William Paterson University

Invigorating the Core
The Academic Zone Master Plan

27 June 2012






Perkins Eastman

ACKNOWLEDGEMENTS

WILLIAM PATERSON UNIVERSITY

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TABLE OF CONTENTS

EXECUTIVE SUMMARY Ex

In the fall of 2011, William Paterson University engaged Perkins Eastman to conduct a focused master plan for six buildings in its original academic core (know as the "Academic Zone") —Hunziker Hall, Hunziker Wing, Coach House, Wightman Gym, Raubinger Hall and the Shea Center for Performing Arts—most of which date to the 1950s and 1960s and have not received a significant upgrade since their construction. Throughout this process a great deal of information about the current condition and needs of the University has been gathered and analyzed in terms of academics, facilities, culture, and community.

The six buildings that are the focus of this study provide the majority of general instruction space for William Paterson University; these buildings are also among the oldest facilities in the campus's inventory and represent the greatest portion of un-renovated space. The intent of this study is to determine guidelines for future improvements to this academic zone that support the University's mission and strategic plan. Based on a variety of factors, including campus context, space needs, analysis of existing building and infrastructure conditions, and estimated costs associated with improvements, specific recommendations are provided for each of the six buildings and their surrounding context. These recommendations are intended to support the University's mission and strategic plan while crafting beautiful, memorable and active open spaces within the academic core.

History

William Paterson University has a long history dating back to 1855, when it was founded as a teacher's college in Paterson, New Jersey. After relocating several times to various public school buildings in the area, the University found its permanent residence at the Wayne, New Jersey campus in 1951. The original campus was a private family estate, dotted with several existing buildings including the landmarked 1877 Hobart Manor and a handful of service structures (including the Coach House). Hunziker Hall, the first new building constructed for the school, became the heart of the campus. As needs expanded, the campus continued to develop outward from the "core" of Hunziker Hall. All of the buildings in the academic zone were constructed prior to 1968.

Existing Conditions

Due to advanced age and the lack of capital investment since their construction, the physical condition of the buildings within the Academic Zone ranges from "very poor" to "fair" (Raubinger Hall, an exception, is the only building in "fair" condition and not requiring immediate investment). None of the buildings are supported by central mechanical systems and several are lacking fire suppression systems. It has been determined that no existing

building system in the Academic Zone is in good condition. Among the six buildings that are the focus of this study, Coach House and Wightman Gym have been found to be in the worst physical condition; the cost implication of updating these buildings to acceptable standards is prohibitively high.

Space Needs

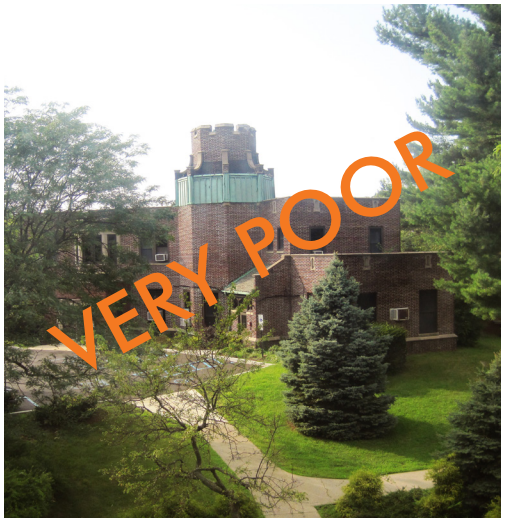
Enrollment projections are an important factor in determining space needs and, ultimately, formulating recommendations. William Paterson University is projecting a dramatic 32% increase in enrollment by 2022, from 11,361 FTE in 2011 to approximately 15,000 FTE in 2022. For the purpose of this study, this projection is assumed to materialize as a uniform growth across all departments, with minor adjustments based on the University's Strategic Plan. Faculty headcount is projected to increase proportionally with student enrollment.

Space needs are developed by combining information about enrollment projections, department-specific needs, the quality and quantity of existing facilities, right-sizing standards and utilization expectations; these factors are then viewed within the context of the entire campus. The short- and long-term space needs (net assignable square feet - NASF, gross square feet - GSF) of the Academic Zone are summarized below:

Table Ex.1

2011 NASF Inventory	142,048
Short-Term NASF Suggested Program	172,846
Short-Term NASF Deficit	(30,798)
Long-Term NASF Suggested Program	207,645
Long-Term NASF Deficit	(65,606)
Long-Term GSF Deficit	(139,062)

The overall space need is distributed among the categories of Academic Affairs (Academic Affairs, Academic Support and General Instruction), Student Development (Athletics, Collaboration and Food Service), and by academic department. Based on the assumption of uniform growth across all academic departments, the allocation of space needs is generally balanced among Colleges. Science and Health—specifically, the Department of Nursing and the Department of Kinesiology—stand out as exceptions, with a long-term need of approximately double the existing inventory. The Department of Nursing is anticipating significant growth and could benefit from additional class lab, faculty office, and meeting space to support future needs. New labs may include, for instance, a surgical/pediatric/oncology lab, a specialized patient car lab and a home health lab. The Department of Kinesiology currently utilizes a large portion of the athletic and recreation space in Wightman Gym as class lab environments. These spaces, however, are not ideally suited for this purpose due to their size; a series of smaller kinetic studio

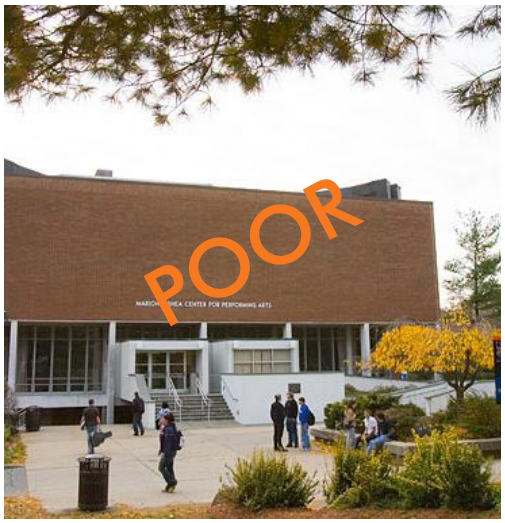


Graphic Ex.1
Coach House

Graphic Ex.2
Hunziker Hall

Graphic Ex.3
Hunziker Hall Wing

Graphic Ex.4
Raubinger Hall



Graphic Ex.5
Shea Center for Performing Arts

Graphic Ex.6
Wightman Gym

environments with adjacent classrooms would be more appropriate. The relatively large space need for Kinesiology (an addition of 9,537 nasf) represents a reallocation of space from Athletics to Kinesiology.

The greatest need in the Academic Zone is to increase (in aggregate) the amount of class lab space. When viewed departmentally the long-term need sometimes doubles existing allocations. An increase in class lab space—particularly for science and health programs—is deemed the most critical need.

General Instruction space, which includes lecture halls and shared classrooms, is also a pressing need. As of 2011, the existing inventory of General Instruction space within the Academic Zone is 33,504 nasf; the long-term need (out to approximately 2022) is estimated to be more than twice this amount at 68,418 nasf. The existing lecture halls and classrooms within the Academic Zone are both quantitatively and qualitatively insufficient, as indicated in user-group interviews and re-confirmed by analysis.

