significant impact on the transportation system is the university's desire to build new on-campus housing. When taken into the context of the Master Plan enrollment increase, Towson is proposing to create housing on a scale that equals nearly 78% of its proposed full-time equivalent undergraduate enrollment growth on campus. Total on-campus housing would grow from 4,385 beds today to 6,965 beds by 2018, over a 59% increase. With an enrollment increase of slightly more than 21% and an on-campus housing increase of 59%, a higher percentage of students will be living on campus and therefore, walking rather than driving to class on a daily basis.

Currently, First-Year resident students are not allowed to bring a car to campus which reduces the need for parking. To provide personal mobility for these students, the university provides shuttle services across campus, the Collegetown Shuttle and MTA buses serve the campus, and the university has implemented Zipcar, a car rental program, in the fall of 2009 which allows students, faculty or staff to rent a vehicle on demand on an hourly basis.

The transportation goals of the Master Plan are two-fold:

1. Accommodate Towson's expansion goals in an environmentally responsible and cost-efficient manner; and

2. Reduce demand for personal autos and create a more "pedestrian-friendly" campus by:
   - Creating more on-campus housing;
   - Creating more retail amenities on campus;
   - Establishing a hierarchy for close and remote parking; and
   - Providing incentives for alternative modes of travel.

Guiding Principles

Guiding principles arising from these goals are:

1. Create new campus “gateways” along Towsontown Boulevard, York Road, and Osler Drive for vehicles and pedestrians that identify Towson’s presence in a unique and conspicuous way;
2. Improve vehicular, pedestrian and bicycle way-finding systems for first-time visitors;
3. Maintain existing parking supply/demand ratios to meet the needs of increased residential and commuter population while minimizing the number of new spaces created;
4. Minimize the construction of new parking in the Academic Core by replacing most of the parking spaces “lost” to construction in the Athletics and future West Village expansion;
5. Mitigate major points of vehicular/pedestrian/bicycle conflict on campus and design pedestrian/bicycle/vehicular/loading access to new buildings so as to separate these uses as much as possible;
6. Improve pedestrian and bicycle safety and amenities on campus, particularly within the Academic Core;
7. Improve the efficiency and convenience of campus shuttle services to and from the South Campus parking areas and the new housing/retail in West Village; and
8. Maximize opportunities to share resources and coordinate strategic planning efforts with neighboring institutions for traffic and parking improvements through the Towson Four partnership.

Future Traffic Conditions & Recommendations

Projected Campus Growth

Traffic operations at each study intersection were analyzed for projected student body growth set forth by the Campus Master Plan for year 2029.

Trip Generation

Daily weekday peak hour estimated trip generation was calculated using the *Trip Generation Manual, 9th Edition,* published by the Institute of Transportation Engineers. The estimates were based on the project growth of 3,605 full-time equivalent students by 2029. A 10% reduction was taken for trips by transit and walking to campus. The total number of trips generated is shown in Table 5.

Table 5: Trip Generation from Enrollment Growth

Land Use Code 550 – University/College	**Size**	**AM Analysis**		**PM Analysis**	
		Entry	**Exit**	**Entry**	**Exit**
Full Time Students	3605 Full-time Equiv. Students	478	135	196	417
Reduction	*10% (for shuttle/transit trips)*	48	13	20	42
Internal		0	0	0	0
Pass-by		0	0	0	0
Non-pass-by		430	122	176	375
Total		**478**	**135**	**196**	**417**
Total Reduction		**48**	**13**	**20**	**42**
Total Internal		**0**	**0**	**0**	**0**
Total Pass-by		**0**	**0**	**0**	**0**
Total Non-pass-by		**430**	**122**	**176**	**375**

Additionally, a regional growth factor was included in the future conditions analysis. The existing traffic volumes were grown by one percent per year over fourteen years (2015-2029). The annual one percent growth was based on annual average daily traffic volumes over the past five years and was applied to the through movements along state roads only. This included the study intersection along MD 139 (Charles Road) and the two study intersections along MD 45 (York Road). This 1% growth is a conservative estimate, as previously discussed daily volume trends are flat to negative on both of the state roads. Additionally, there are no background developments that would have any significant impact in the study area.

Trip Distribution

The trip distribution used in the 2009 Towson University Master Plan Update was used for this analysis; refer to Figure 12. Travel patterns are not expected to have changed since 2009 and using the same distribution provides consistency. The majority of trips are from north of the campus.

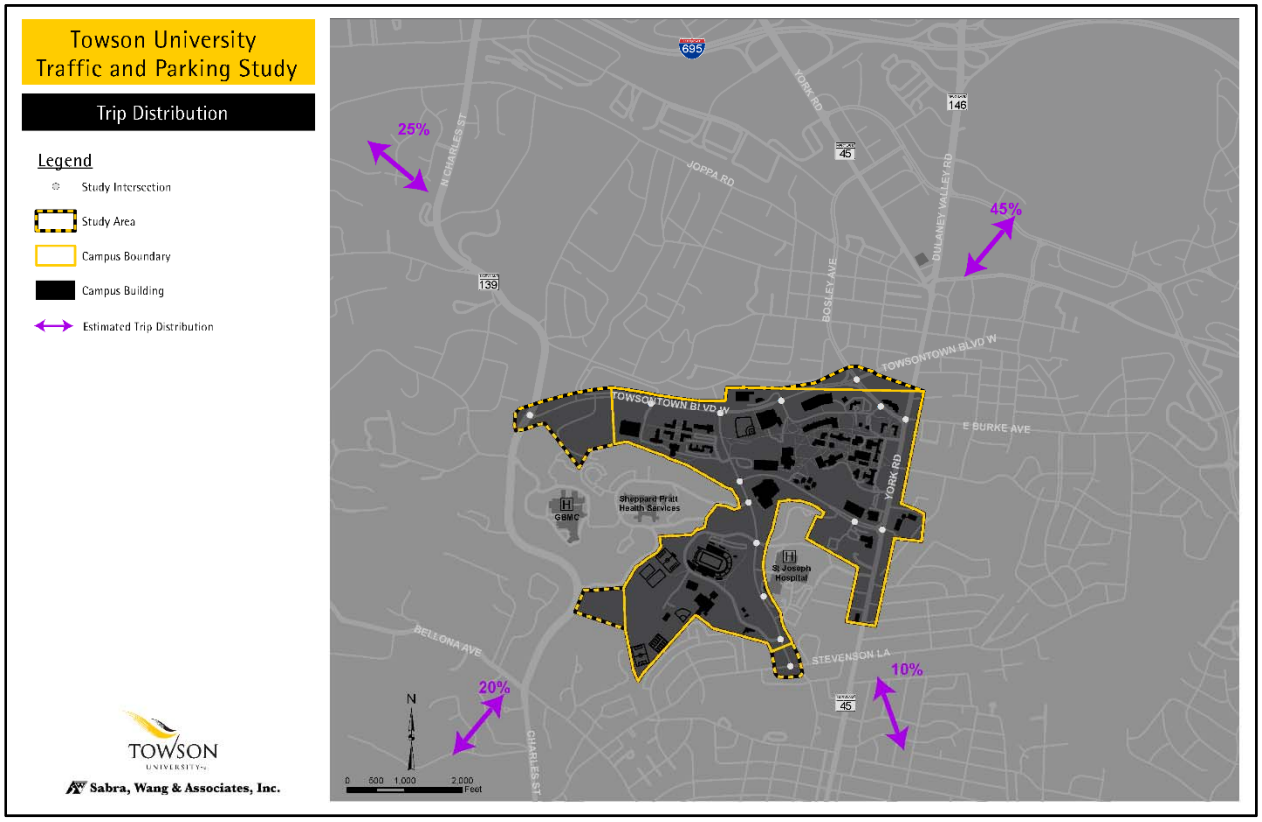


Figure 12: New Enrollment Vehicle Trip Distribution

Trip Assignment

The projected campus growth was focused on three separate areas of the campus around the Towsontown Garage, the Union Garage, and the Glenn Garage. The generated trips were assigned to the study intersections as is shown in Figure 13 and Figure 14 below.

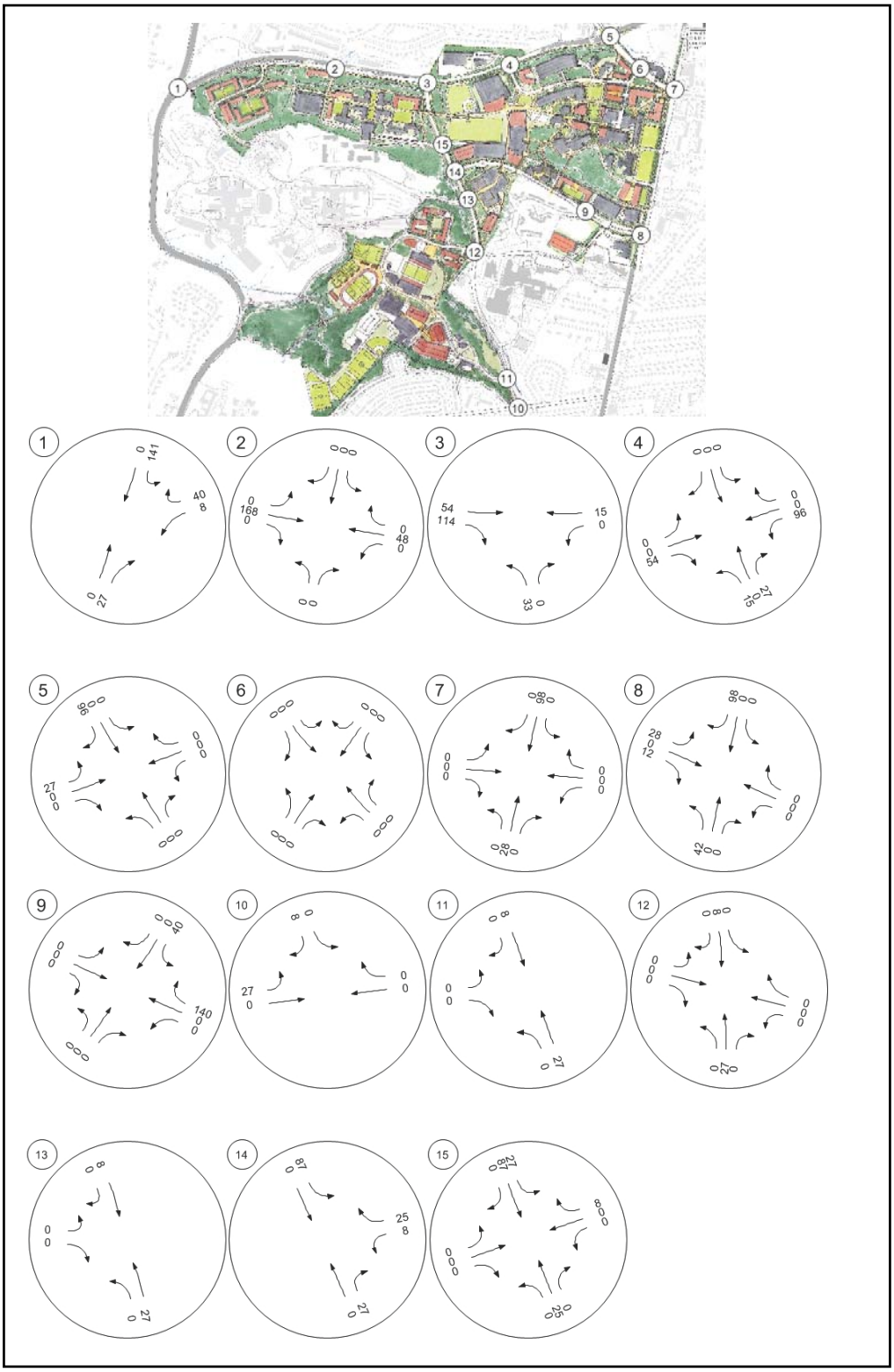


Figure 13: New AM Peak Period Trips

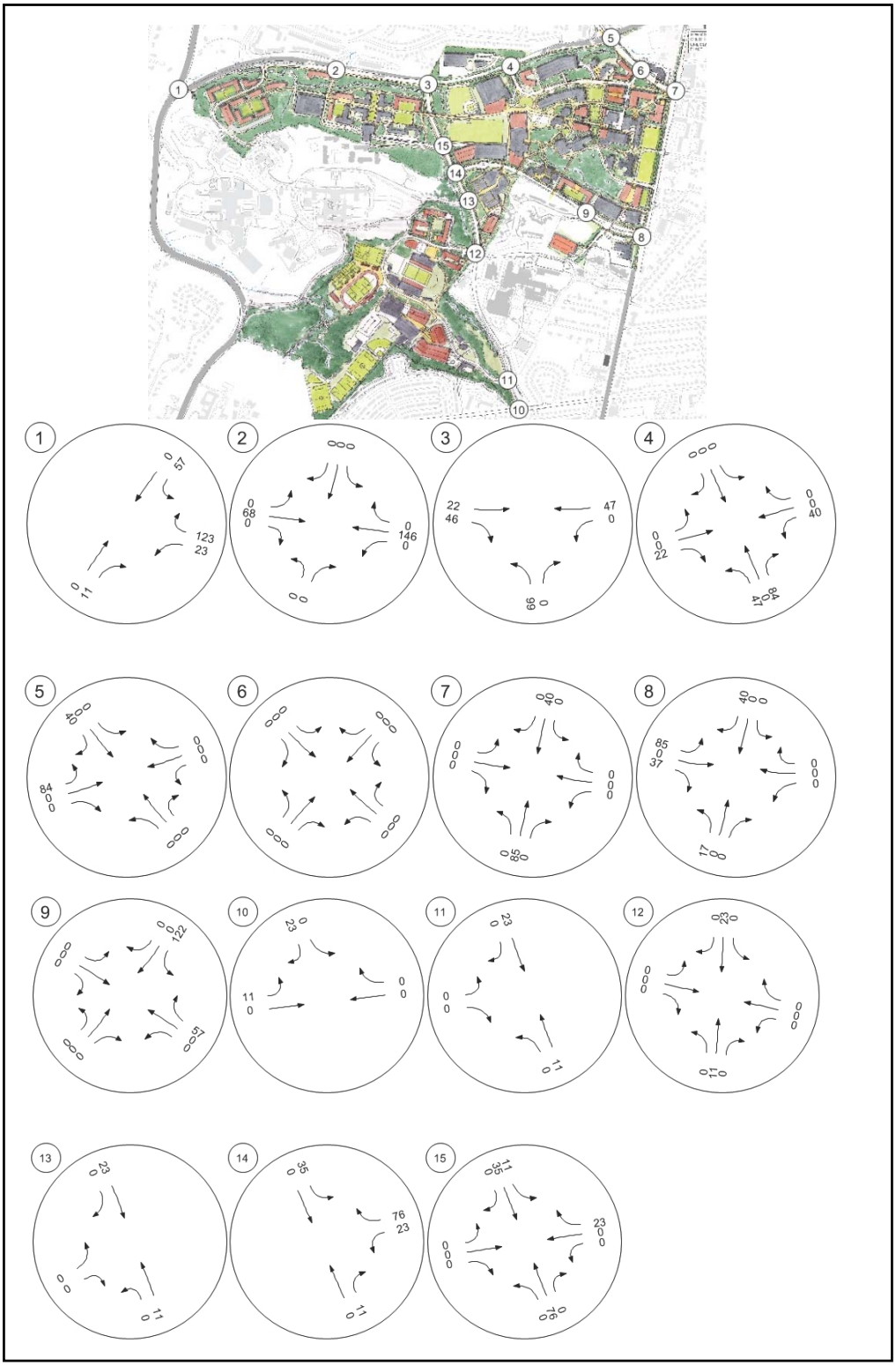


Figure 14: New PM Peak Period Trips

Intersection Capacity Improvements

The future capacity of the study intersections was analyzed for the additional trips generated by campus group and the regional growth rate. Figure 15 below shows the future intersection level of service (LOS) for the signalized study intersections. The projected growth induces the following changes in LOS:

- Intersection 2 - Towsontown Boulevard at Emerson Drive
  - AM LOS reduces from a B to a C
- Intersection 4 - Towsontown Boulevard at University Avenue
  - PM LOS reduces from a C to a D
- Intersection 8 - York Road at Cross Campus Drive
  - PM LOS reduces from a B to a C
- Intersection 14 - Osler Drive at Cross Campus Drive
  - AM LOS reduces from an A to a B
  - PM LOS reduces from a B to a C

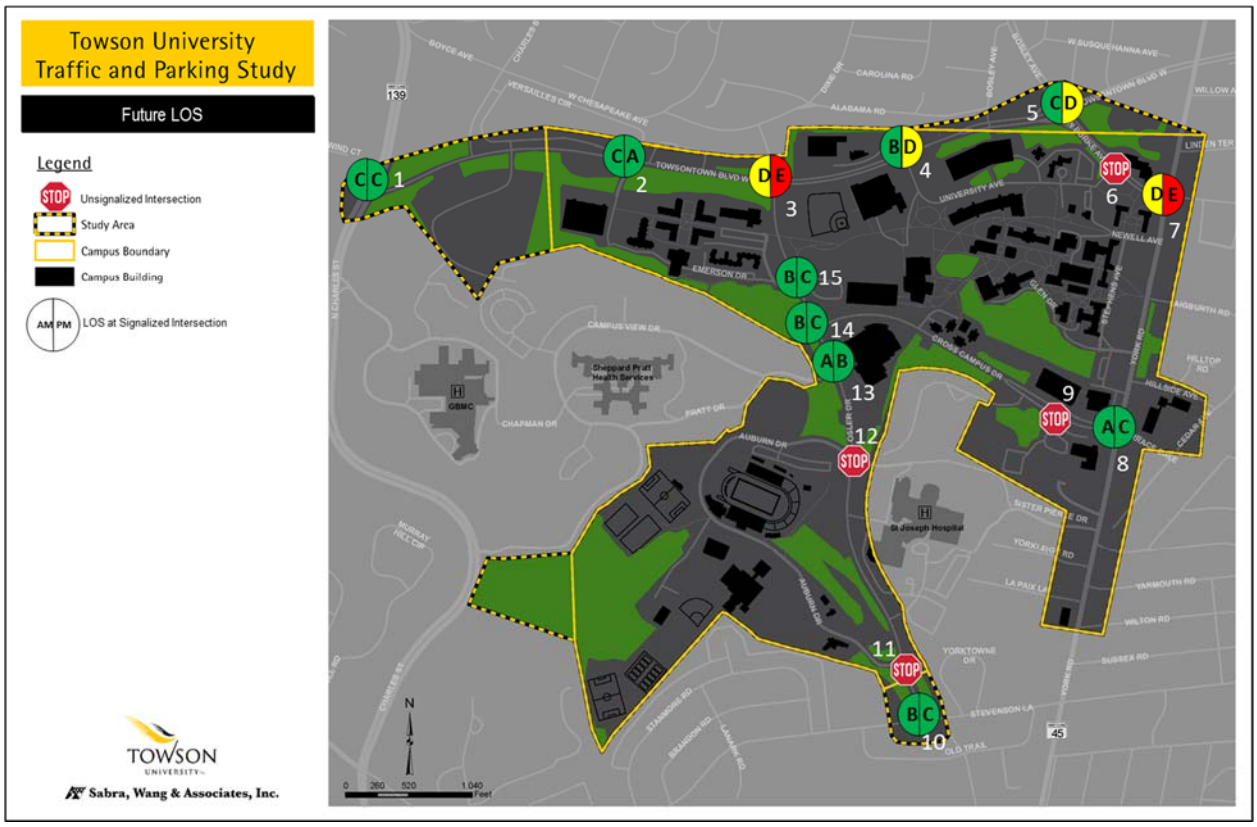


Figure 15: Future 2029 Intersection Level of Service

On state roads, intersections operating at an LOS of E or better are considered acceptable. On county roads, intersections operating at an LOS of D or better are considered acceptable. Although the projected growth to do not cause any of the study intersections to operate below acceptable levels, mitigation is recommended at Towsontown Boulevard & Osler Drive to reduce the existing and continued congestion and subsequent delay. This intersection operates at an LOS of D in the AM and E in the PM for the existing and future conditions.