There is also a significant need for collaboration space. The William Paterson University campus—particularly the academic zone—has very little space for collaborative learning environments. There is a great need for more informal learning spaces, such as breakout rooms, lounges, study rooms, and soft seating, in combination with classrooms that are more flexible and better positioned to support active learning.

Additionally, the Academic Zone is not the ideal location for the natatorium, the Child Development Center or Custodial Services; all of which are to be relocated (size, programming and location of these departments are not determined as part of this plan).

RECOMMENDATIONS

The operative goals of the academic zone facility plan can be summarized as follows:

- Address significant space needs
- Address significant building system needs
- Provide labs before general instruction
- Stimulate campus intellectual life
- Create memorable open space
- Improve pedestrian circulation

The final recommendation of this study meets the future needs of the University within the Academic Zone. Most importantly, it provides a much-needed increase in class lab space and provides more general instruction and collaboration space. It also improves

the pedestrian experience of the campus by creating integrated and safer circulation, activating open space and providing a walking path from the new parking garage.

Seven major initiatives comprise the final recommendation for the academic zone. The phasing of these projects reflects input from the campus and responds to the University's priorities as well as practical dependencies. These initiatives include:

1. Academic Building 1 (Coach House Site)

The first initiative proposes a new academic building on the current site of the Coach House, which is to be demolished as the first step of this process. Because the Coach House does not contain a great deal of active program space, its demolition will have a minimal impact on existing groups. Kinesiology is to be relocated from Wightman Gym to the new Academic Building 1, allowing for the demolition of Wightman. The new Academic Building will consolidate Communication Disorders, Community Health, Kinesiology, and Nursing, along with General Instruction and a small food service venue. This consolidation largely empties Hunziker Wing and allows for its renovation. Given the location of the Coach House site between two open space areas, Academic Building 1 has the opportunity to establish a "street wall" that responds to Hunziker Wing, helping to frame Speert Garden and better define Raubinger Quad.

2. Hunziker Hall Wing (Extensive Interior and Exterior Renovation)

The new Academic Building 1 will contain all of the program area from Hunziker Hall Wing, leaving Hunziker Hall Wing vacant for renovation following its completion. It is proposed that Hunziker Hall Wing becomes 25% smaller, with a portion removed to separate the building from Hunziker Hall. The renovated Hunziker Hall Wing will largely be used for General Instruction and Departmental Support, providing relief for the doubled-up faculty in Atrium Hall. As part of the renovation, a new entry from Speert Garden will be provided.

3 and 4. Academic Building 2 (Wightman Gym)

Academic Building 2 is proposed as the third initiative because Wightman Gym will be largely vacant following the completion of Academic Building 1. It should be noted that this project cannot go forward until a swimming pool is replaced elsewhere on campus. Academic Building 2 will house an expanded Academic Skills Center along with a significant amount of new General Instruction space. This building will also provide nearly 14,000 nasf of new collaborative learning space.

5. Hunziker Hall (Extensive Interior and Exterior Renovation)

A full interior demolition and fit-out is recommended for Hunziker Hall. It would benefit the academic zone for this building to be accessible from all sides, particularly with its proposed separation from Hunziker Hall Wing. The introduction of a multi-story atrium at the now-open joint between Hunziker Hall and Wing would help to unify the building and provide a focal point for social interaction. While major aesthetic and functional changes are recommended for the interior of the building, it is recommended that the exterior of the building be preserved due to its historical significance.

6. Raubinger Hall (Interior Renovation)

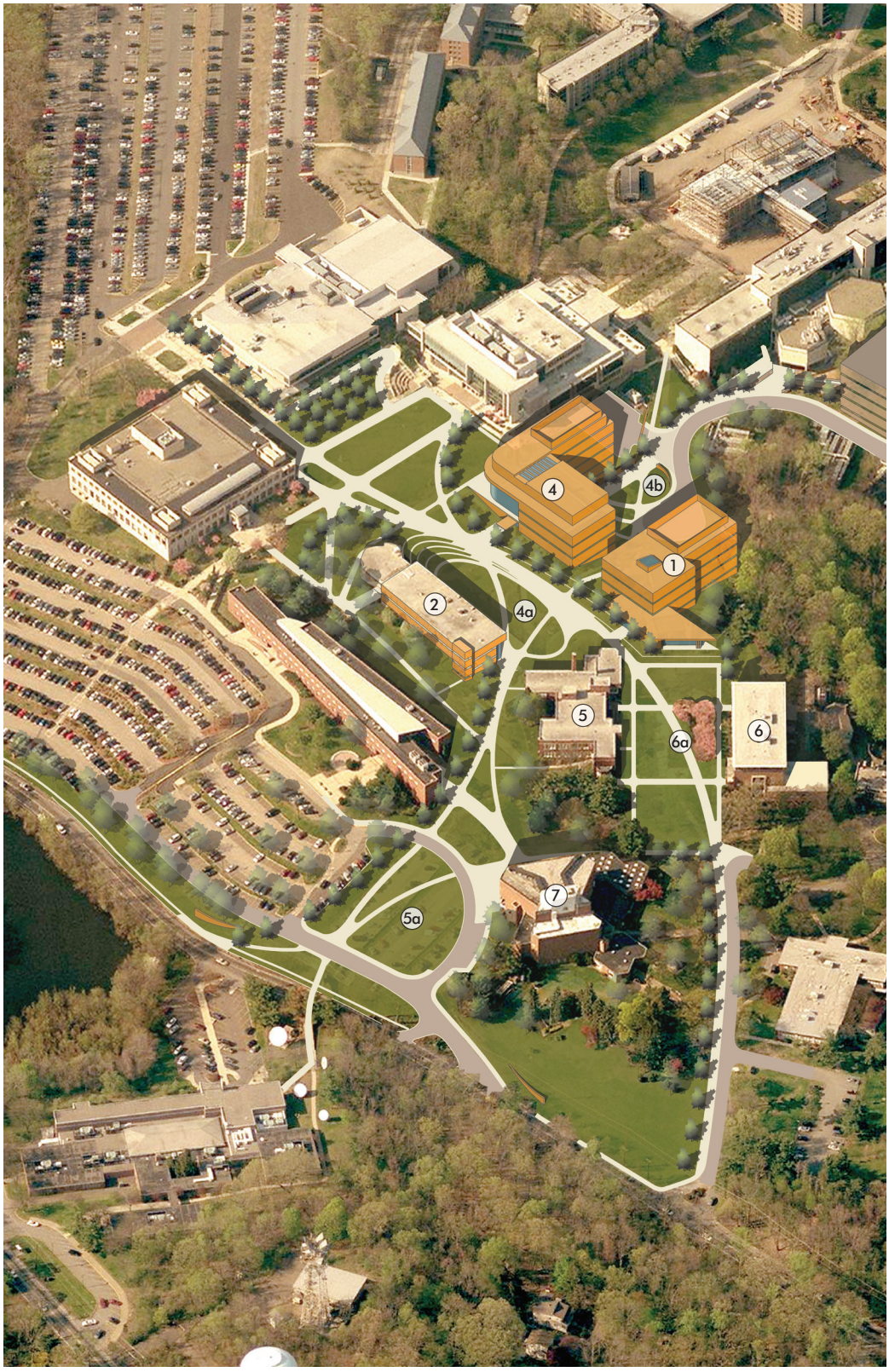
Raubinger Hall is one of the major instructional workhorses not only within the Academic Zone, but also the context of the entire campus. It also contains the Academic Support Center. It would be reasonable to maintain Raubinger Hall's use for General Instruction and faculty offices, although faculty offices should be better distributed throughout the building. The University may want to look for alternative locations within the Academic Zone for the Academic Support Center and the Provost's offices. Investment in Raubinger Hall is a lower priority than some of the other recommended initiatives because this building is in the best condition of all buildings within the Academic Zone.

7. Shea Performing Arts Center (Interior Renovation)

Shea Performing Arts Center is the most public building within the academic zone, and as such it would benefit from better public access and visibility along Pompton Road. The building is also in need of significant building systems improvements. It is recommended that the lower level of Shea be reoriented towards back-of-house functions as much as possible; the long-term needs of the Music Department and Theater Program cannot be met in Shea and will require additional space within the academic zone.

Alignment with Strategic Plan

Under the leadership of its president, Dr. Kathleen Waldron, the University has initiated a strategic planning process for 2012–2022 based on recent facility and academic planning efforts and the 2009 self-study for reaccreditation by the Middle States Commission on Higher Education. Certain goals within the Strategic Plan may be supported by physical improvements in campus facilities. As the academic zone facility plan is carried through, it must respond to the expanding demands of the University's Core Curriculum. The proposed initiatives are intended to increase the availability, variety and integration of academic institutional support and development for students and faculty, while enhancing



Graphic Ex.7
Academic Zone Master Plan

1. New Academic Building 1
2. Hunziker Wing Renovation
3. New Natatorium (not located)
4. New Academic Building 2
4a. Speert Garden Reconstruction
4b. New East Entry Court
5. Hunziker Hall Renovation
5a. New Pompton Greenway
6. Raubinger Hall Renovation
6a. New Raubinger Quad
7. Shea Center Renovation

Ex EXECUTIVE SUMMARY

student academic and academic intellectual engagement with faculty, student-support staff and peers inside and outside of the classroom. Improvements to the academic zone anticipate new technology and delivery methods to improve teaching effectiveness and learning outcomes. In line with the Strategic Plan, recommendations in the academic zone facility plan aim to contemporize and revitalize the academic zone, creating memorable and lively spaces both indoors and out.

Graphic Ex.8
Raubinger Hall

Cost Summary

Building	Long-Term GSF	$/GSF[1]	Hard Costs[1]	Project Costs[1,2]	Escalated Costs[3]
Coach House Demo	n/a	$35	$0.4M	$0.5M	$0.6M
New Academic Bldg 1	84,000	$454	$38.1M	$51.5M	$57.2M
Hunziker Hall Wing	37,050	$333	$12.9M	$17.3M	$21.3M
New Natatorium	n/a	n/a	n/a	n/a	n/a
Wightman Gym Demo	n/a	$36	$1.5M	$2.0M	$2.5M
New Academic Bldg 2	124,575	$451	$56.1M	$75.8M	$93.5M
Speert Garden	70,000	$33	$2.3M	$3.1M	$4.4M
East Entry Court	37,500	$39	$1.4M	$2.0M	$2.8M
Hunziker Hall	25,000	$257	$5.0M	$6.7M	$8.9M
Pompton Greenway	100,000	$27	$2.7M	$3.6M	$5.1M
Raubinger Hall	44,402	$208	$9.2M	$12.4M	$17.6M
Raubinger Quad	45,000	$29	$1.3M	$1.8M	$2.5M
Shea Center	33,437	$265	$10.1M	$13.6M	$19.3M
Totals[4]			**$141.0M**	**$190.2M**	**$235.6M**

Table Ex.2
Costing Summary

Note:
1 Costs are in 2012 dollars and not escalated.

2 Includes hard costs and 35% for soft costs (professional fees).

3 Project costs escalated to the mid-year of construction.

4 Totals may not sum due to rounding.

1 INTRODUCTION

William Paterson University is a public institution of higher education with offerings of more than 250 undergraduate and graduate programs. The comprehensive University serves more than 11,000 students through its five colleges: Arts and Communication; Cotsakos College of Business, Education, Humanities and Social Sciences; and Science and Health. It is the mission of William Paterson University to uphold its tradition of offering affordable, high-quality education to a diverse student population through baccalaureate, graduate and continuing education programs.

The main campus is located on 370 acres in Wayne, New Jersey, with several peripheral properties that have been acquired in recent years to accommodate enrollment growth. Though the majority of existing buildings on the campus were constructed between 1950 and 1975, the campus has undergone a number of large-scale improvements in the past two decades, including various building renovations and several new building projects. The campus has been greatly improved as a result of these projects—particularly the University Commons, which is now a vibrant hub of student activity and community events.

William Paterson University has engaged Perkins Eastman, along with its team of consultants, to conduct a facility plan for six buildings in its original academic zone—Hunziker Hall, Hunziker Wing, Coach House, Wightman Gym, Raubinger Hall and the Shea Center for Performing Arts—most of which have not received a significant upgrade in more than 50 years. The academic zone facility plan was initiated in the fall of 2011; in the following months a wide array of information was gathered and assessed to gain a thorough understanding of the University in terms of its academics, facilities, culture and community.

The intent of this document is to provide guidelines for future improvements to the academic zone that align with William Paterson University's mission and strategic plan. In addition to assessing the general needs, academic goals, funding and phasing requirements for the University, each of the six buildings are evaluated on an individual basis. Finally, recommendations are proposed for the Academic Zone, including locations for new academic buildings.

METHODOLOGY 2

The Academic Zone Facility Plan proceeded as a five-step process following the kick-off meeting in November 2011. At each phase, progress was presented to and discussed by the Steering Committee. The five steps include:

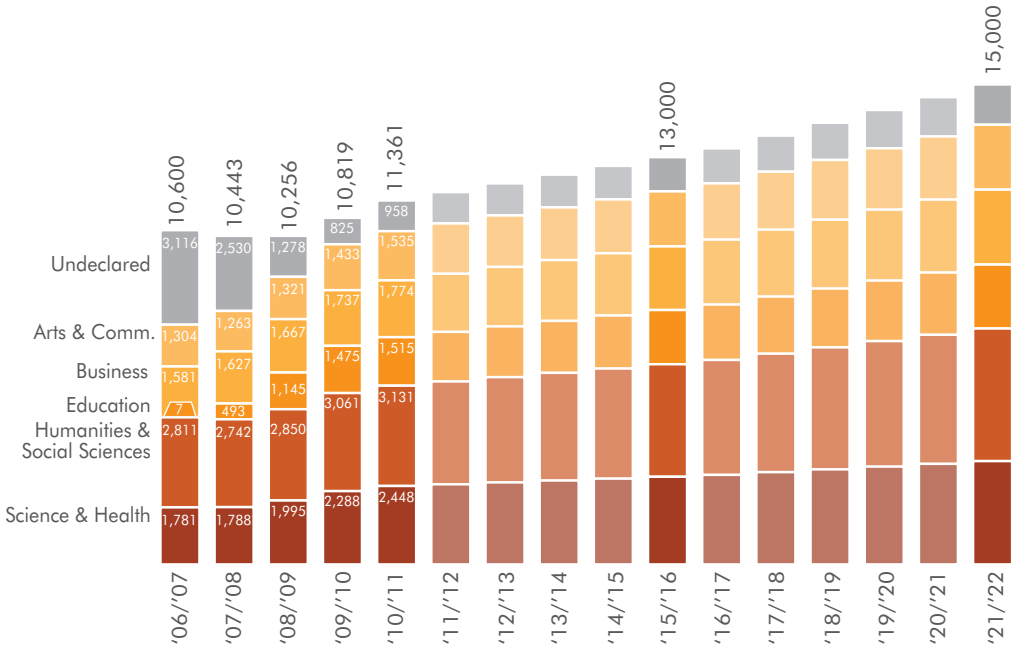
- Discovery: Campus Profile
- Discovery: Assessment of Conditions
- Discovery: Assessment of Needs
- Concept Alternatives
- Final Recommendations

PHASE 1 - DISCOVERY: CAMPUS PROFILE

The first step of the Facility Plan verified the accuracy of the Physical Space Inventory [PSI] database, which is the basis for the analysis of existing space utilization. Evaluating space determines the existing and future departmental needs for both academic and support functions. Projections of future space needs are based on several factors:

- Enrollment Projections
- Stakeholder Interviews
- Strategic Planning Objectives

Graphic 2.1
Total Projected Student Headcount by College

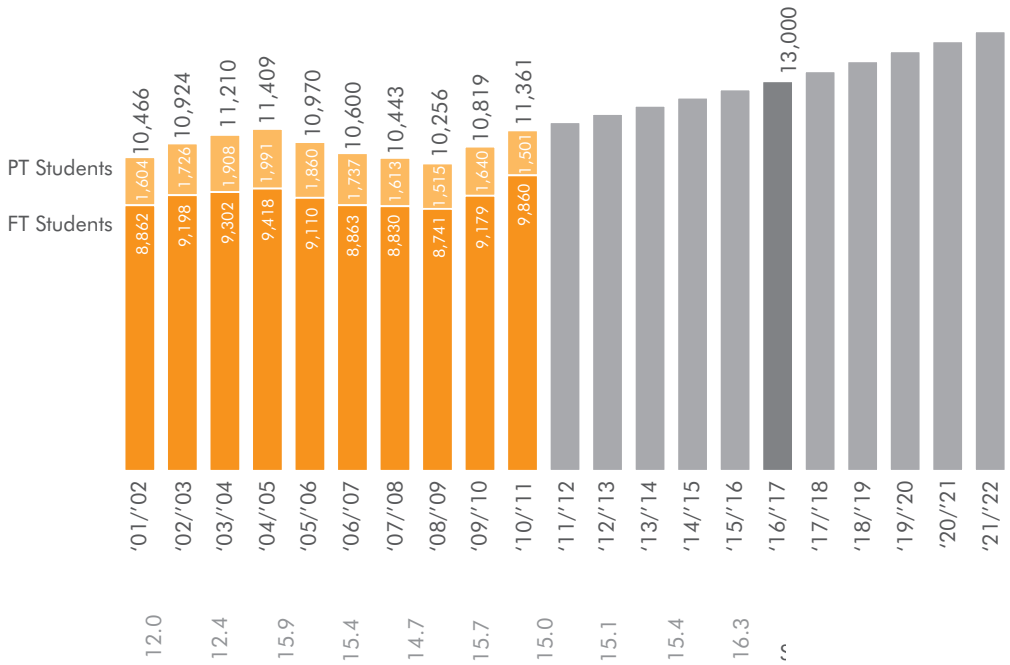


2 METHODOLOGY

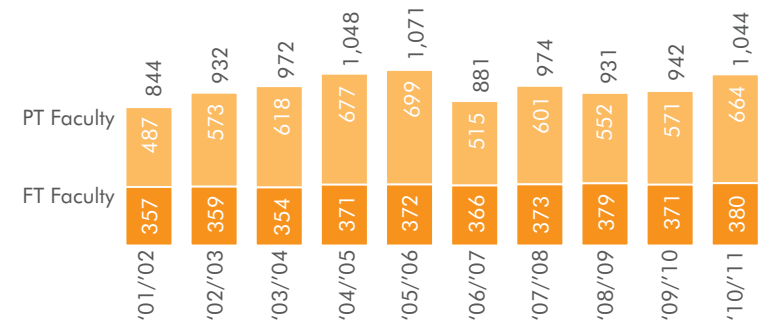
Enrollment Projections

William Paterson University's Office of Enrollment Management is projecting a 14% headcount enrollment growth by 2016 and 32% growth by 2022. The composition of part-time/full-time enrollment or department-specific growth has not yet been determined by the University. While there is some expected variance among programs regarding enrollment projections (some will grow only modestly; others may experience more growth due to the addition of new programs), the basis of this study is an expectation of generally uniform growth across all departments that is further informed by the University's Strategic Plan.

Graphic 2.2
Projected Student Headcount
Part-Time v Full-Time



Graphic 2.3
Recent Faculty Headcount
Fluctuations



Historically, faculty headcount has followed student enrollment in its ups and downs, with a lag of about one year. This study proceeds with the assumption that faculty headcount will continue to grow in-line with student enrollment.

Strategic Planning Objectives

Perkins Eastman reviewed the University's Strategic Plan for 2012–2022 to gain a thorough understanding of its mission, vision and strategic objectives. The Academic Zone Master Plan relies on these points as a direction for all recommendations.

PHASE 2 - DISCOVERY: ASSESSMENT OF CONDITIONS

Infrastructure and existing building conditions were considered. Engineering consultants conducted an analysis of all buildings in the Academic Zone with regard to building systems as well as interviews with building maintenance personnel. In addition, Perkins Eastman attended those meetings and toured the campus to obtain a qualitative assessment of building exterior conditions and the site. As part of this effort, plans for upgrades were gathered and the campus' Deferred Maintenance list was updated.

This phase also included observation of circulation and service patterns, parking, current sustainability initiatives, and open space use amongst others.

PHASE 3 - DISCOVERY: ASSESSMENT OF NEEDS

Stakeholder Interviews

Over the course of two months, Perkins Eastman conducted multiple interviews with Chairs or representatives of departments housed in the Academic Zone, Chairs and Deans from across the University, the learning spaces committee, student government, the community at-large, as well as the President. The interviews focused on the priorities of each constituency, its plans for future growth, limitations of existing facilities, and possibilities for new types of instructional spaces and collaboration across departments within the Zone, as well as support for the broader University.

Assessment of Space Performance

General instruction classrooms were evaluated using a hybrid of per pupil metrics, station right-sizing exercises, fall 2011 course registration information and department-specific

2 METHODOLOGY

class lab sizing exercises. This included course scheduling information provided by the Registrar, the Physical Space Inventory [PSI] provided by Facilities and a variety of other reports. Based upon this qualitative and quantitative information, space need projections were estimated based upon University-wide growth projections and specific curriculum supporting class-lab needs that included both right-sizing as well as the introduction of new types of instructional facilities.