To alleviate this condition**, it is recommended to add an additional left-turn lane in the westbound direction along Towsontown Boulevard.** This will reduce the intersection delay and improve the LOS from a D to a B in the AM and from an E to a D in the PM.

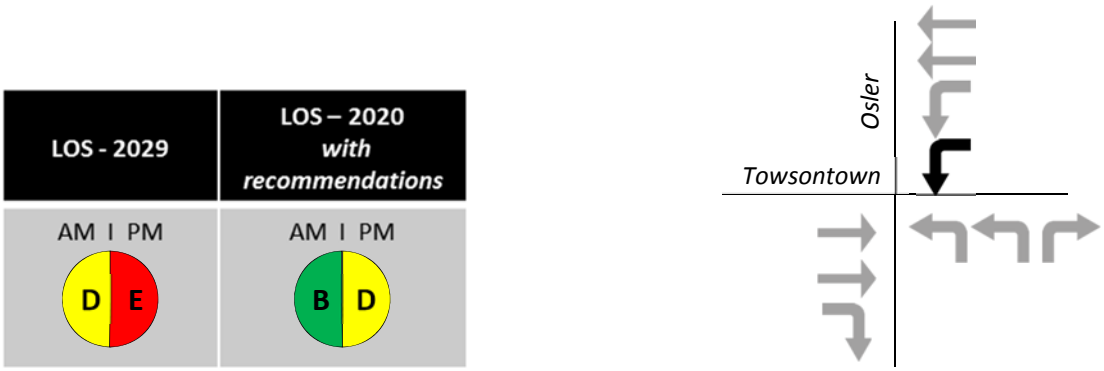


Figure 16: Recommended Lane Configuration for Towsontown Boulevard at Osler Drive

Pedestrian Network

Figure 17 below, shows the pedestrian network within the campus including sidewalks, shared paths, pedestrian bridges, and marked crosswalks. Sidewalks and shared use paths are prevalent throughout the Campus. The majority of intersections connecting the Campus to the surrounding area have at least one crosswalk across the mainline. The intersection of Towsontown Boulevard at Bosley Avenue has crosswalks across three of the four legs; however, this intersection is the primary connector between the Campus and Downtown Towson.

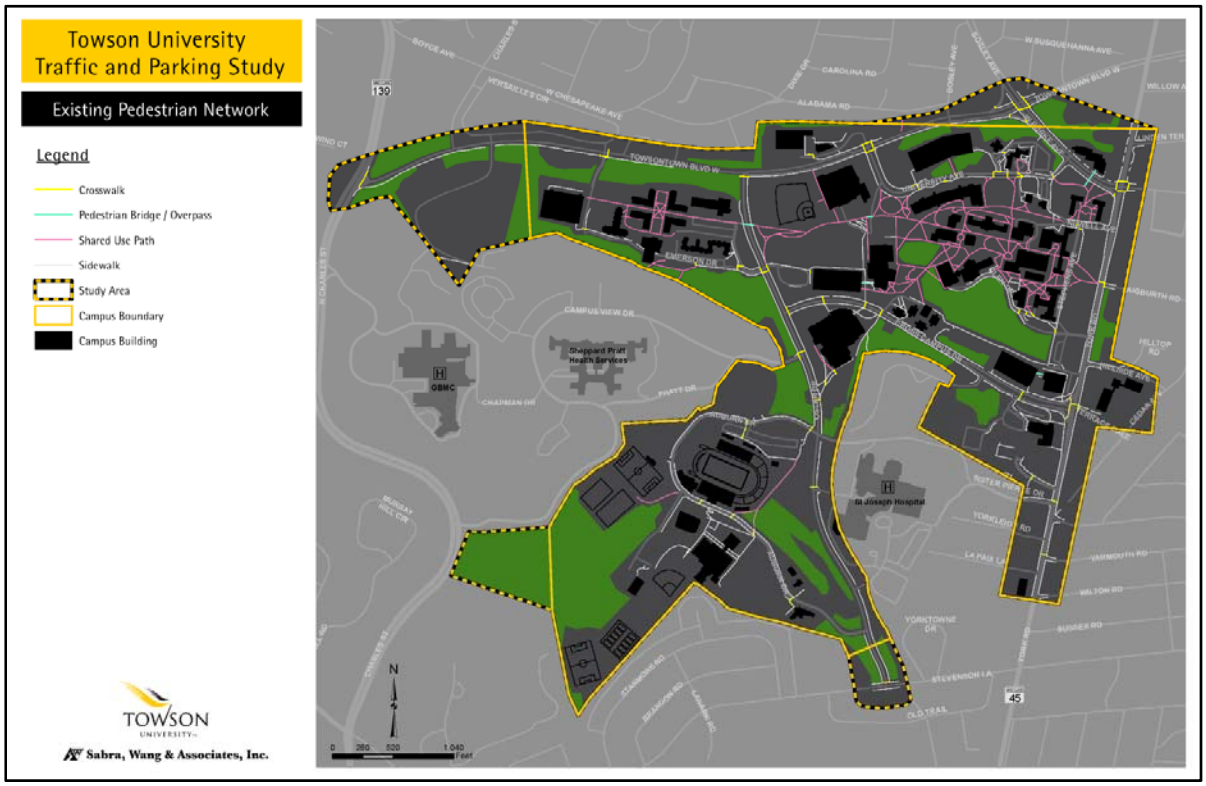
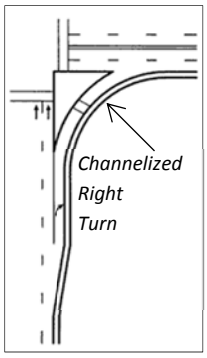


Figure 17: Pedestrian Network

Based on the naturally high pedestrian mode share that comes with a campus setting and a *university town*, walking connections at the campus perimeter need to be robust and safe. **Ample sidewalks are recommended on both sides of all county and state Roads adjacent to campus. All intersections should be marked with high-visibility ladder-style crosswalks on every leg. Pedestrian-scale lighting is recommended throughout campus on county roads, as well as on roads between the Campus and Downtown Towson.**

Pedestrian Safety - Right-Turn Channelization Removal
Three of the 15 study intersections have channelized right turns.

1. Towsontown Boulevard at Bosley Road – *Eastbound & Southbound*
2. York Road at Burke Road - *Eastbound*
3. York Road at Cross Campus Drive – *Eastbound & Southbound*



Removal of the channelized right turn lanes at these locations was analyzed to improve the pedestrian network and walkability between the campus and the surrounding area including Downtown Towson. While channelizing right turns provides for efficient vehicle operations, in urban areas where pedestrians are more prevalent, it is best practice to remove channelized turn lanes. The turning radius of a channelized turn lane allows for turns taken at higher speeds, the curve can cause sight distance issues for crossing pedestrians, and the unsignalized crossing of channelized turn lanes can create yield conditions that are potential vehicle-pedestrian conflicts.

The analysis looked at the change in delay (LOS) between the existing conditions (maintaining the channelization) and removal of the channelization for future 2029 volumes. Additionally, the analysis considered if a dedicated right turn lane was necessary to maintain acceptable LOS levels or if the right turn movement could be folded into the through lane creating a shared through-right lane as each has innate positive and negative results. Providing for a dedicated right turn lane results in minimal change to the overall traffic operations; however, it increases pedestrian crossing distance and time in comparison to a shared through-right lane. Shared through-right lanes can increase traffic congestion but maintains a narrower intersection. Shared through-right lanes can be used when right-turn volumes are low. Table 6 below, presents the intersection performance measures for the three study intersections showing the LOS, delay, and volume-to-capacity ratio for 1) 2029 volumes maintaining the channelization, 2) 2029 volumes removing the channelization and creating a shared through-right lane, and 3) the final recommendation accounting for which approaches are recommended for a dedicated or a shared lane using 2029 volumes. Removing the channelized right turn lane and folding the right turn movement into the existing through lane brings two of the three intersection to unacceptable LOS levels based on County and SHA standards; Towsontown at Bosley and York at Burke. Additionally, four out of the six[4] analysis periods show intersections at or above capacity. For the intersections at unacceptable levels, providing for a dedicated right turn lane was analyzed.

[4] Six analysis periods = three intersections x two time periods (AM and PM)

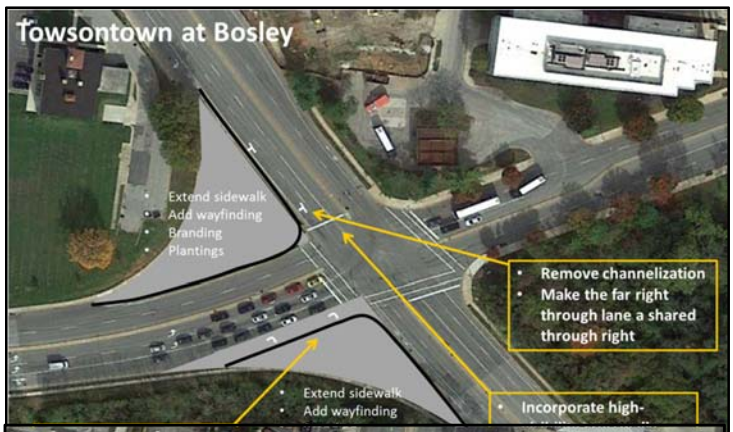
	2029 Volumes - With Channelization			2029 Volumes - Channelization Removal - *Shared Through-Right Lane*			2029 Volumes - Channelization Removal - *Final Recommendations*		
	LOS	**Delay**	**VC**	**LOS**	**Delay**	**VC**	**LOS**	**Delay**	**VC**
Towsontown / Bosley	C (E)	34.3 (62.3)	0.64 (1.03)	C (E)	34.4 (60.8)	0.67 (0.99)	C (D)	33.1 (42.0)	0.64 (0.82)
York / Burke	D (E)	50.8 (66.8)	0.81 (0.93)	F (F)	88.4 (109.7)	1.01 (1.11)	D (D)	43.3 (53.3)	0.79 (0.85)
York / Cross Campus	A (B)	9 (19.8)	0.5 (0.55)	B (C)	13.8 (22.1)	0.92 (0.63)	B (C)	15.1 (22.1)	0.92 (0.63)

Table 6: Intersection Performance Measures - Channelization Removal – Future Volumes

Based on the intersection capacity analysis, recommendations are shown in the following figures.

Towson Boulevard at Bosley Avenue

- Remove eastbound channelized right turn lane and add a **dedicated** right turn lane for movements from Towsontown Boulevard to York Road
- Remove the southbound channelized right turn lane and re-configure the right-most through lane to a **shared**-through right lane

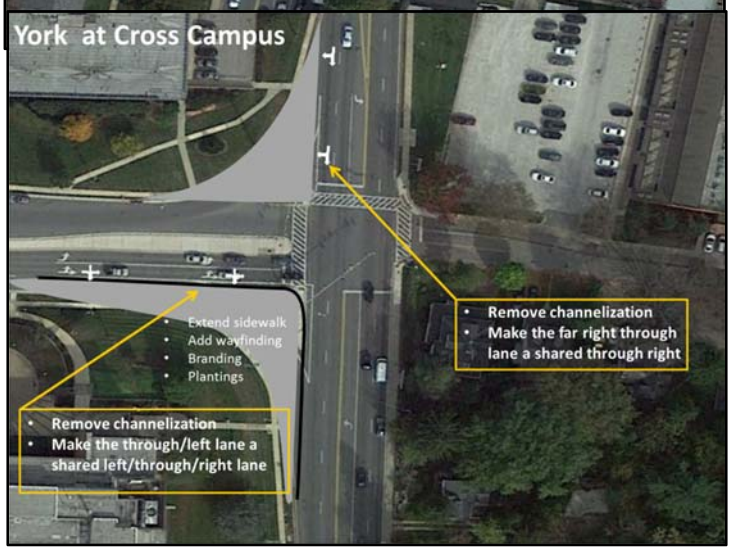


York Road at Burke Avenue

- Remove the eastbound channelized right turn lane and retain a dedicated right turn lane from movements from Burke Avenue to York Road

York Road at Cross Campus Drive

- Remove the southbound channelized right turn lane and re-configure the right through lane to a shared through-right lane
- Remove the eastbound channelized right turn lane and re-configure the through-left lane to a shared left-through-right lane



Future Parking Needs

Based on a projected 2029 campus enrollment of 25,000 students (19,825 FTE), an **additional 1,700 parking spaces will be needed** – assuming that the current 0.476 space per FTE ratio is maintained[5]. Based on an approximate cost of $30,000 per space for structure parking, these new spaces will cost about $50 Million, not including the opportunity cost related to scarce campus land being utilized to store vehicles.

There are multiple opportunities to address the need for additional parking. One option is to restrict parking for all freshmen. This would result in about 500 *less* parking spaces needed, assuming 30% of new FTE are freshman. Another alternative is to raise prices on parking in order discourage driving to campus – and to use the increase in revenue to fund non-driving infrastrucutre improvements:

- Lower headways shuttle service
- Provide bus shelters with lighting and real-time display info
- Build out network of bike paths on TU right of way, where county and ctate roads are deficient
- Construct covered and well-lit bike parking

Alternatively, TU can encourage non-driving trips by providing incentives for students not to drive. For example, tuition and fee discounts for not owning a car or for living off-campus and walking/biking to class. A feasibility study would be needed to determine if this model is financial more viable than building structured parking.

Shuttle System Recommendations

As land use and roadway patterns change on campus, the Towson shuttles will need to be "fine-tuned" so as to provide convenient service that responds to the demands of students, visitors, faculty and staff. Many of the roadway improvements described previously, such as roadway extensions/enhancements, widening of turning radii, will not only benefit the shuttle system, but in some cases are necessary to achieve desired shuttle service levels.

Additional campus parking and shuttle information is detailed at
http://www.towson.edu/adminfinance/AuxServices/Parking/shuttle/offcampus.asp

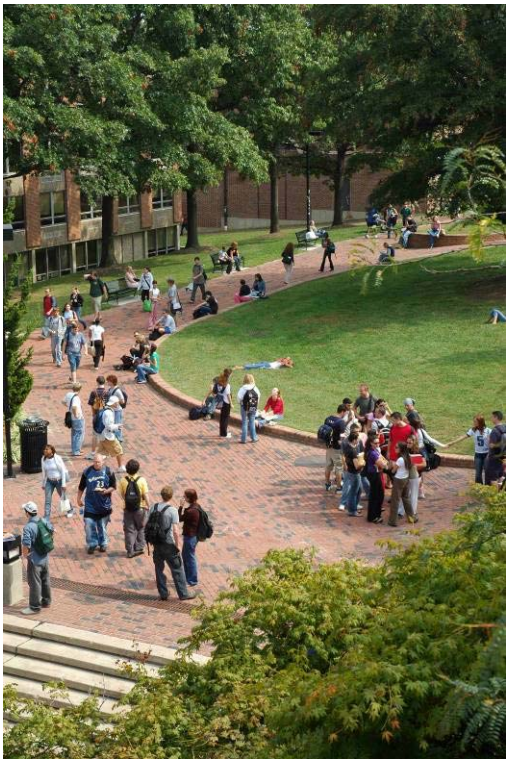
[5] 19,825 FTE minus 16,320 FTE @0.476 spaces per net FTE yields 1700 new spaces

Pedestrian Circulation Recommendations

The mitigation of pedestrian-vehicle conflict points would result in a fundamental tradeoff as the justification for at-grade versus a grade-separated crossing is analyzed. Grade separation provides the safest, most delay-free crossing.

The Master Plan working group weighed each of these considerations, and others, as options to connect various points of campus were developed. The following series of pedestrian improvements are recommended to improve safety and convenience both within the Academic Core and from the Academic Core to the surrounding activity centers, including:

- Stairway/path/lighting to connect University Village apartments with the retail and shuttle services to be provided in the West Village area.
- Stairway/path/lighting to connect Towson Place Apartments with the walkway along the east side of Center for the Arts (CA).
- New sidewalks along the west side of Osler Drive.
- Pedestrian bridge over Cross Campus between Center for the Arts and the Union Parking Garage elevators and stairs.
- Pedestrian bridge over Osler Drive from the proposed CFA garage to the west side of Osler Drive in South Campus.
- Extension of the pedestrian connection through the existing Glen Garage / 7800 York Road through the proposed building to a point near Stephens Hall.



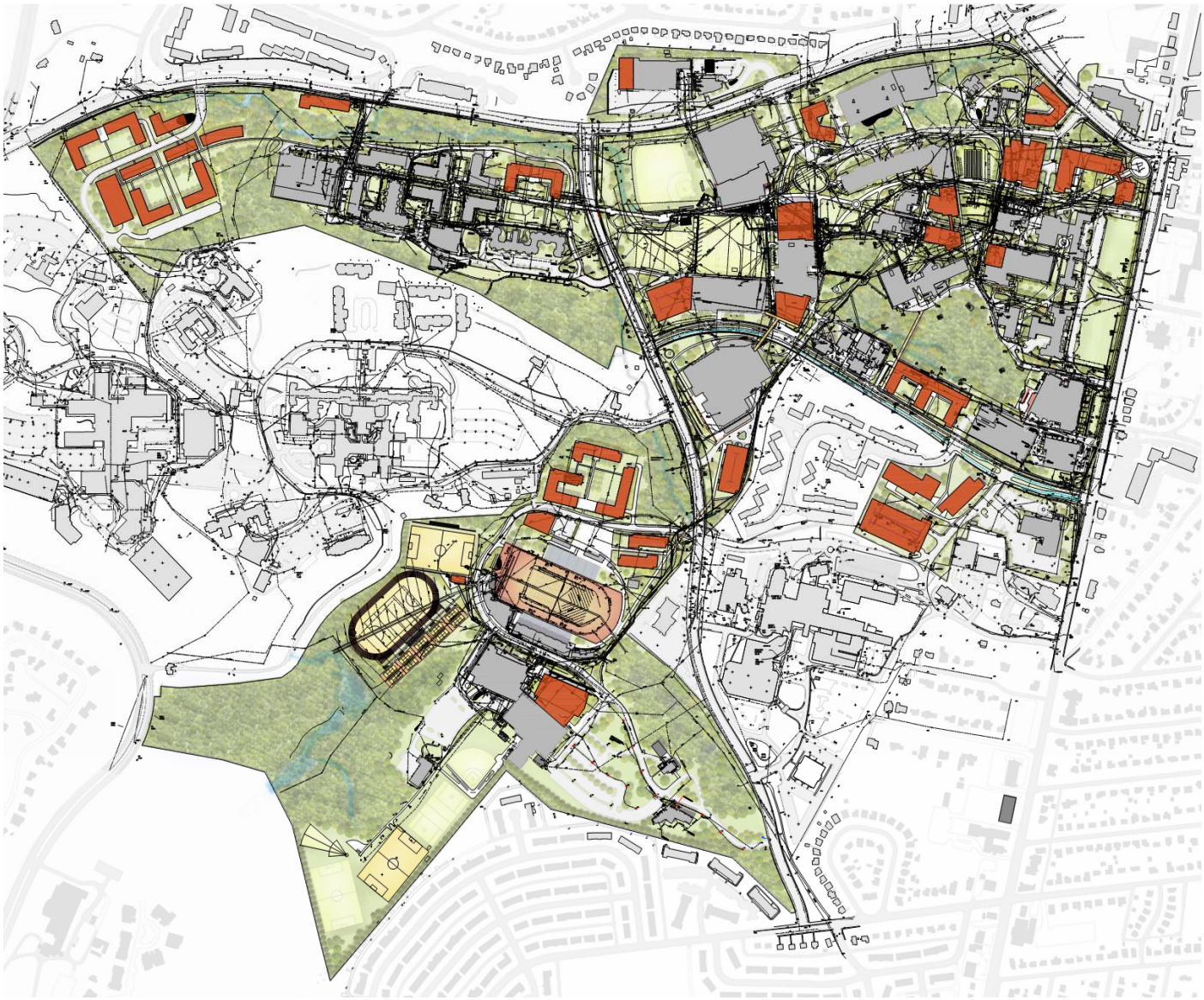
Improving pedestrian circulation is a key aspect of the Campus Master Plan

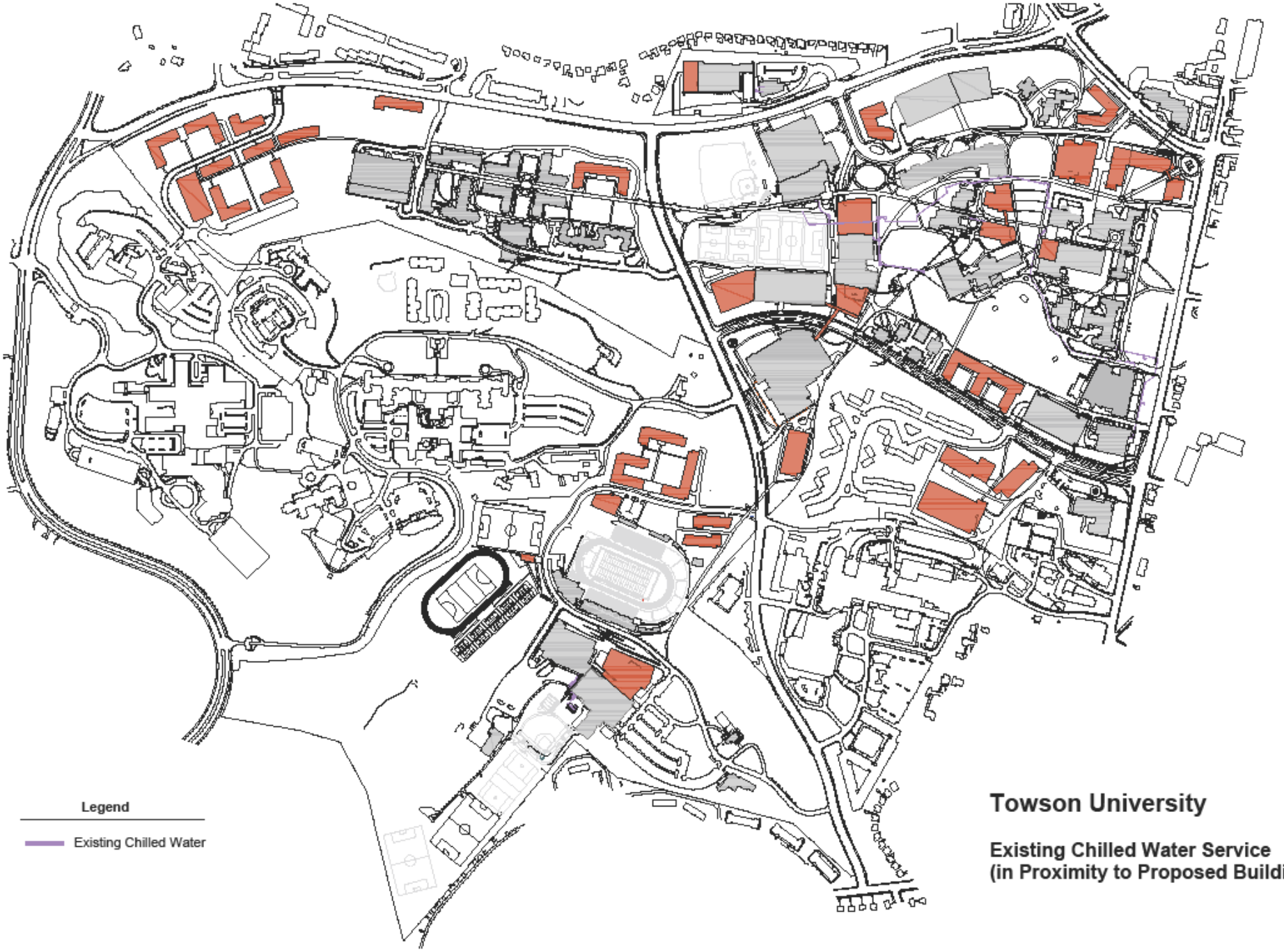
4.10 Utility Infrastructure & Energy

Existing Campus Utilities Mapping

In order to assess how proposed building projects might interact (or overlap) with existing campus utilities, it was first necessary to compile an electronic "CAD" base with utility linework. Once this base was established, designers were able to superimpose the master plan and begin identifying areas where significant utility adjustments might be required in order to accommodate development projects. Designers made every attempt to collect comprehensive campus information for master planning purposes. However, as individual projects develop, Towson University will need to conduct thorough utility investigations and surveying in order to confirm utility alignments, sizes, invert elevations, and activity status prior to construction.

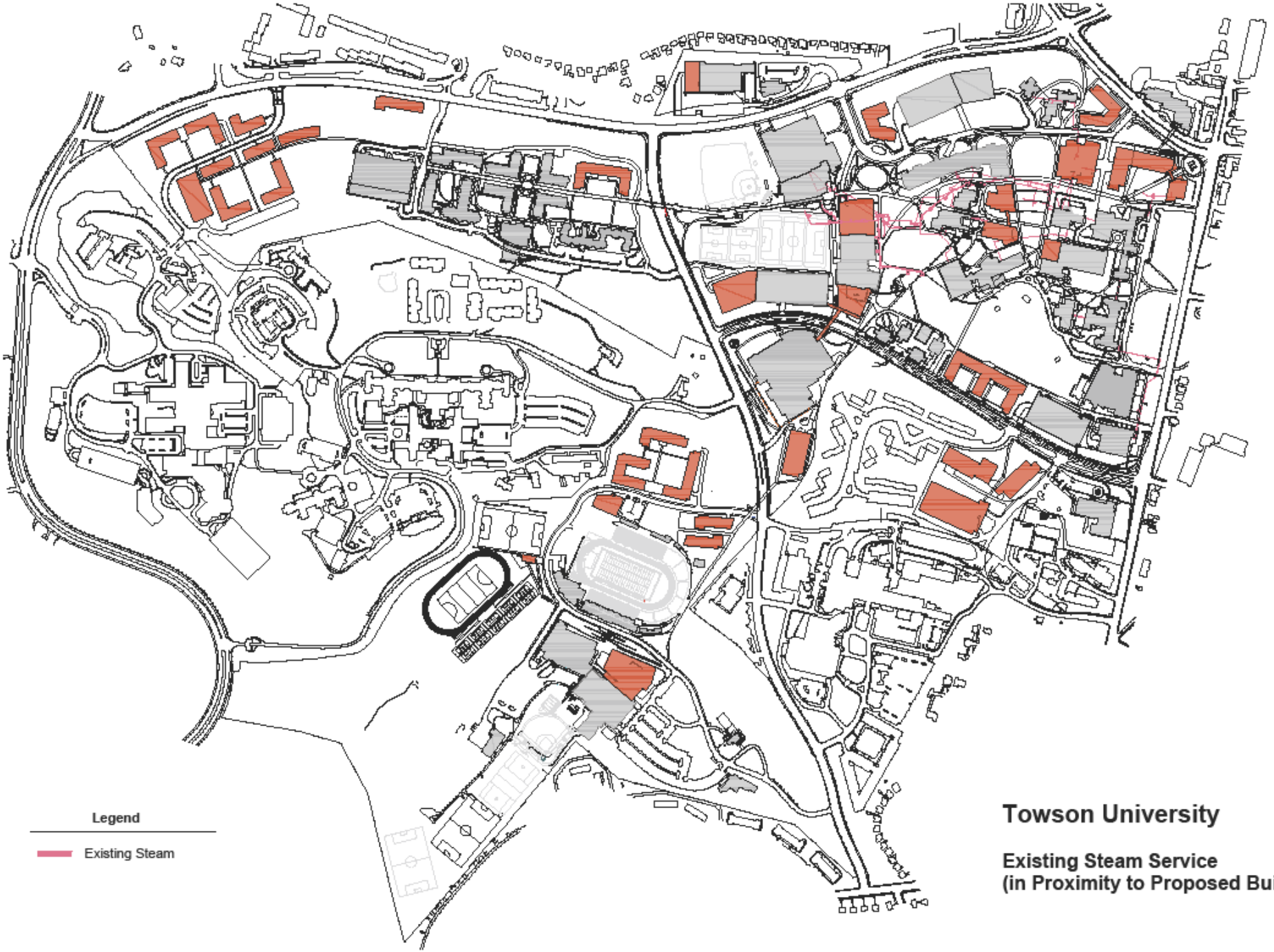
The image below depicts the master plan's proposed buildings and the existing utilities (black lines) weaving throughout campus. Even at this scale, it is informative to see how utility corridors emerge across Towson University's landscape.





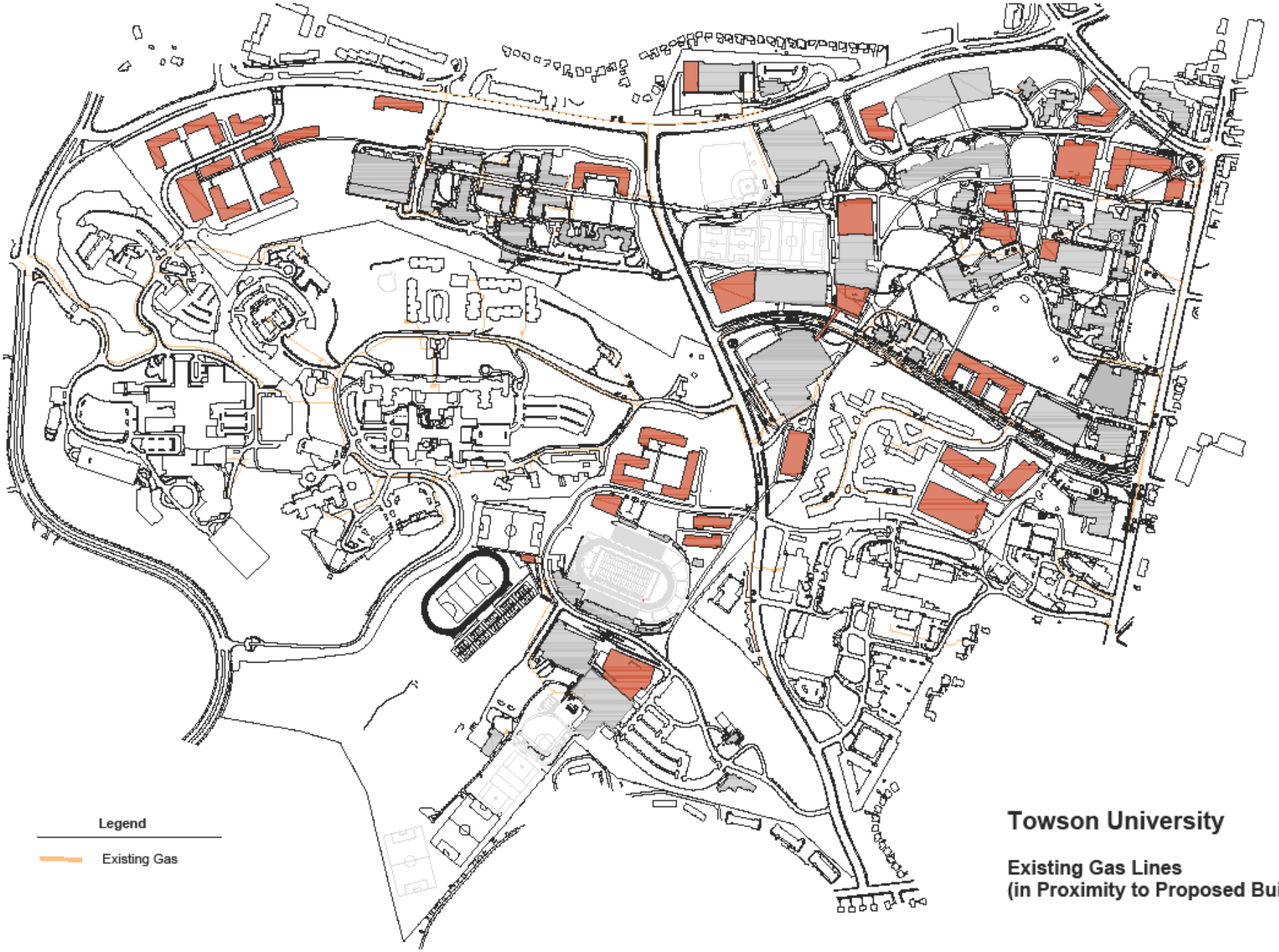
Towson University

Existing Chilled Water Service (in Proximity to Proposed Buildings)