PHASE 4—CONCEPT ALTERNATIVES

This phase approached the Zone at both the campus-scale as well as by department. The campus-scale alternatives presented minimal, moderate and aggressive interventions with associated order of magnitude costs for comparison. Test fits for departmental space needs were executed within a variety of proposed locations and included a variety of class labs. Revisions were made until the program and the proposed location were aligned.

PHASE 5—RECOMMENDED PLAN

Following multiple reviews with the campus community, recommendations were proposed for upgrades to the Academic Zone. These included final cost estimates as well as phasing and implementation plans. Refer to sections 8 through 10 for recommendations.

METHODOLOGY 2

Graphic 2.4
Cheng Library

ACADEMIC ZONE HISTORY & DEVELOPMENT 3

GENERAL HISTORY OF WILLIAM PATERSON UNIVERSITY

The University began in 1855 as the "Paterson City Normal School" and remained exclusively dedicated to training teachers for a century. Before moving to the current campus, the Normal School was located within various public schools in the City of Paterson, and resided in Public School #24 the longest.

In 1951 the University relocated from the City of Paterson to its present campus in Wayne, New Jersey, which is to the northwest of Paterson. This land was purchased by the State from the Hobart family and had several existing structures including the landmarked 1877 Hobart Manor house and several out buildings. The University also changed its name to the "Paterson State Teachers College."

Only in 1966 did the University expand beyond teacher training, long after most 'normal' schools in the region were on track to become comprehensive colleges.

In 1971 the College was renamed "The William Paterson College of New Jersey," after New Jersey's first US senator, second governor, and a US Supreme Court Justice. The name also reflected the institution's beginnings in Paterson, NJ and marked the move towards becoming a comprehensive four-year college.

In 1997 the University added PhD programs and became William Paterson University.

Graphic 3.1
Paterson City Public School #24

3 ACADEMIC ZONE HISTORY & DEVELOPMENT

In 2002, the University reopened a former suburban office complex at 1600 Valley Road as the primary home for the College of Business and the College of Education. While this move provided contemporized facilities for these two colleges, the Valley Road campus is over two miles away—effectively dividing the University community.

Today the University's land totals nearly 370 acres on one main campus and several ancillary parcels. Much of this acreage retains the same geographical features of wetlands and woodlands found in the adjacent 1,200 acres of the High Mountain Preserve, and are noteworthy for their dramatic hilly terrain. Additionally, higher elevations promise vistas to the southwest over Paterson and, on a clear day, the Manhattan skyline 20 miles away.

- Main (Pompton Road) Campus, 260 acres
- 1600 Valley Road, 50 acres
- Oldham Pond property, 25 acres
- Power Avenue, 8 acres
- College Hall, 2 acres

Graphic 3.2
William Paterson University
Campus in 1951

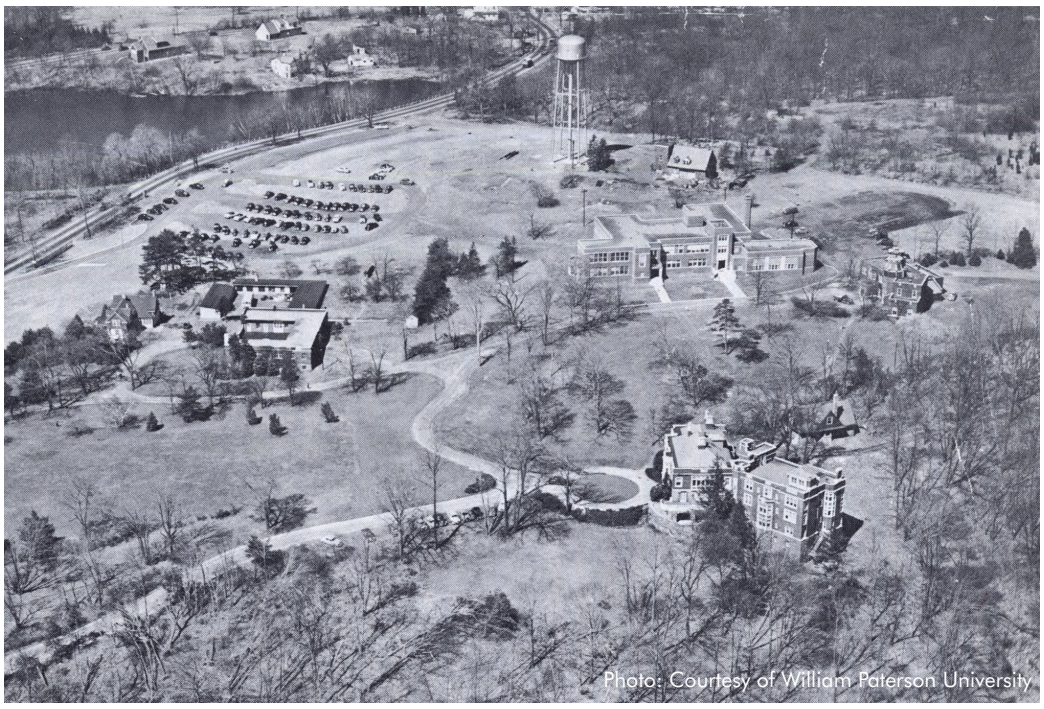


Photo: Courtesy of William Paterson University

PHYSICAL DEVELOPMENT OF THE ACADEMIC ZONE

In the beginning, the development of the physical campus at William Paterson University was influenced by two factors: the location of existing buildings that remained from the Hobart estate, and the rocky, hilly terrain which limited the number of suitable construction sites. A handful of existing structures were preserved for some time and repurposed for other uses, including an old barn which was repurposed as a student center and bookstore. Of these buildings only two—Hobart Manor and the Coach House—remain today.

Hunziker Hall was the first building constructed on the campus, followed by a gymnasium, a food service building (Wayne Hall), and a library (known today as the David and Lorraine Cheng Library). Over time the Coach House has served multiple functions, housing a student cafeteria and snack bar, various offices, classrooms and computer labs. It remains a significant feature in the memory of alumni. These early buildings were constructed in close proximity to one another—relative to the expansiveness of the campus—as administrators at the time envisioned an intimate campus community of only 750 students. This projection proved to be a gross underestimate, as the student population immediately exceeded this projection by nearly 100 students. Within 10 years, enrollment had grown to nearly 2,700.

The explosion of the student population demanded a significant increase of campus facilities. The next decade and a half marked a period of massive growth and change—

Graphic 3.3
William Paterson University Campus in 2010

3 ACADEMIC ZONE HISTORY & DEVELOPMENT

in the number of students, the type and variety of curricular offerings, special student services, and the physical campus inventory. The majority of the campus as it exists today was constructed during this time.