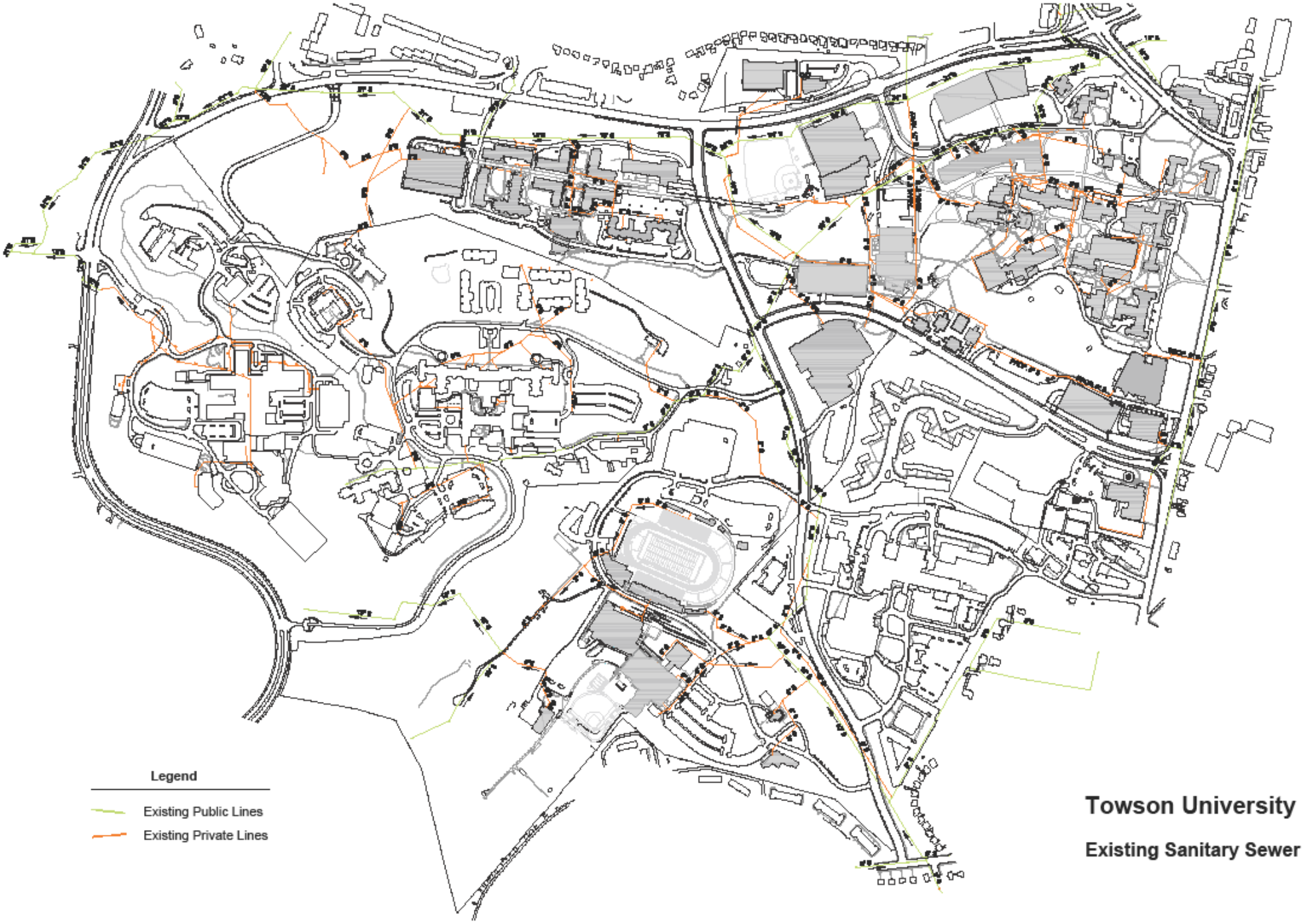
Towson University

Existing Steam Service
(in Proximity to Proposed Buildings)



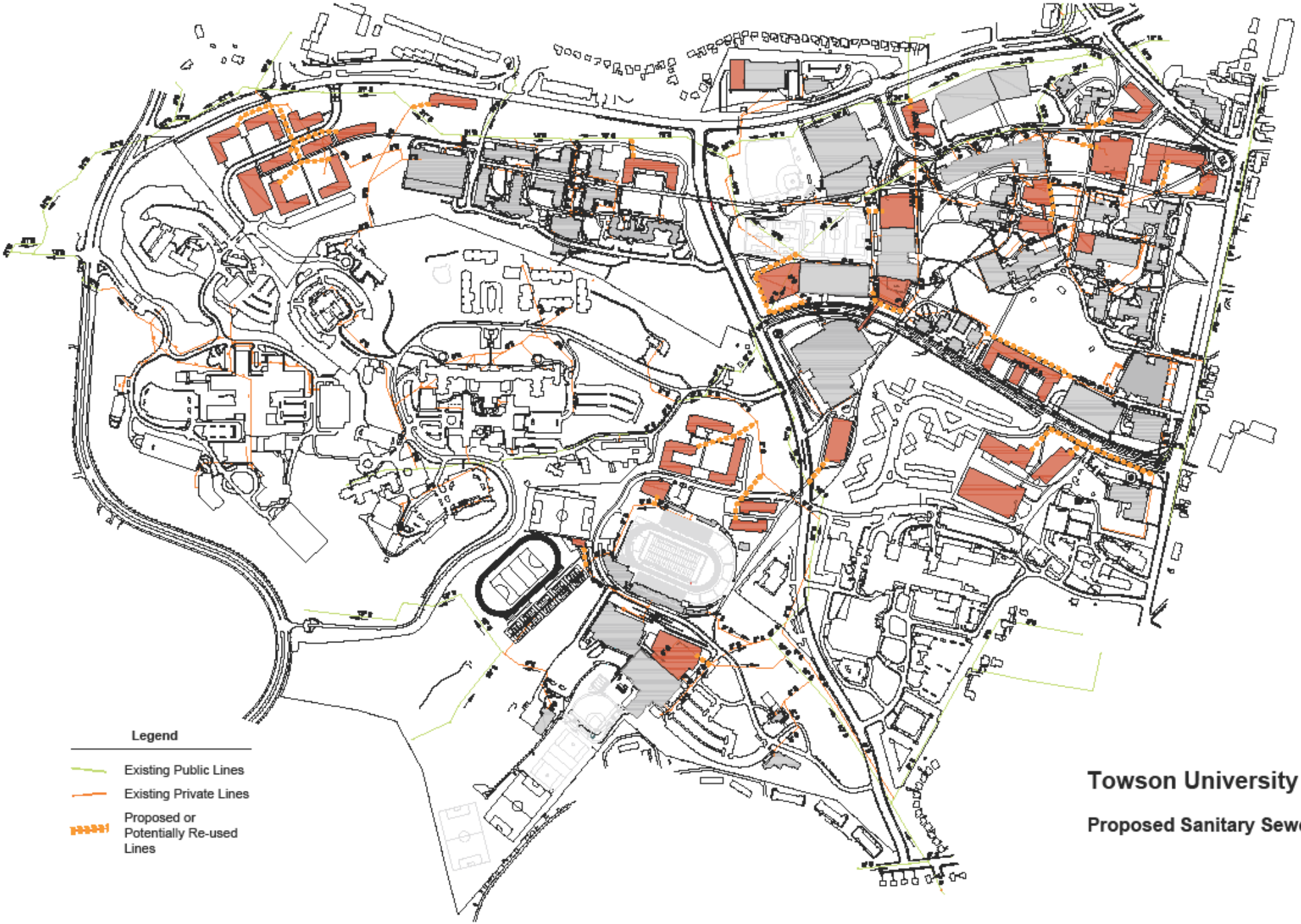
Towson University

Existing Gas Lines
(in Proximity to Proposed Buildings)



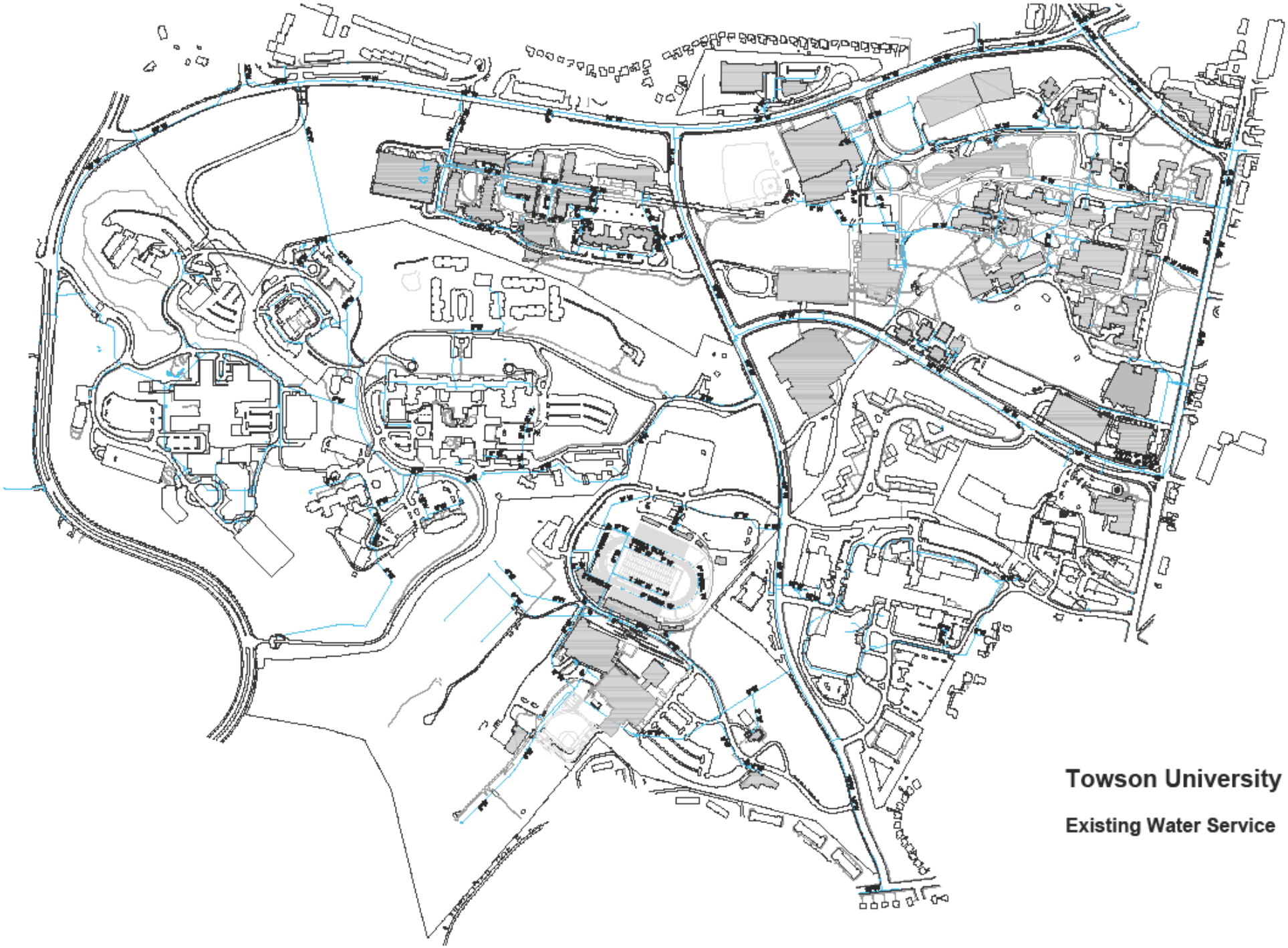
Towson University

Existing Sanitary Sewer



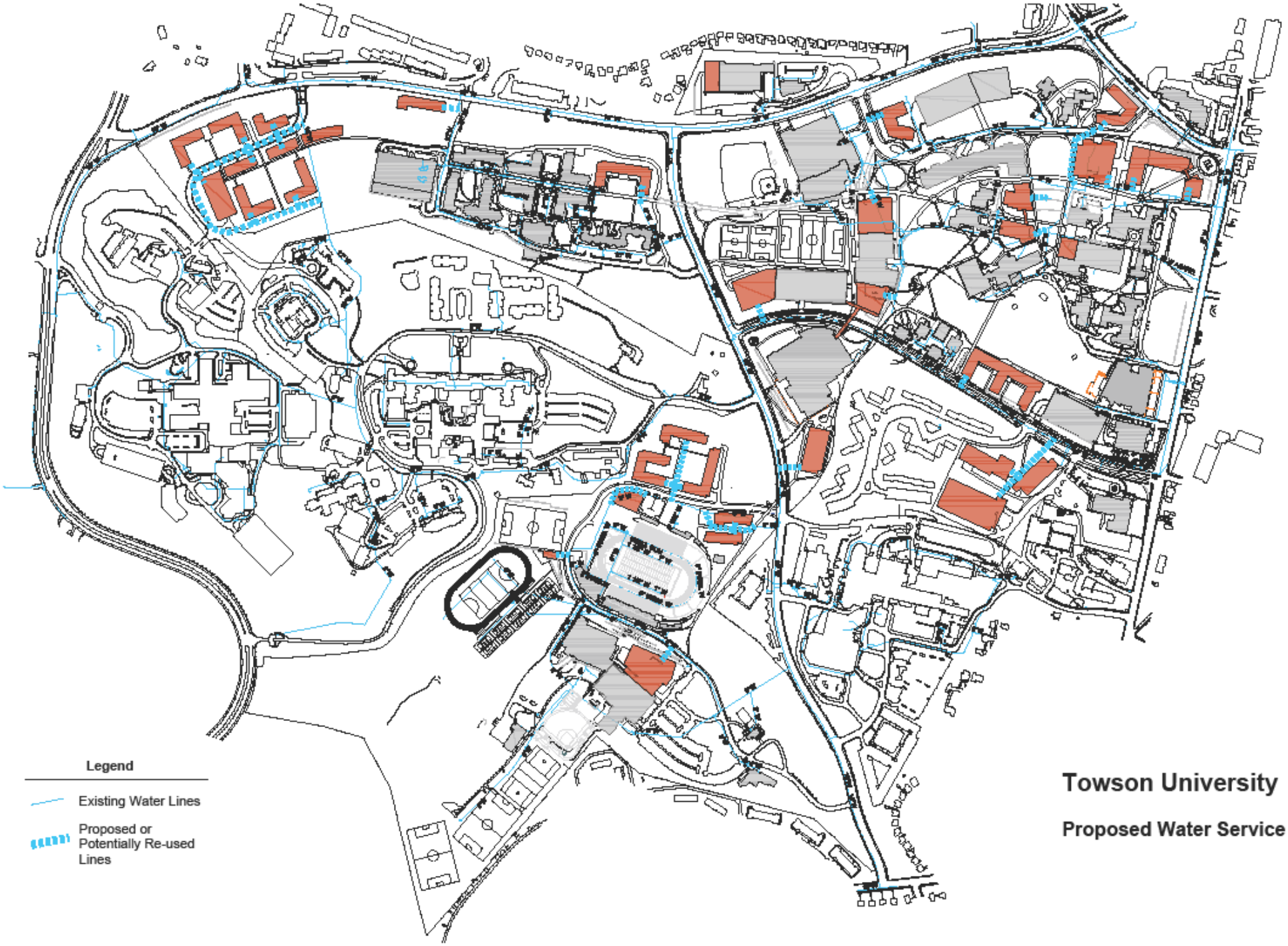
Towson University

Proposed Sanitary Sewer



Towson University

Existing Water Service

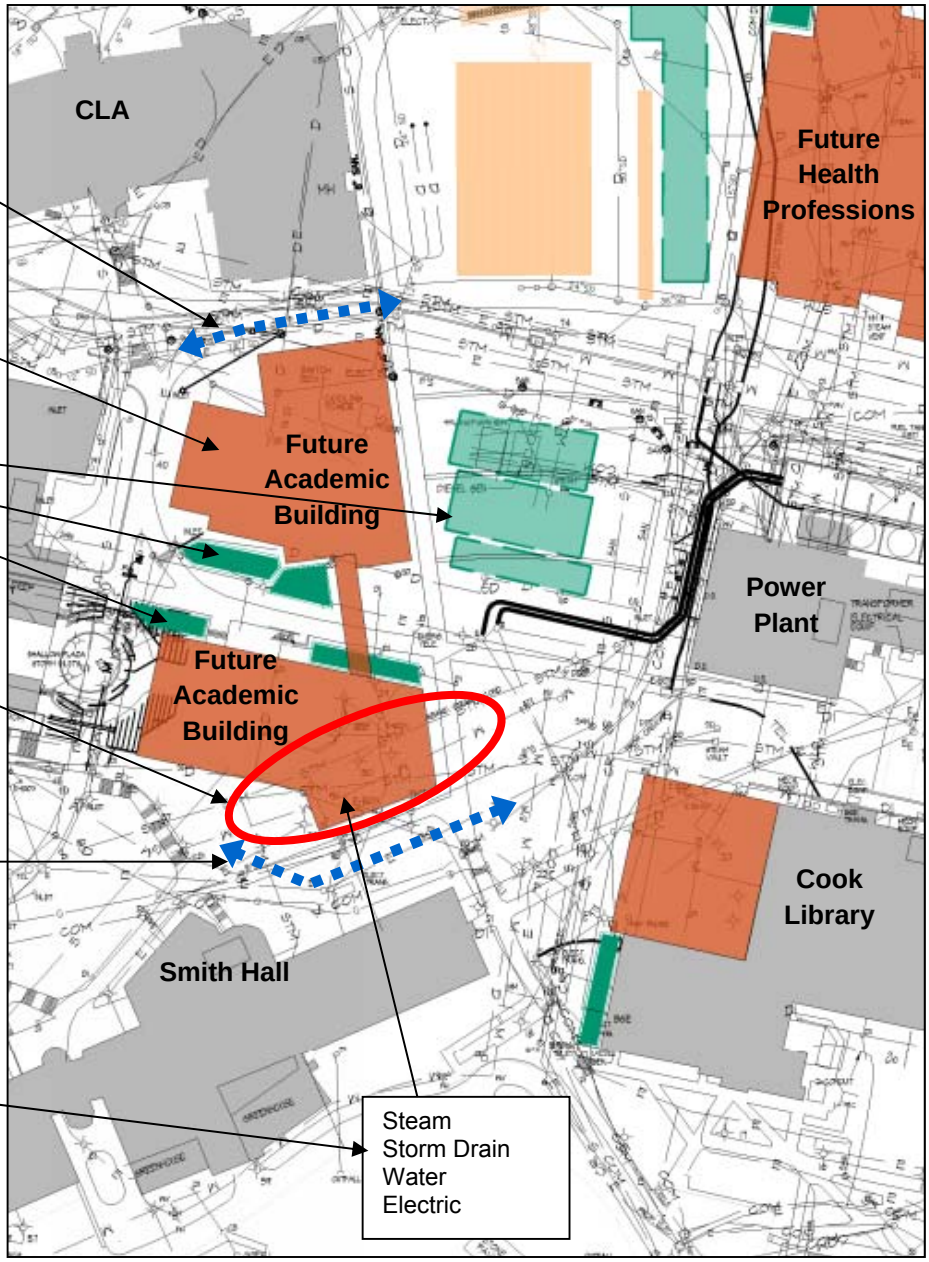


Towson University

Proposed Water Service

Utilities Analysis - Mapping Legend

The analysis mapping in this study depicts places where existing utilities may require relocation in order to accommodate master plan objectives. There are also potential water and sanitary connections shown to facilitate future studies. This evaluation assumes that existing 8-inch water lines and 8-inch sanitary lines are adequate for individual building needs. It is further assumed that each specific building project will thoroughly investigate utility availability and capacity during early design stages. The legend below applies to all the following mapping pages.



Proposed Utility Re-alignment Corridor

Proposed Master Plan Building

Potential Stormwater Management

Potential Utility Conflict Area

Proposed Utility Re-alignment Corridor

List of Prominent Utilities within Proposed Building Footprint

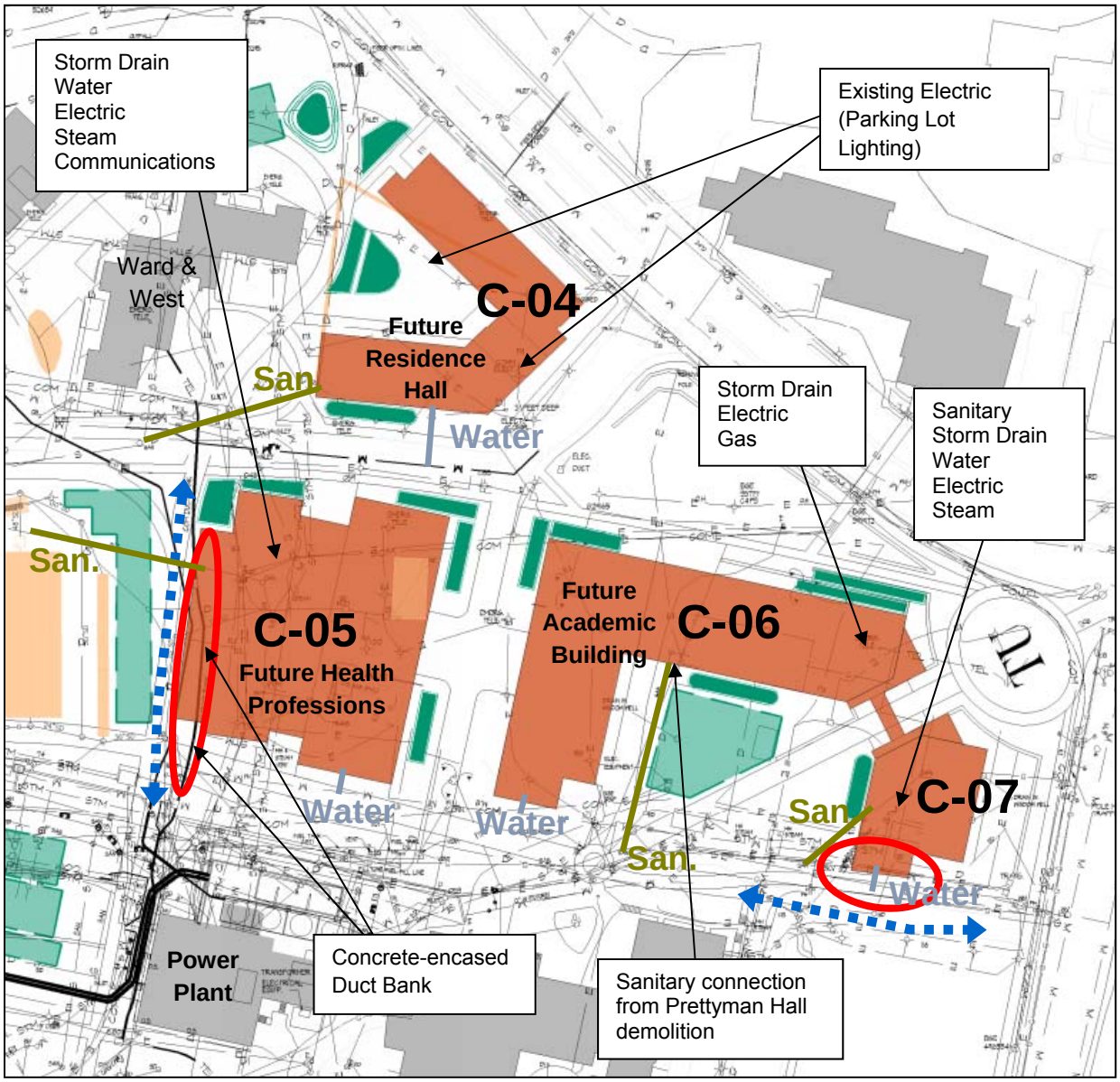
Steam
Storm Drain
Water
Electric

Potential Sanitary Connection* → San.

Potential Water Connection* → Water

** Potential connections shown for master planning purposes only. All utility connectivity to be verified on a per-project basis.*

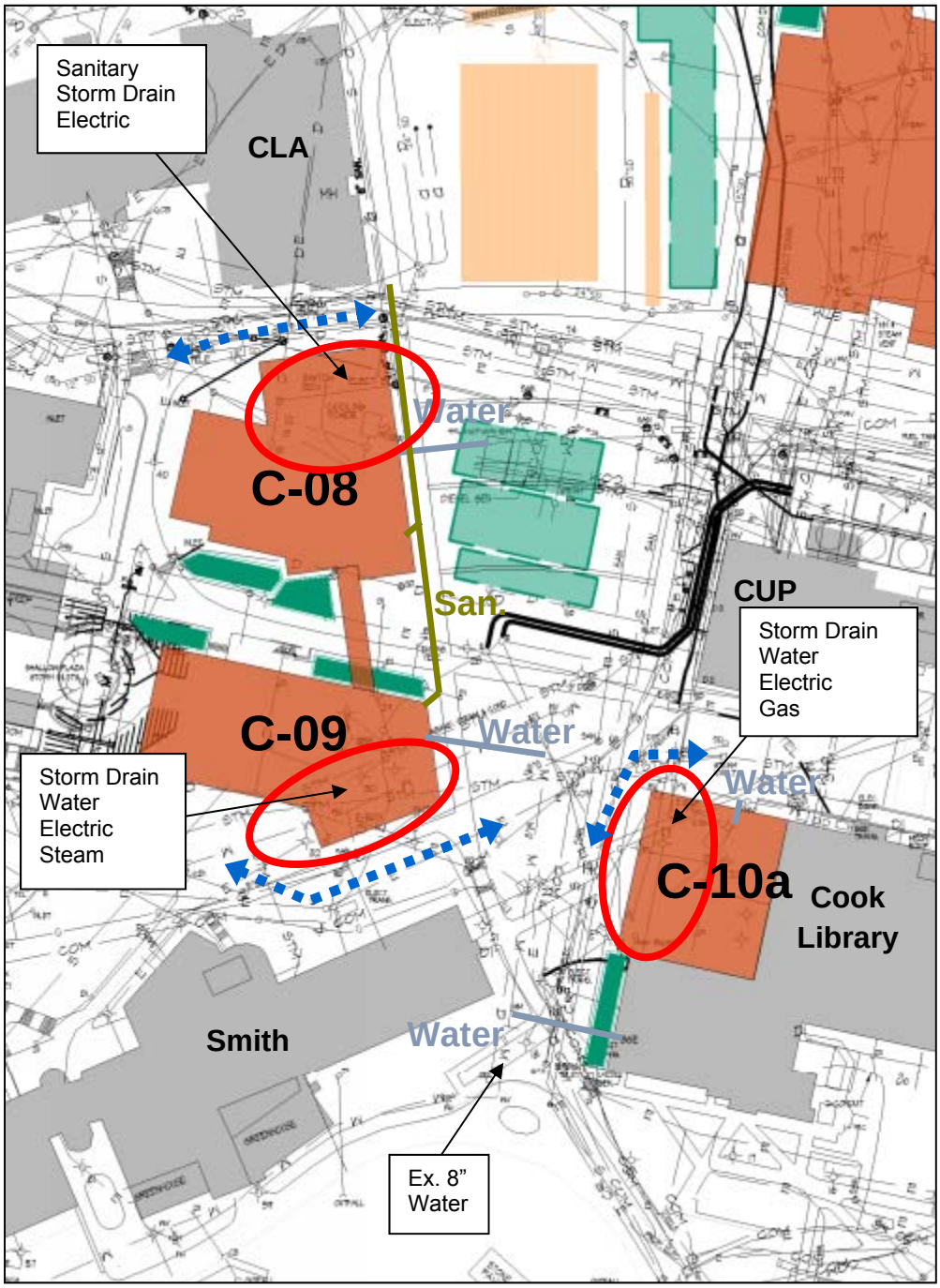
Core Campus Utilities – Buildings C-04, C-05, C-06 & C-07



Potential Utility Connections:

Building C-04: Existing 8" Water (south of bldg.), Sanitary to west (optional 24" san. further west)
Building C-05: Existing 8" Water (south of bldg.), Ex. 8" Sanitary to west
Building C-06: Existing 8" Water (south of bldg.), Re-use sanitary connection from Prettyman demo
Building C-07: Existing 8" Water (south of bldg.), Re-use sanitary from Scarborough demo

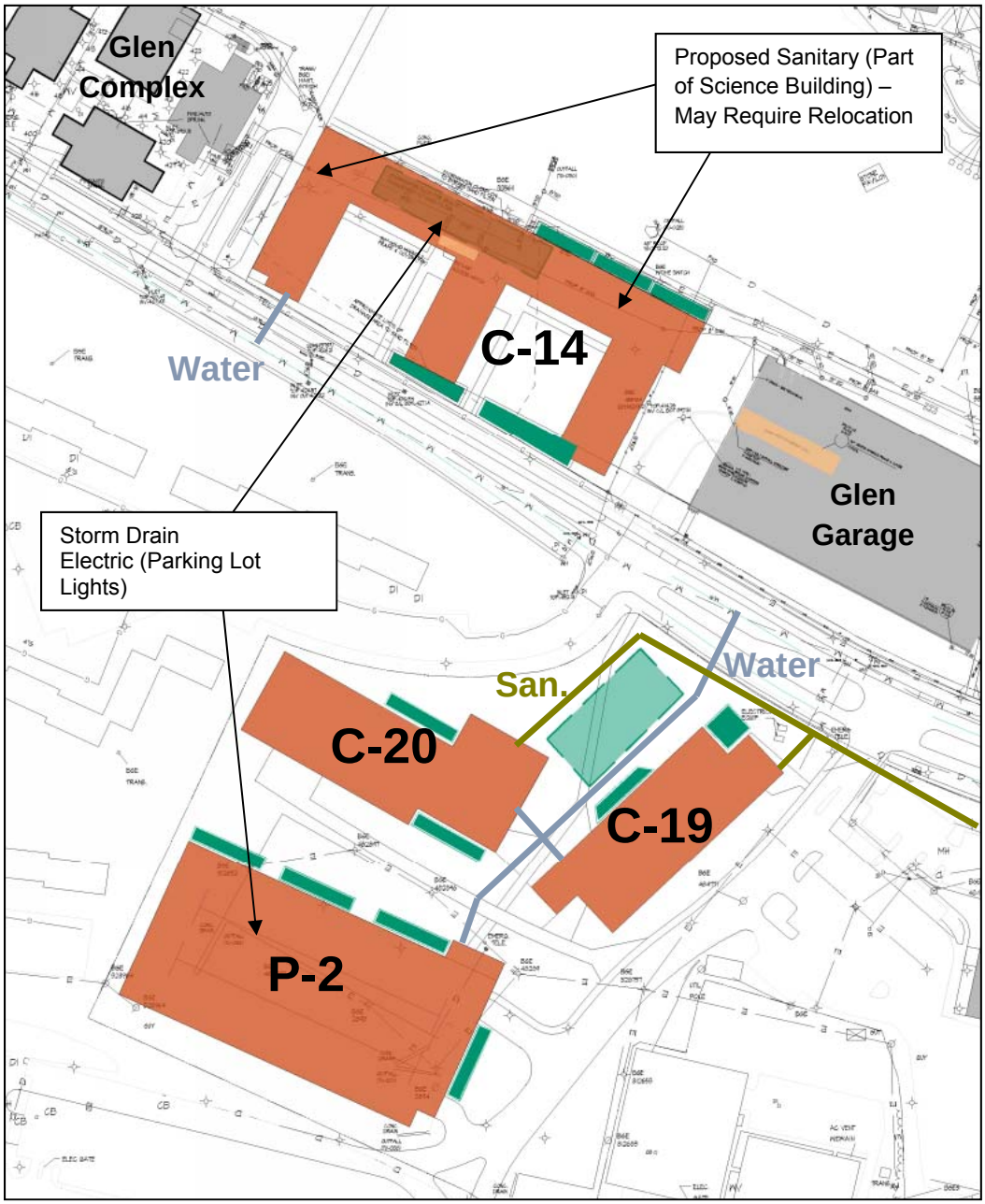
Core Campus Utilities – Buildings C-08, C-09 & C10a



Potential Utility Connections:

Building C-08: Re-use Linthicum Hall connection (east of bldg.), Sanitary to ex. 8" along east facade
Building C-09: Existing 8" Water (east of bldg.), Sanitary to ex. 8" along east facade
Building C-10a: Modify existing water connection (use ex. 8" water in plaza) – also water connection on north side may be available, sanitary to use existing library plumbing

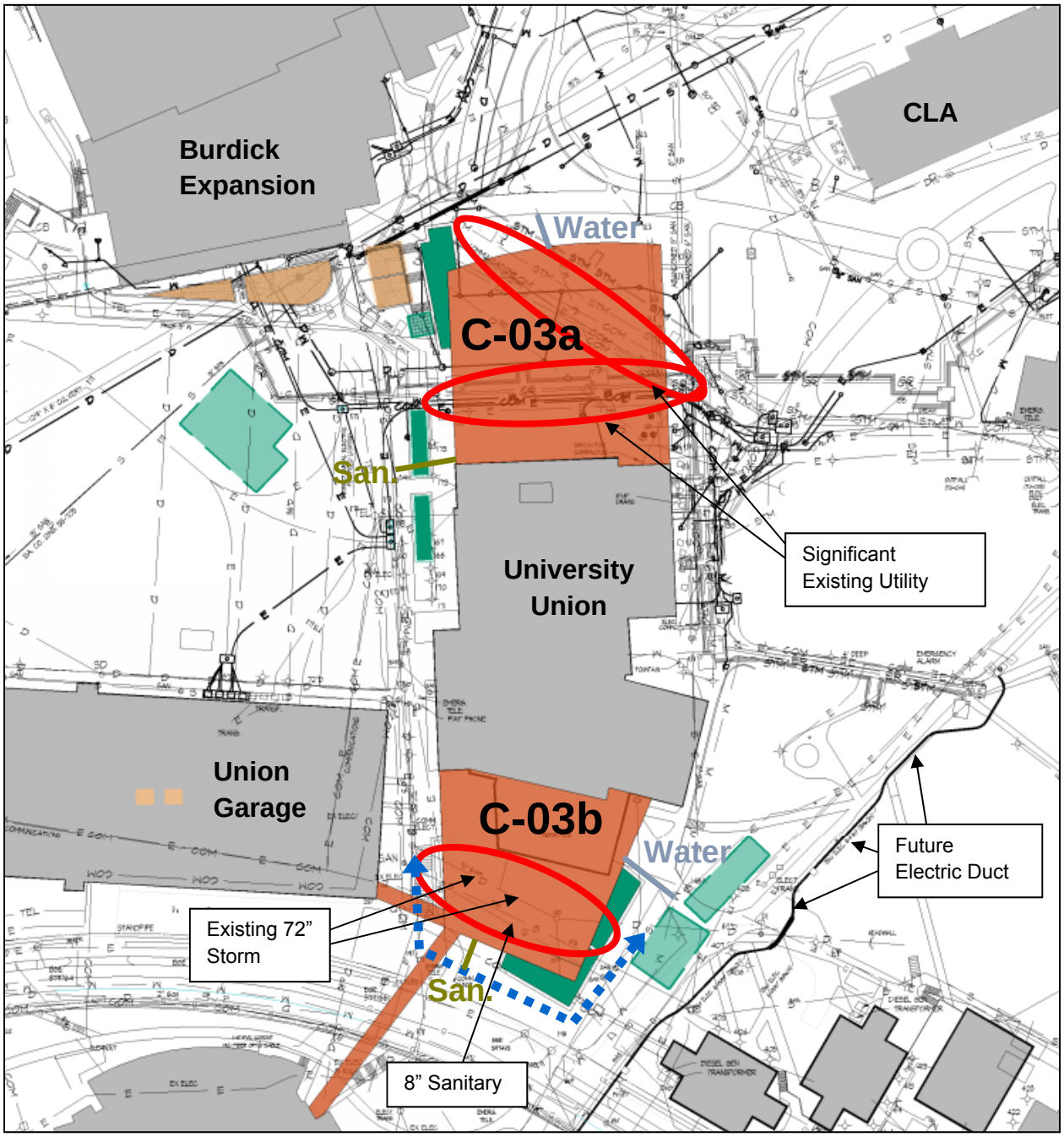
Core Campus Utilities – Buildings C-14, C-20, C-19 & P-2