To facilitate growth, several master plans were undertaken between 1958 and 1969, some of which were partially implemented but none fully realized. The first master plan (1958–1959) aimed to create relationships between new and existing buildings, proposing a clear NW-SE axis parallel to Pompton Road from the Library to Morrison Hall. This was dependent upon the construction of three new classroom buildings situated around a large courtyard, bounded by Hunziker Wing on the northeast side—a proposal that never came to fruition. This master plan did, however, have a major impact on the formation of the current campus; the location of the library, Wayne Hall, Hunziker Wing, Raubinger Hall, Wightman Gym, and the maintenance building were all dictated by this design. The campus also expanded across Pompton Road with the construction of Hobart Hall.

The next master plan (1966) discarded the notion of the axis between the library and Morrison Hall. Instead, this plan proposed a new Student Center located between Wayne Hall and the gymnasium—a major move that gave shape to the large open space known today as the University Commons. A second large plaza was created on the opposite side of the Student Center, bordered on the east by Science Hall and on the north by Ben Shahn Hall. Classroom buildings were proposed to complete this quadrangle on the west side, but never constructed. The 1966 master plan also envisioned additional residential facilities at the northwest end of the campus and proposed a theater building to the south of Hunziker Hall.

Several years later, a third master plan (1969) resulted in student dormitories being dispersed on opposing sides of the campus (Pioneer Hall and Heritage Hall) and the recreation center relocated to the far edge of the campus.

More recently, a campus master plan was commissioned in 1990 (and updated in 1999), followed by a second period of growth and improvements that resulted in several new buildings and various renovation projects. Over the past two decades, several noncontiguous properties have been acquired to support academic and administrative functions, including College Hall, the Power Art Center and 1600 Valley Road.

Sixty years after the dedication of Hunziker Hall, the core of the campus has drifted north to University Commons, while the Academic Zone remains the center of academic life. With the Commons, Atrium, and Science Complex all in good-to-new condition, the Academic Zone is the largest portion of the University's building stock to have received no significant investment in the last half-century. Furthermore, these buildings are arranged in a fashion that is no longer relevant and in some cases is a hindrance.

Graphic 3.4
Pump House in Early 1960s (before construction of Raubinger Hall)

Graphic 3.5
View from Pump House to Morrison Hall in the Late 1950s

Graphic 3.6
Hunziker Hall in the 1960s

3 ACADEMIC ZONE HISTORY & DEVELOPMENT

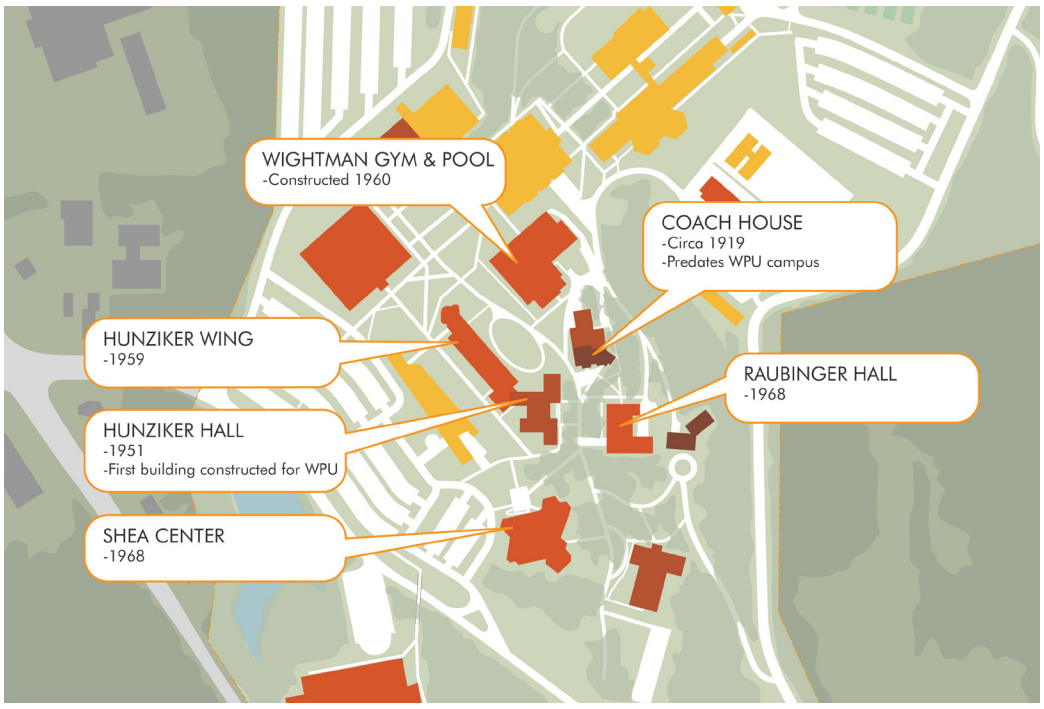
Table 3.1
Buildings in Academic Zone by Year of Construction and Renovation

	Const.	Renovated
Hobart Manor (Zone adj.)	1877	1914-1919, 1985
Coach House	1919?	(various renovations/additions)
Hunziker Hall	1951	n/a
Morrison Hall (Zone adj.)	1955	2012
Hunziker Wing	1959	n/a
Wightman Gym	1960	n/a
Cheng Library (Zone adj.)	1965	1993
Raubinger Hall	1968	n/a
Shea Center	1968	n/a
Student Center (Zone adj.)	1972	2008
Atrium (Zone adj.)	1995	n/a

HERITAGE AND ARCHITECTURAL STYLES OF THE ACADEMIC ZONE

As the original core of the campus, the Academic Zone is imbued with the story of the University's first fifty years of development. Of William Paterson's buildings, only Hobart Manor (listed as Haledon Hall with the New Jersey Department of Environmental Protection, which serves as New Jersey's state historic preservation office [HPO or SHPO]) has been granted landmark status. While that building is outside the Academic Zone, it is adjacent to the Zone and could have an impact on proposed construction.

Graphic 3.7
Chronological Development of Academic Zone



The HPO review of proposed construction, alteration or the demolition of or near a building is only triggered if the building is:

- Already listed on the New Jersey Register and the proposed construction activity is to or in proximity to the listed building or listed open space
- An undertaking of, or project funded by the Federal Government of the United States (Section 106)
- An undertaking of the State of New Jersey Treasury Department

While none of the buildings in the Academic Zone are registered landmarks (Hobart Manor is on the National Register of Historic Places but is located outside the Academic Zone), several elicit strong emotional responses depending on how and when a person attended the University. Other buildings are either easily forgotten or decidedly unloved. All represent a cross-section of architectural styles from across the 20th century.

From the perspective of alumnae, the Coach House is one of the most appreciated buildings on campus. It is one of the last remaining vestiges of the Hobart Estate, believed to have been constructed around 1919 and originally serving as a storage garage and laundry facility for the Hobart family. This brick masonry building is vaguely neo-gothic in style (referencing the Hobart Manor), and its original façade is distinguished by a castle-like turret. Alumnae and faculty alike seem to have a strong affinity for the building as it was once used as a snack bar and dining pavilion and was the center of the University's social scene early in its development. The building is probably also appreciated as one of

Graphic 3.8
Coach House

3 ACADEMIC ZONE HISTORY & DEVELOPMENT

the few buildings on campus that reference a pre-Modernism heritage. It is unclear if the University's current students have a similar affinity for the Coach House as the building is much altered from its mid-century condition and is presently in poor repair.

Hunziker Hall is the first building constructed on campus specifically for William Paterson University. Its layout is typical of many primary and secondary school buildings at the time, reflecting William Paterson's original role as a teaching college. Hunziker's architectural massing speaks subtly to the original Hobart Manor (a stately building with neo-gothic details), while displaying a general mid-century modern aesthetic of continuous lines, restrained ornamentation and glass block. The orientation of Hunziker Hall is generally north-south with the main entrance facing east towards Hobart Manor. It is unclear why the building was not given a stronger presence on Pompton Road, but the building's north and south wings possibly were intended to frame the now razed Pump House, create a sense a clustering with the Hobart Manor and Coach House, and/or simply reflect a situation at the top of a slope along the pre-existing drive to the Coach House where the building might capture breezes. Like the Coach House, the exterior of Hunziker Hall is appreciated and benefits from its generally unmodified state.

Hunziker Wing was constructed in 1959 and displays a modernist style more typical of the late 60s and early 70s. Unlike adjacent buildings that came before and after, it is not clad

Graphic 3.9
Marion Shea in front of the Shea Center - Circa 1968

Graphic 3.10
Shea Center - Circa 2010

in red brick, but rather a stack bonded cream brick with ribbon windows and expressed steel verticals. While the building was probably progressive in its time, its aesthetics have not aged well and the building is not much loved by the campus community, despite the somewhat playful form of the lecture hall space at its northern end.

Wightman Gym was constructed in 1960 and contrasts sharply with its sibling Hunziker Wing. The Gym (originally called Memorial Gym) has long lines that reference the low-slung Prairie Style made popular by Frank Lloyd Wright and seen in many of the homes built at the time. There is no general affinity for this building.

Raubinger Hall was constructed in 1968 and is a stoic, rectangular red brick building and lacks any distinguishing architectural features, except the band of ribbon window on its upper-most floor and the window walls at the north and south stair wells.

The Shea Center for Performing Arts, also from 1968, is clearly a building in the Modernist style. Yet it is a building without drama or ornamentation beyond its strong geometries (which are only evident from aircraft or aerial photography). Shea's architectural style may most closely resemble a sub-set of Modernism called Functionalism, popular in Europe in the 60s and characterized by straight angles, flat roofs and a roughness that purposefully eschews ornamentation of any type.

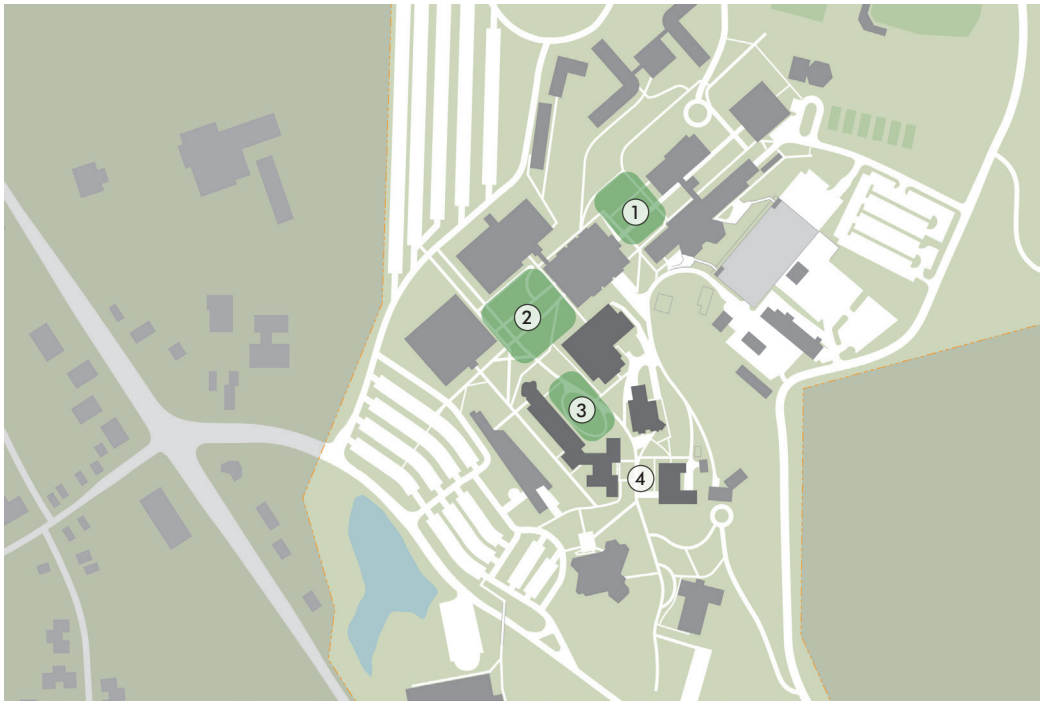
Graphic 3.11
Campus Picnic in Front of the Current Speert Hall - Circa 1963

3 ACADEMIC ZONE HISTORY & DEVELOPMENT

Graphic 3.12
Hunziker Lawn - Circa 1960
(before the construciton of Shea and Raubinger)

Graphic 3.13
Campus Open Space

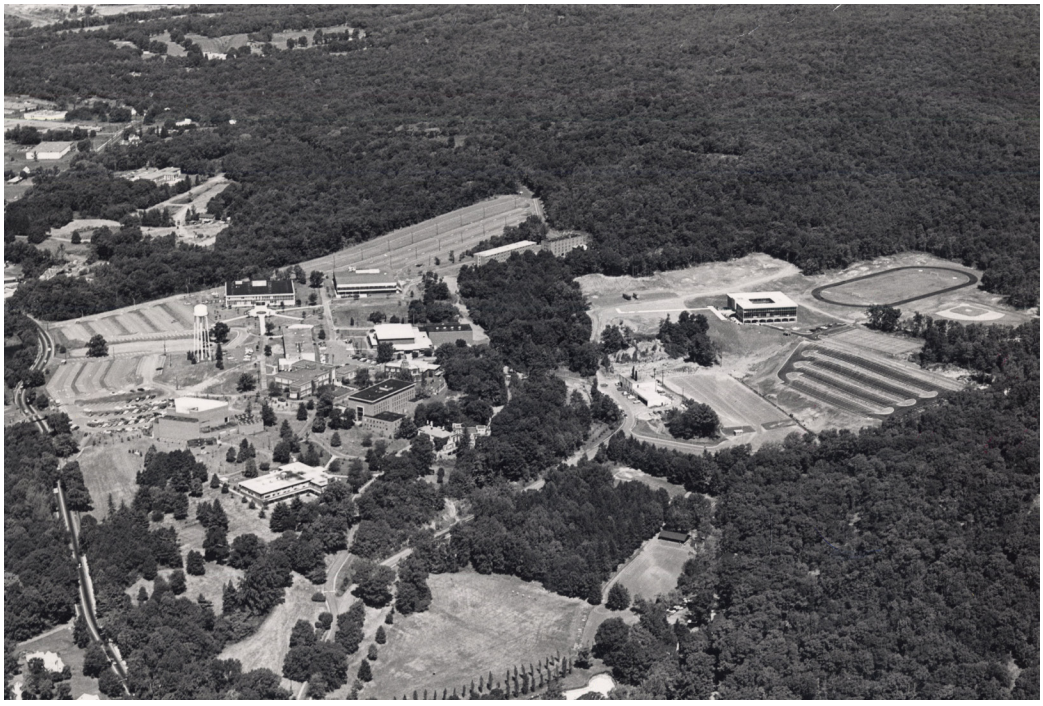
Unnamed ①
University Commons ②
Speert Garden ③
Unnamed ④