Potential Utility Connections:

Building C-14: Existing 16" water (in Cross Campus Drive), Sanitary to use proposed 8" from Science
Building C-20: Existing 16" water (in Cross Campus Drive), Sanitary to ex. 8" near York Road
Building C-19: Existing 16" water (in Cross Campus Drive), Sanitary to ex. 8" near York Road
Building P-2: Water service to parking deck for fire protection, sanitary service if required by jurisdiction

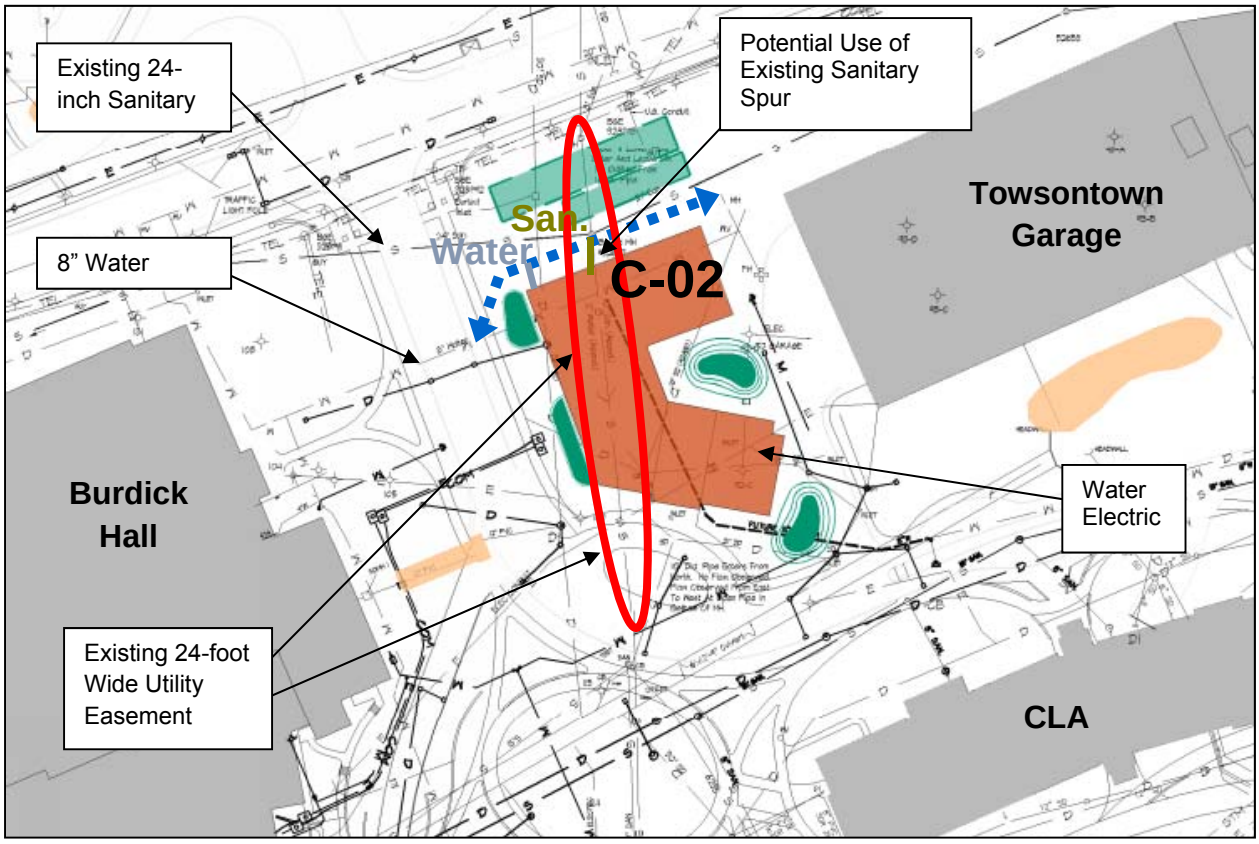
Core Campus Utilities – Buildings C-03a & C-03b



Potential Utility Connections:

Building C-03a: Existing 8" water (through ex. parking), Sanitary to use nearby 8" line (west side)
Building C-03b: Existing water line east of Union, Ex. 8" Sanitary to be connected to re-routed (blue arrow) 8" Sanitary

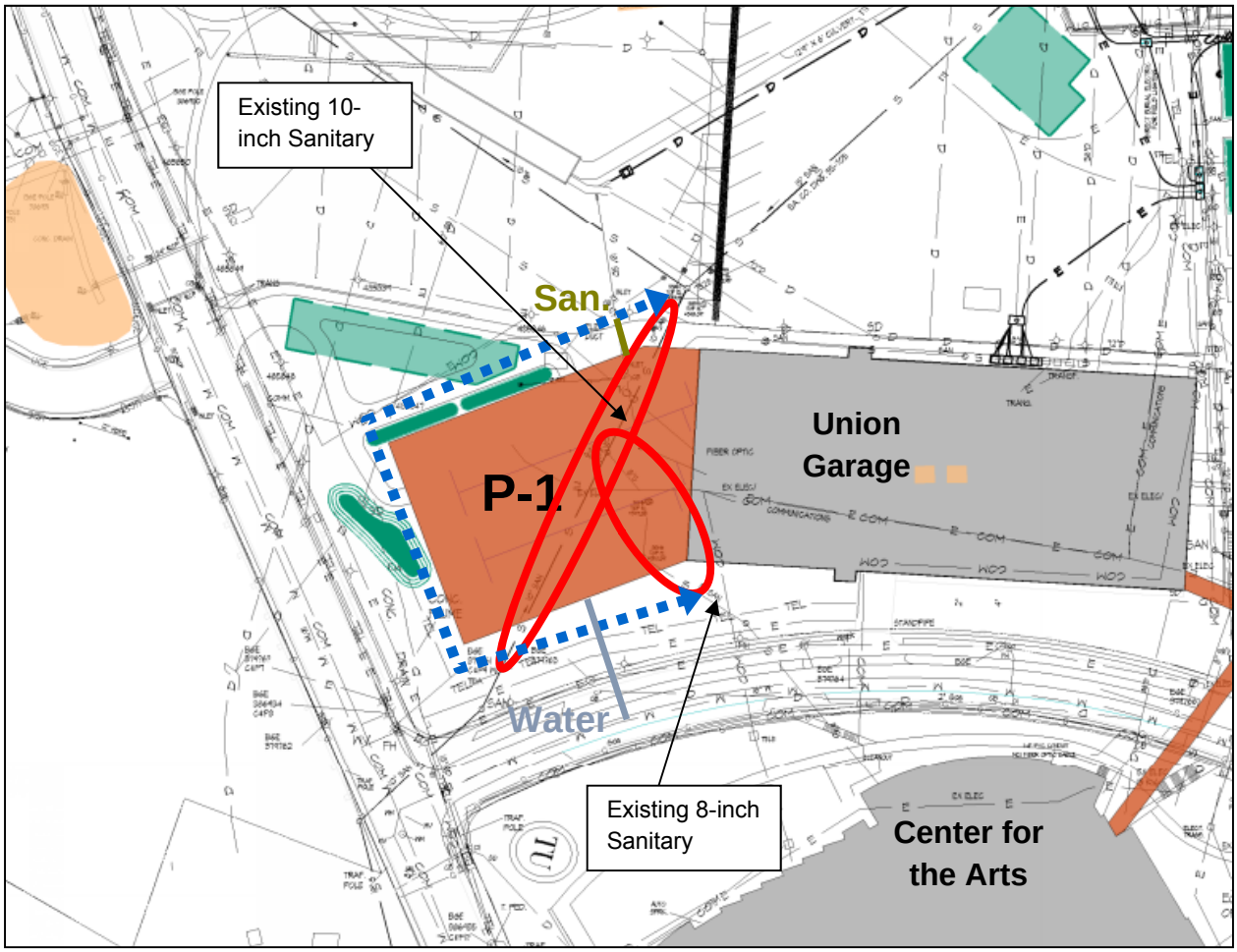
Core Campus Utilities – Building C-02



Potential Utility Connections:

Building C-02: Existing 8" water (relocated to north side), Sanitary to use spur of abandoned 10" sanitary (north side)

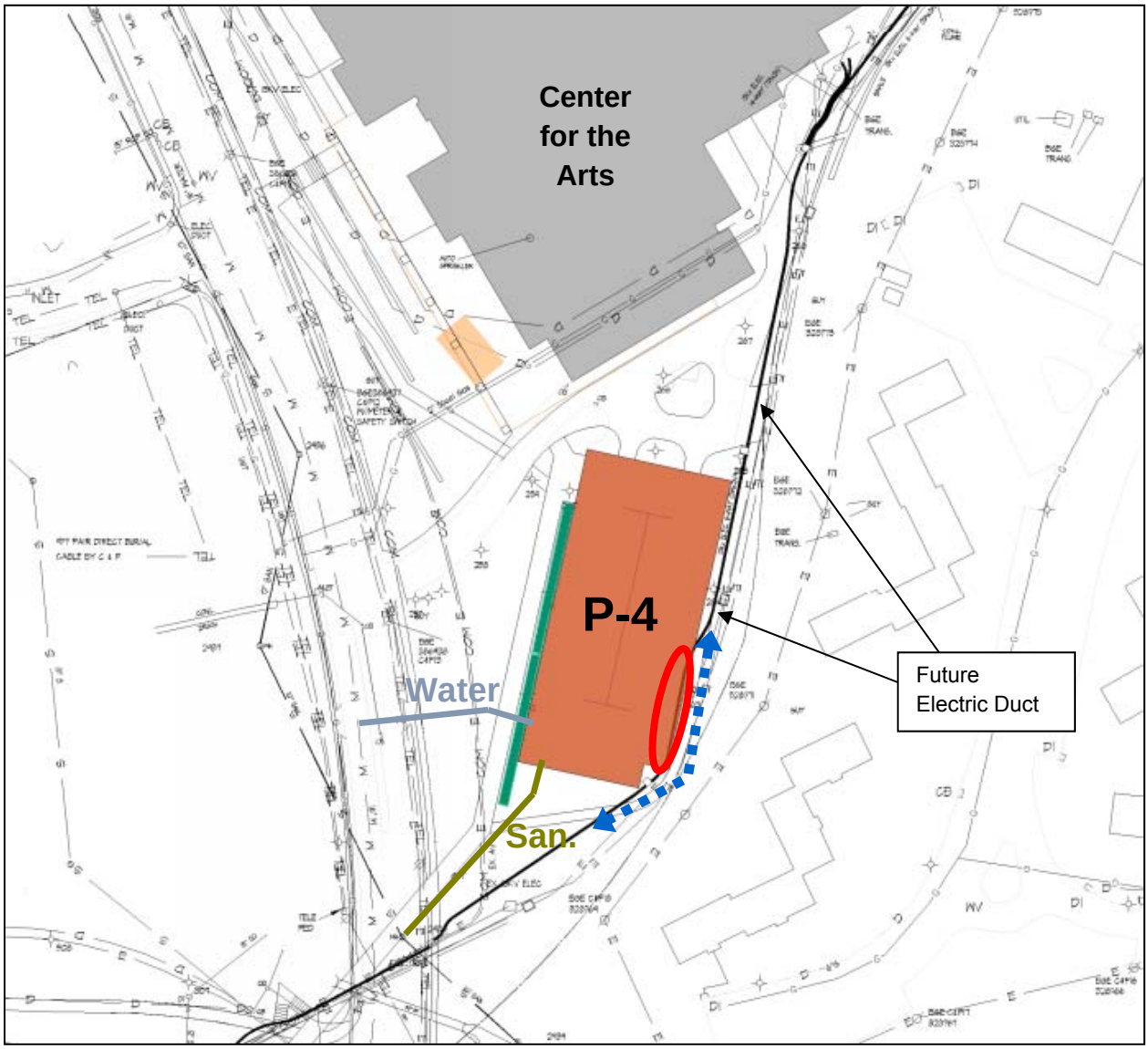
Core Campus Utilities – Building P-1



Potential Utility Connections:

Building P-1: Existing 16” water (in Cross Campus Drive) or extend existing nearby garage service
Sanitary service (if required by jurisdiction) has 10” and 8” lines available nearby

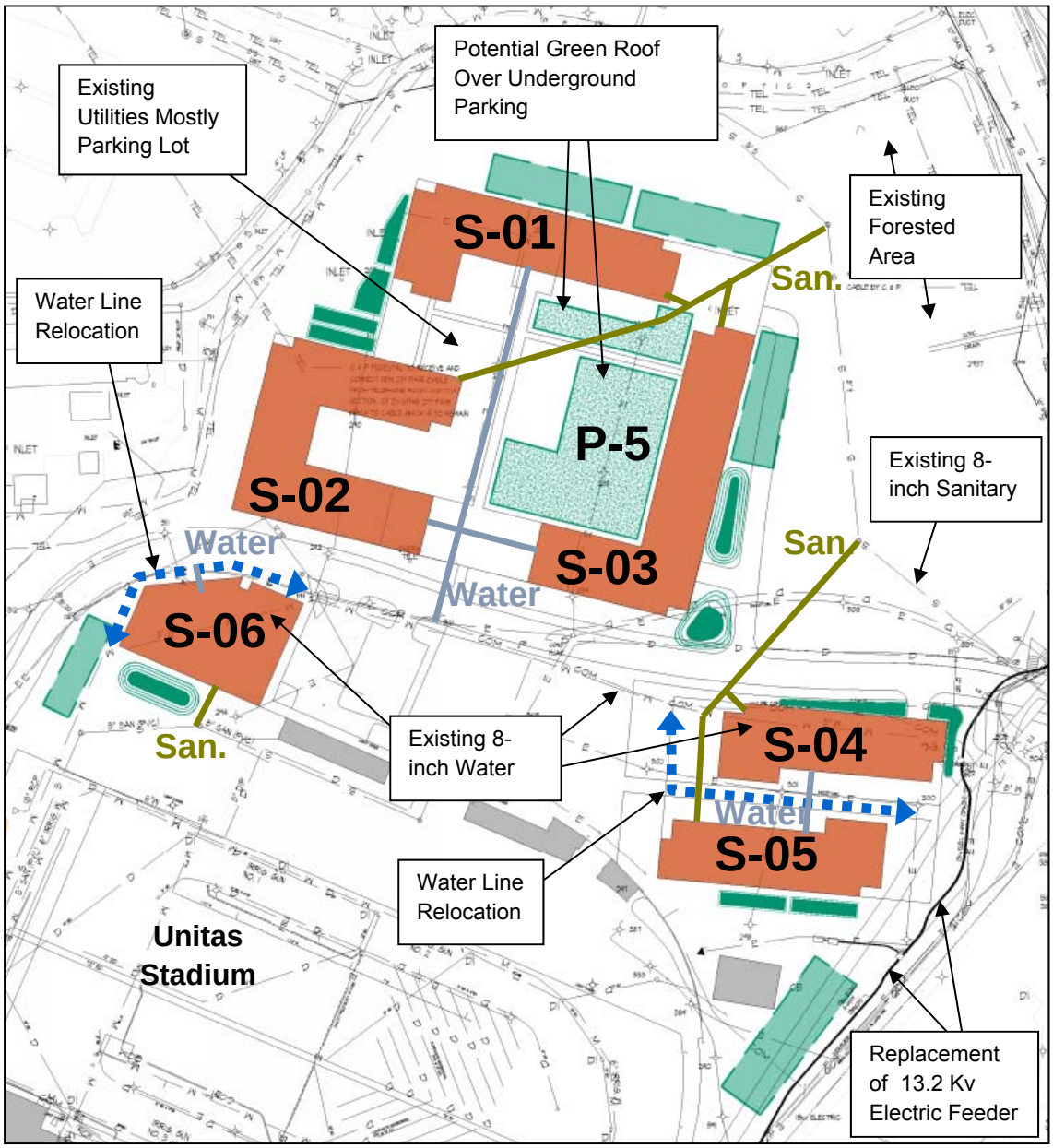
Core Campus Utilities – Building P-4



Potential Utility Connections:

Building P-4: Existing 16” water (in Osler Drive), Ex. 10” Sanitary crossing Osler Drive

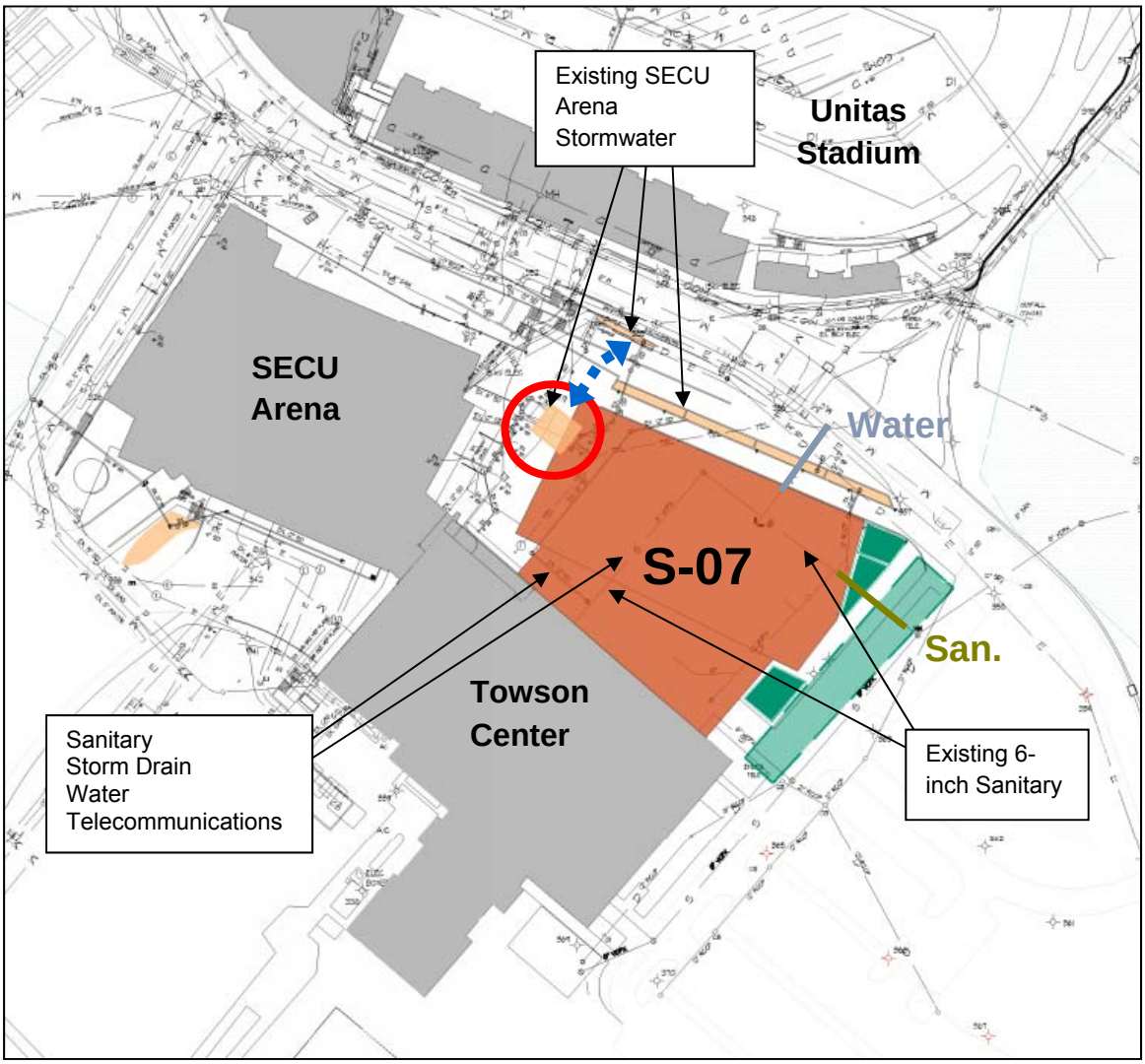
South Campus Utilities – Buildings S-01 to S-06



Potential Utility Connections:

Building S-01: Existing 8” Water in Auburn Drive, Existing 8” Sanitary beside woods in NE corner
Building S-02: Existing 8” Water in Auburn Drive, Existing 8” Sanitary in NE corner
Building S-03: Existing 8” Water in Auburn Drive, Existing 8” Sanitary in NE corner
Building S-04: Existing 8” Water (re-routed between buildings), Existing 8” Sanitary north of building
Building S-05: Existing 8” Water (re-routed between buildings), Existing 8” Sanitary north of building
Building S-06: Existing 8” Water (re-routed into Auburn Drive), Ex. 8” Sanitary south of building

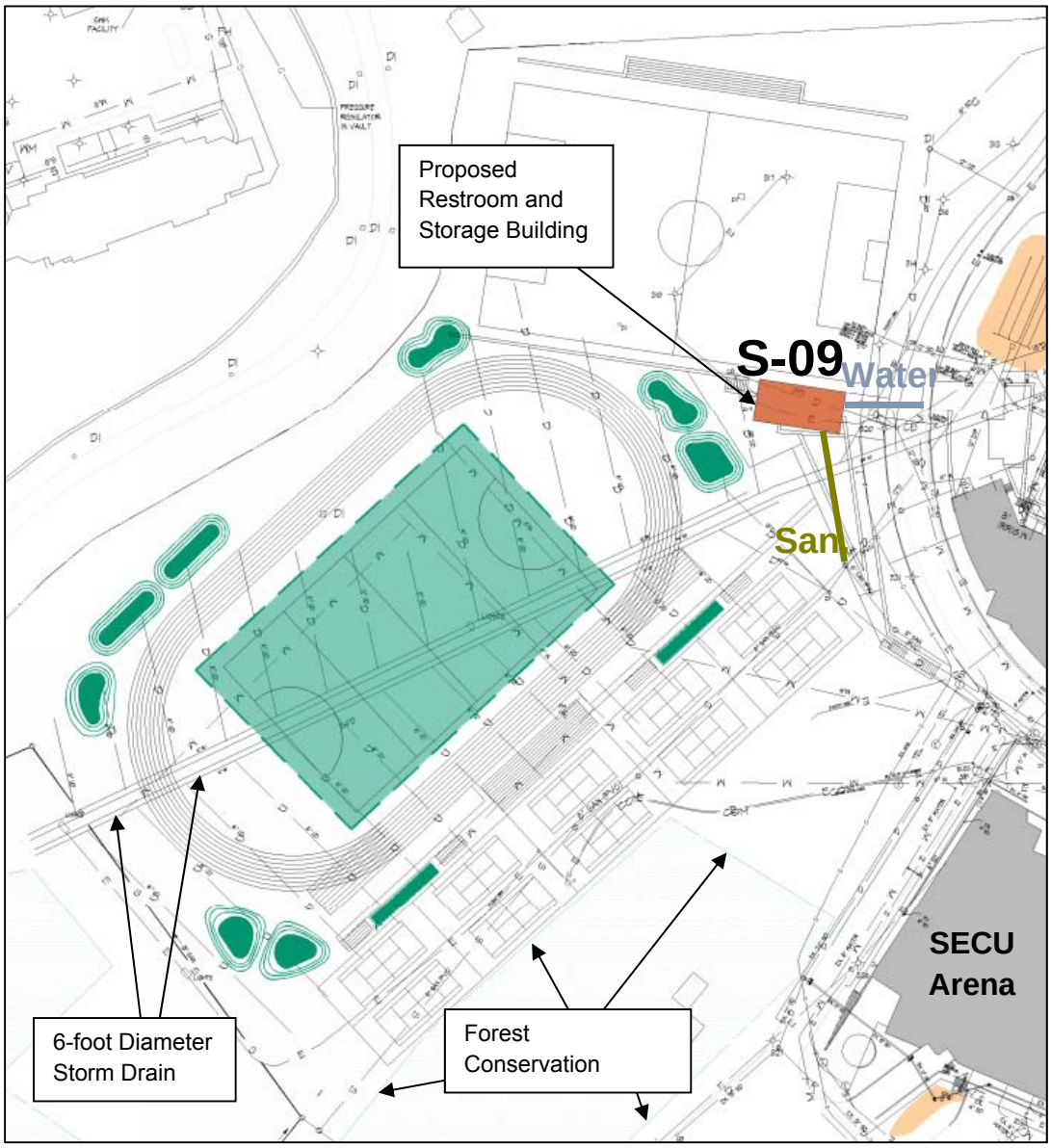
South Campus Utilities – Building S-07



Potential Utility Connections:

Building S-07: Re-use/upgrade existing connection to 8" Water in Auburn Drive, Re-use/upgrade existing connection to 8" sanitary east of building

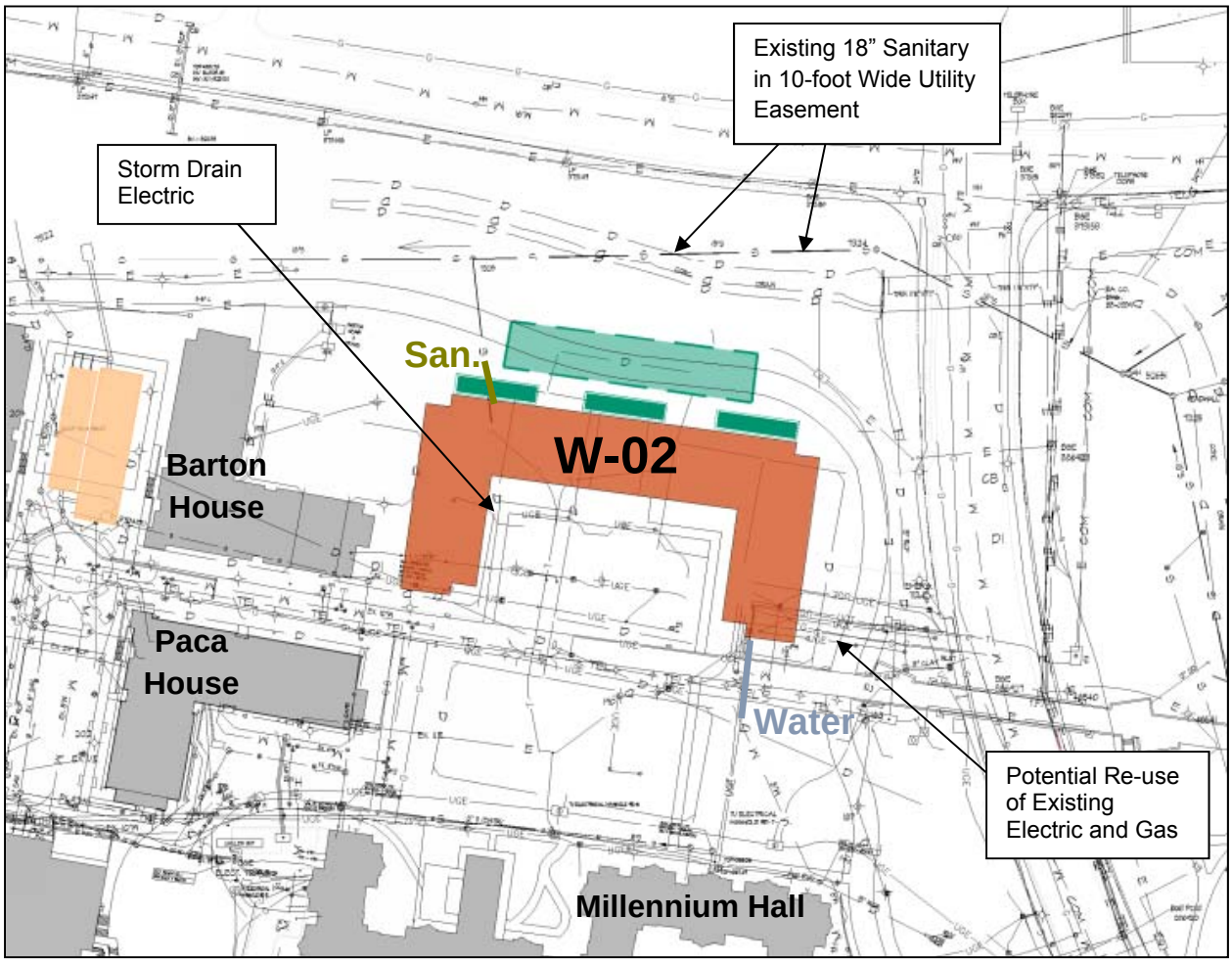
South Campus Utilities – Recreation Fields



Potential Utility Connections:

Building S-09: Existing 8” water in Auburn Drive, Existing 8” Sanitary south of building

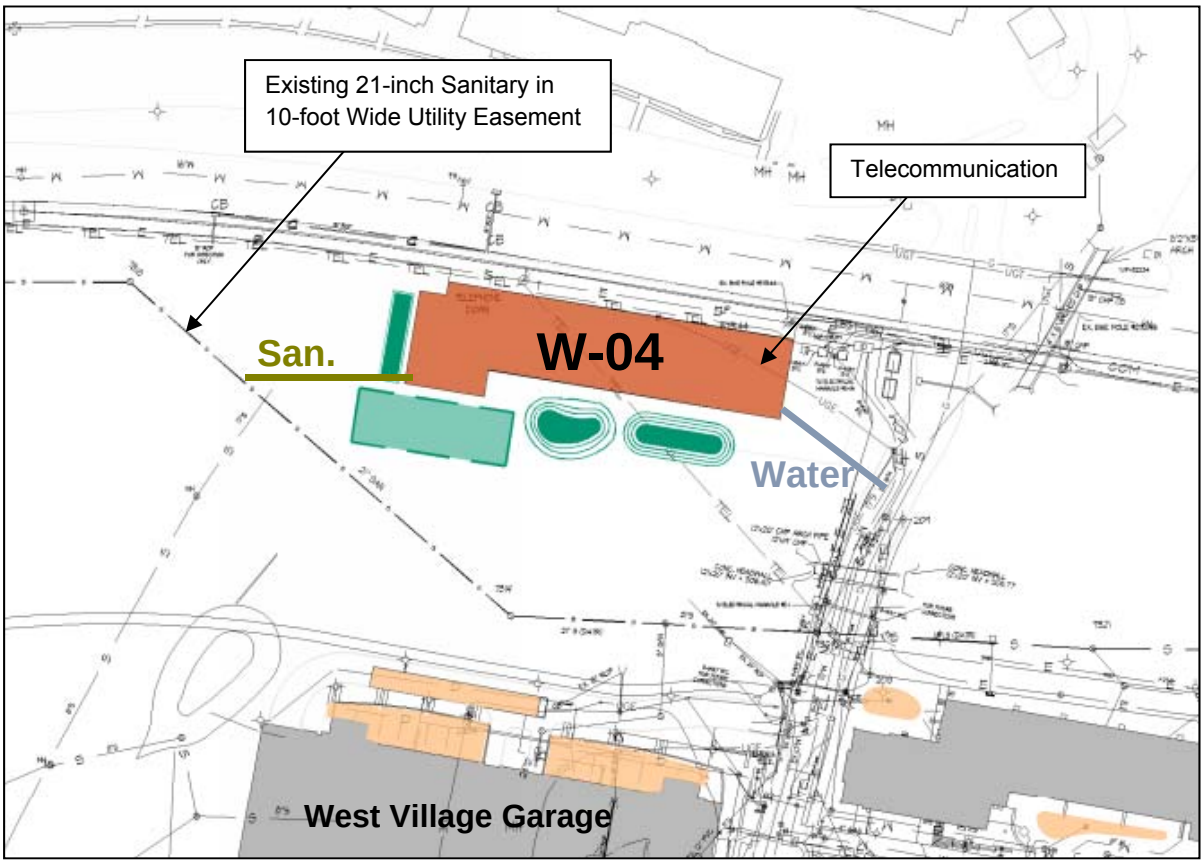
West Campus Utilities – Building W-02



Potential Utility Connections:

Building W-02: Re-use existing 8" water line, Re-use/upgrade existing sanitary north of building

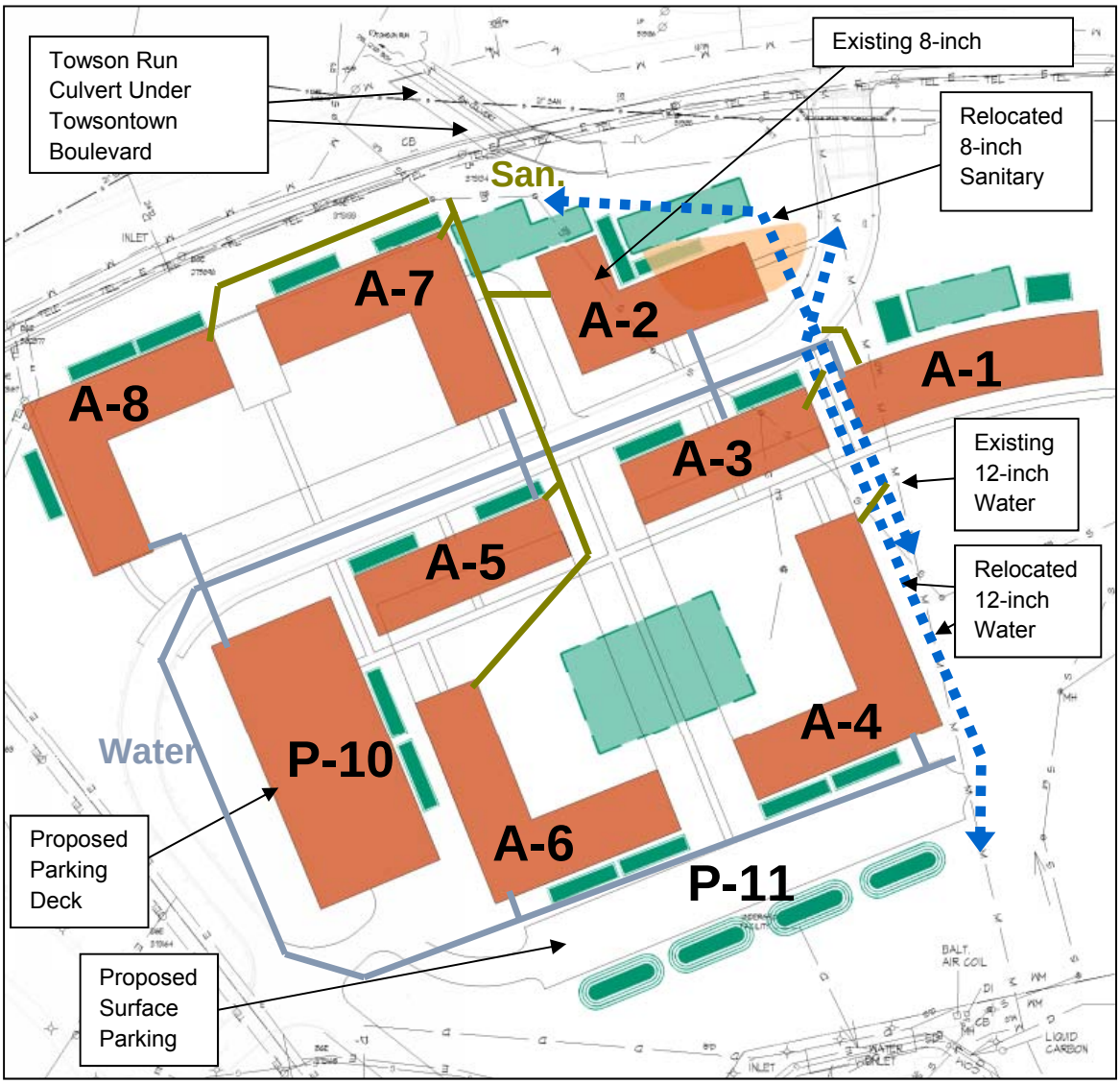
West Campus Utilities – Building W-04



Potential Utility Connections:

Building W-04: Existing 10" Water in Emerson Drive, Existing 21" Sanitary along Towson Run

West Campus Utilities – Buildings A-1 to A-8

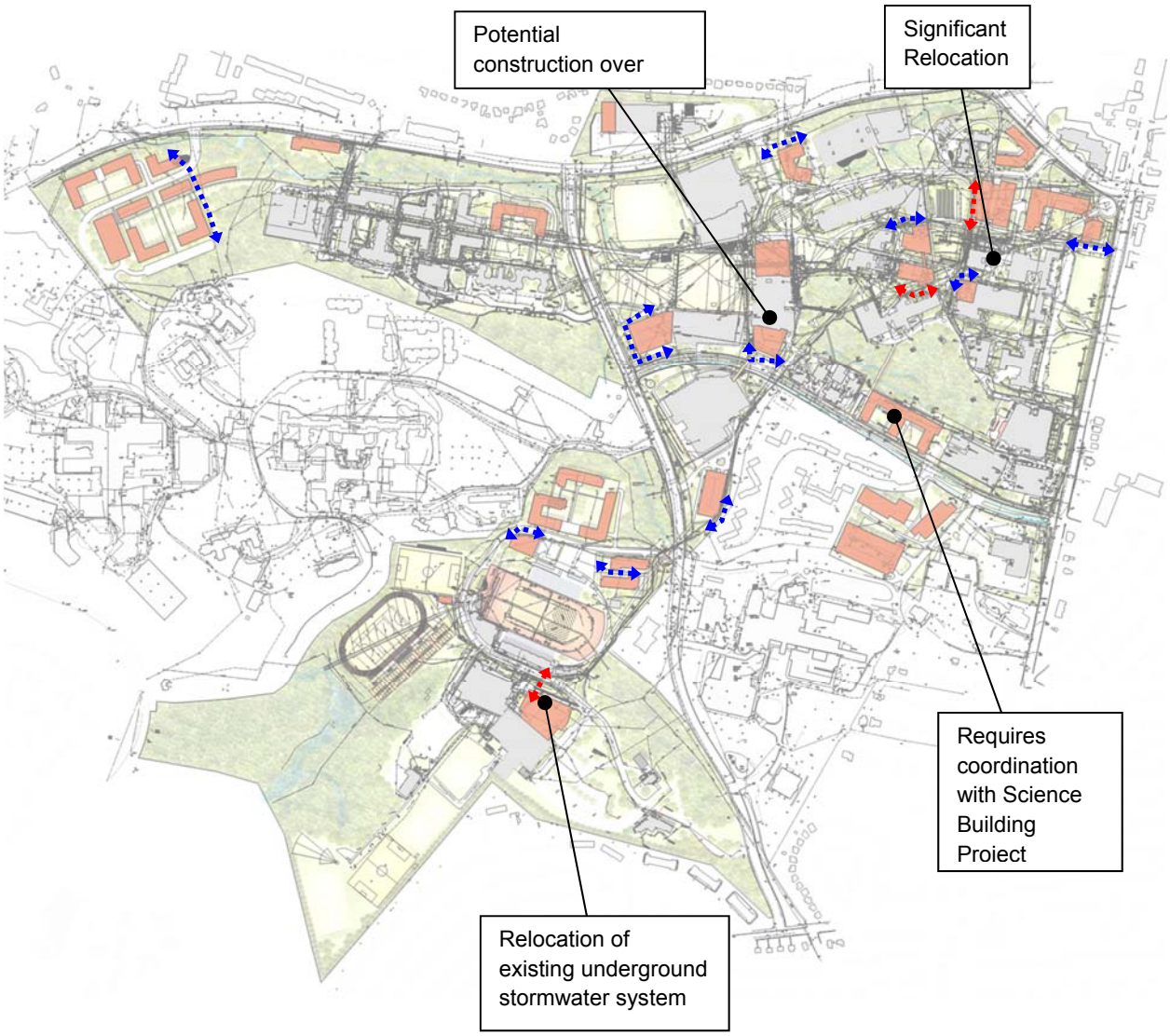


Potential Utility Connections:

Bldg. A-1-A-8: New service loop from relocated 12" water line, Existing sanitary near Towson Run
Building P-10: New water service loop (fire protection)

Utility Relocations

The map below summarizes places where significant utility relocations and relatively minor adjustments may be necessary to accommodate future projects. The term "significant" implies the potential re-alignment of larger pipes or the re-arrangement of especially clustered utilities. Any proposed development in an established collegiate environment may require numerous utility adjustments, but the places highlighted below are particularly noteworthy for the Towson University campus.



Significant Relocation

Minor Relocation

Geothermal Resource Development

The Towson University 2009 Master Plan for utilities and infrastructure presented multiple options for expansion of the campus cooling and heating systems. Besides increasing number of chillers and boilers to serve the anticipated future needs, it considered installing co-generation. At the time, the report recommendation was to create a centralized chilled water distribution system and to defer decision on co-generation until additional analysis was completed.

A further study during the 2009 Campus Master Plan process states that Geothermal ground source heating and cooling can indeed be integrated into Towson's planned utility systems in the following ways:

- Low temperature hot water loops for reheat after dehumidification by chilled water.
- Heating and cooling for remote locations where centralized heating and cooling systems are not available.
- Replacement to cooling towers to leverage the efficiency gain, and therefore energy conservation, to remove excess heat via low ground temperature in comparison to the high, summer outside air temperatures.
- Preheating domestic hot water in combination with smaller boiler.
- Integrated with chiller plant to store waste heat from chillers to use for heating in the winter.
- Serve as means of base heating and cooling buildings with supplement chiller or boiler to serve peak loads, thereby reducing size of well field, chiller and/or boiler systems.
- Preheating boiler feed water from well fields supplied by cooling dominant buildings such as computer centers or laboratory buildings.

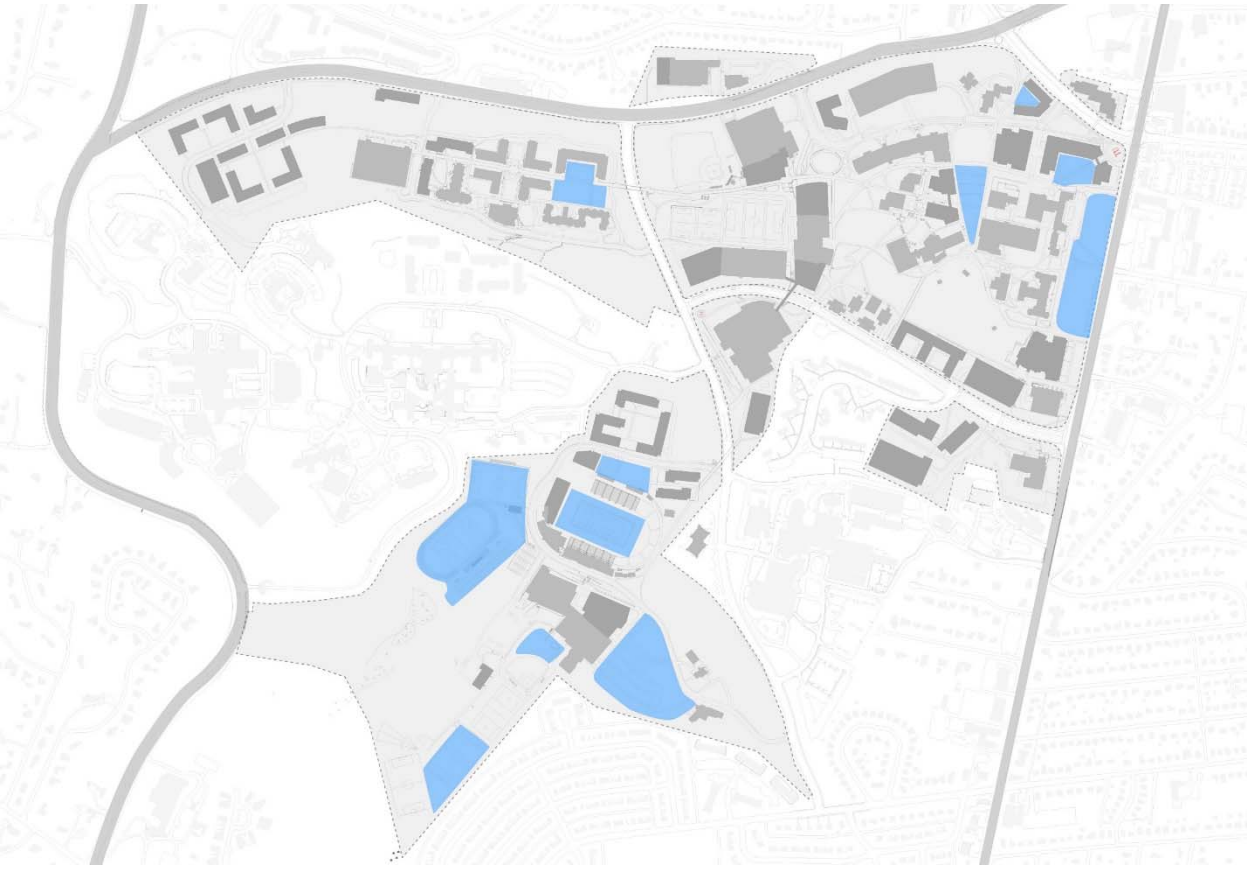
Both vertical and horizontal closed loops as well as standing column approaches appear to be technically feasible throughout much of the development area. As noted above, withdraw/recharge approaches are not recommended for this site setting.

Projects that may be well suited for geothermal heating and cooling on the Towson University Campus include:

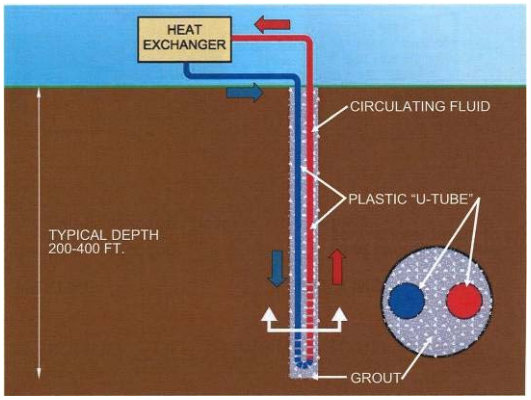
- Academic Core Expansion (utilize waste heat from highly cooling load buildings for preheating in the power plant or laboratories)

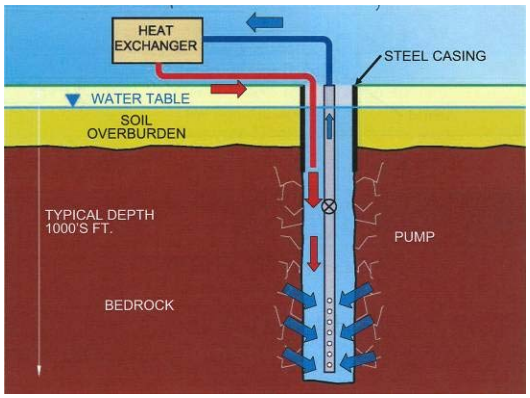
In terms of cost-effectiveness, ease of regulatory issues, and reliability, we would prioritize geothermal approaches as follows (1) vertical closed loop systems in developments with large open spaces, (2) standing column systems in open areas or installed along the development sidewalks, landscaped "edges", and other available "strip" areas in dense areas, and (3) horizontal closed loops installed below lowest level slabs, with higher priority on slabs below groundwater tables for any structure that will have basements below the groundwater table.

Additional considerations for each are below:
We would assign lower priority to horizontal closed loop approach given the size of the building loads that are typical in institutional buildings compared to available green space identified in the Master Plan. Installation of below building vertical closed loops could also be considered but schedule and coordination issues would be significant. As described above, however, large numbers of closed loop wells would be required to accomplish the same magnitude of geothermal capacity as would be delivered by standing column wells.



Potential Geothermal Areas on Campus





Closed:

Larger linear ft per ton
Cost per ton very location specific
Low Maintenance
Requires More Space

Standing Column Well:

Smaller linear ft per ton
Cost per ton very location specific
More Capacity
Less Space
Permitting & Water Quality

Closed Vertical Loop System

Standing Column System

Comparison of Systems

Section 5: Implementation

5.1 Implementation

Due to the guideline space deficit, the initial phases of the Campus Master Plan calls for the construction of new facilities with the demolition of some smaller, less efficient buildings. The elimination of some existing facilities will allow for the more efficient use of the university's limited land resources through the construction of efficient floor plans and larger buildings, while avoiding considerable maintenance liabilities posed by the existing outdated structures. Removing these existing buildings also provides the opportunity to recreate a more functional campus through the consolidation of academic programs within the academic core.

5.2 Project Phasing

Towson University will add about 800,000 GSF of new academic and academic support space, 200,000 GSF of auxiliary and student services space, 90,000 GSF of recreation space, and approximately 400,000 GSF of new on-campus housing over the next decade. Construction of new facilities will be balanced with a comprehensive initiative to renovate existing buildings to support past and future enrollment growth and address deferred maintenance backlogs.

The Campus Master Plan also includes an assessment of the long-term building opportunities that define the responsible capacity of the land. Based on this assessment, the campus can accommodate a future 200,000 GSF of academic and academic support space, over 125,000 GSF of athletics space and over 1,000,000 GSF of housing—primarily in the area west of West Village.

Proposed Long-Term Master Plan

Existing Towson University Building

Proposed Building

5.3 Proposed Capital Development Projects 2015-2029

STATE-SUPPORTED PROJECTS

1. New Science Building
2. New College of Health Professions Building
3. Visual Communications Technology - Smith Hall Adaptive Reuse
4. Hawkins Hall and Psychology Building Renovation
5. Cook Library Expansion and Renovation
6. Future Academic Building
7. New Enrollment Services Building
8. Campus Pedestrian and Bicycle Beltway
9. Stephens Hall Renovation
10. Van Bokkelen Hall Renovation
11. General Services Building Expansion
12. Power Plant Updates
13. Future Buildings

SYSTEM-FUNDED PROJECTS

14. New West Village Housing Phase III and IV
15. Burdick Expansion
16. Newell Dining Hall Renovation
17. University Union Addition and Renovation
18. Union Garage Expansion
19. Residence Tower Renovation
20. New South Campus Housing, Parking, and Pedestrian Bridge
21. Glen Towers and Dining Hall Renovation
22. New Glen Housing, Parking, and Pedestrian Bridge
23. Athletics Complex Improvements
24. Competition and Practice Field Improvements
25. West of West Neighborhood
26. Administration Garage
27. Center for the Arts Garage
28. New Residence Hall
29. New West Village Housing Phase V
30. New West Village Housing Phase VI
31. Future Athletics Support

Long-Term Development

F Future

The actual timing of project design and construction are funding and enrollment dependent and therefore may or may not occur within the time period stated above. The order of the list does not reflect the priorities of the institution. Some projects are dependent on the completion of preceding projects, for example, the new West Village Phase 5 housing cannot start until the new Enrollment Services Building is complete and the existing Enrollment Services Building is removed.

The following chart outlines potential project and total GSF between 2015 and 2029:

Proposed Capital Projects

Project	GSF Construction	GSF Renovation	Type
New Science Building	316,000		Academic
New College of Health Professions	250,000		Academic
Visual Communications Technology - Smith Hall Adaptive Reuse		220,245	Academic
Hawkins Hall and Psychology Renovations		125,000	Academic
Cook Library Expansion and Renovation	75,000	180,356	Academic
Future Building	228,000		Academic
New Enrollment Services Building	90,000		Academic
Pedestrian and Bike Beltway			
Stephens Hall Renovation		91,414	Academic
Van Bokkelen Hall Renovation		31,026	Academic
General Services Building Expansion	10,000		Academic
Power Plant Updates			Academic
Future Buildings	156,000		Academic
Future Buildings	216,000		Academic
West Village Housing Phase III/IV (700 beds)	240,000		Auxiliary
Burdick Addition	90,000		Auxiliary
Newell Hall and Dining Renovations		103,000	Auxiliary
University Union Addition	80,000		Auxiliary
Union Garage Expansion (450 parking spaces)			Auxiliary
Residence Tower Renovation		102,000	Auxiliary
South Campus Housing, Parking, & Bridge (1,200 beds, 1,000 parking spaces)	450,000		Auxiliary
Glen Towers and Dining Hall Renovation		430,980	Auxiliary
New Glen Housing, Parking, & Bridge (700 beds, 400 parking spaces)	280,000		Auxiliary
Athletics Complex Improvements	60,000		Auxiliary
Competition and Practice Field Improvements			Auxiliary
West of West Neighborhood			Auxiliary
Administration Garage (900 parking spaces)			Auxiliary
Center for the Arts Garage (260 parking spaces)			Auxiliary
New Residence Hall (360 beds)	135,000		Auxiliary
New West Village Housing V (500 beds)	225,000		Auxiliary
New West Village Housing VI (250 beds)	112,500		Auxiliary
Future Athletics Support Facilities	90,000		Auxiliary

* The total GSF area listed for parking garages includes the ground level only.

5.4 Property Acquisition

Although the current University Master Plan contains sites for all the facilities required to accommodate the projected growth in enrollment over the next decade. The University will consider purchase of additional properties on a case by case basis as they become available.

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