OPEN SPACE DEVELOPMENT OF THE ACADEMIC ZONE

Landscaped open spaces are a valuable asset to the William Paterson University campus, and care has been taken to ensure that the spaces between buildings are attractive and usable. The primary green space in the academic zone is known as Speert Garden, a flat, expansive lawn between Hunziker Hall, Hunziker Wing, Wightman Gym, and the Coach House. The only feature on the plaza is a cluster of large boulders at the southeast end. Despite its proximity to the University Commons, the original academic zone lacks a strong physical or visual connection to this area. A second, well-liked green space exists between Raubinger Hall and Hunziker Hall, which is dotted with outdoor seating and benefits from the shade of mature trees. Historically, the space between the Coach House and Hunziker Hall was a popular place for students to congregate between classes.

Additionally, there has been surface parking along Pompton Road since the opening of the Wayne campus in 1951.



Graphic 3.14
William Paterson Campus - Circa 1972


HALLS EAST/WEST

CONTEMPORARY RELATIONSHIP WITH UNIVERSITY 4

The main campus of William Paterson University can be understood as a collection of overlapping zones based on general function and use. The five zones of use are:

- Student Life/Learning Commons
- Academic
- Service
- Residential
- Athletic

The Academic Zone is a physical zone and the historic campus core. In addition to the six buildings that are the subject of this study, the Atrium building is also part of and defines the western edge of the Zone. Hunziker Hall, the academic building at the heart of the academic zone, is the first building to be constructed as part of the campus and remains the heavy lifter for general instruction. Raubinger Hall, adjacent to Hunziker Hall, also contains a large number of general classrooms. In the early years of the campus, this area was a vibrant center of activity and student life, in addition to instruction. The Coach House, one of the two remaining buildings from the original Hobart Estate, has had many lives over the past 60 years. Initially a garage and laundry building for the Hobart family, the Coach House served as a snack bar, a bookstore and even a theater. The lawn on the east side of Hunziker Hall was a popular spot for picnics, outdoor classes and social gatherings. Beyond the Zone are several buildings—including Morrison and Hobart Halls—that do not easily fit into the area and are somewhat orphaned.

Graphic 4.1
Campus-wide Areas of Use

4 CONTEMPORARY RELATIONSHIP WITH UNIVERSITY

Today, this area has fallen by the wayside due to the expansion of the campus to the north over the past few decades and the lack of investment in the original campus core. These older academic buildings hold little appeal for students and faculty aside from their basic utility for general instruction.

A second, smaller academic zone is located to the north, comprised of Science Hall and Ben Shahn Hall. The two academic zones are separated by an expanse of open space with a considerable grade change, which enhances the physical and perceived division. This zone is home to some general instruction spaces, notably the new lecture halls between Science East and West.

To the immediate north of the Academic Zone is the student activity/support zone, centered on the University Commons. This zone includes the Lorraine and David Cheng Library, Wayne Hall, the Ballroom, and the Machuga Student Center. This is the most vibrant area of the campus, complemented by a landscaped plaza with outdoor seating, lighting and attractive plantings. It is also home to most dining services, student activity centers and the (not heavily used) faculty dining room.

Residential zones occupy opposite sides of the campus, the largest of which are the dormitories on the western edge, north of the University Commons. Two additional

Graphic 4.2
Valley Road Campus
College of Business
and College of Education

dormitory buildings, Pioneer Hall and Heritage Hall, are located on the eastern edge of the campus, isolated from other campus zones.

An athletic zone separates the two residential zones, with sports fields, tennis courts and a track, capped at the north end by the recreation center and Parking Lot 6.

The service zone, which is comprised of the Facility Management Building, various service buildings and the University Police, neighbors the Academic Zone to the east but is at a significantly lower elevation, forming the "back-door" of both the Academic Zone and University Commons. This relationship will be impacted by the construction and use of a new 1,000 space parking structure at the base of this hill. A significant number of pedestrians are expected to enter the campus via the existing service drive, resulting in potential service vehicle and pedestrian conflicts.

The physical relationship between the Academic Zone and University Commons is important and under-capitalized. While both areas draw a significant amount of student traffic, the zones are notably separate from one another and would benefit from a stronger visual and physical connection. This could be achieved through landscaping, the location and orientation of buildings, or a combination of the two.

Graphic 4.3
Power Arts Center

INFRASTRUCTURE

The University has not conducted a recent infrastructure study and the age, condition and capacity of much of the distribution systems that support the campus are unknown. Given the University's ambitious growth projections for the next 10 years (let alone contemporary sustainability and energy performance expectations), it is possible that the performance and capacities of these systems will fall short of expectations.

Steam

The University used to have a centralized mechanical system with steam and chilled water distribution, but much of this was abandoned in the mid-2000s. The old central plant is slated to be raised for the new parking structure. The only remaining steam infrastructure on the campus links Hunziker Wing, Hunziker Hall and Coach House and is fed from a central plant located in the basement of Hunziker Wing.

The connection between Hunziker Wing and Coach House (located under Speert Garden) has a significant leak and can require one full-time staff person in Hunziker Wing to monitor the system when it is in use. The University has explored taking Coach House off this steam system, but has tabled any decision with the anticipation that Coach House's mechanical systems will either be replaced or taken fully off-line over the next decade.

It is University policy to eventually decouple the Coach House from Hunziker Wing's steam system, and for the University to not have any multi-building mechanical systems. This

Graphic 5.1
Existing Water and Steam Infrastructure

Water
Steam

is a sustainable policy given the increased efficiencies of today's smaller stand-alone mechanical systems.

Domestic Water

The existing water supply system on campus is gravity pressure fed from a 200,000 gallon water tower and pump system located on the north side of the campus beyond the built-up areas. The water tower and pumping system were refurbished in 2011. The age, condition and capacities of much of this system (including service from Wayne Township's Department of Public Works) are unknown. Significant lengths of the main water service runs immediately adjacent to the University Commons buildings and date from their original construction.

The Academic Zone is bounded by two water service routes that form a loop with loop isolation valves. The western line runs between Hunziker Wing and Atrium Hall and was located there as part of the construction of Atrium in the 1990s. The eastern line connects from University Commons and does not appear to provide direct water service to any building in the Zone. The eastern line, however, may provide water to the chiller farm situated along the service drive to the northeast of Wightman Gym.

The isolation valves provide a modest level of redundancy and also provide water service to buildings beyond the Zone including Hobart and Morrison Halls.

Graphic 5.2
Existing Chiller Infrastructure

The domestic water service of each building is at a lower pressure than the campus domestic water service, and reduced pressure zone valves [RPZ] are needed at each building.

Hot water is supplied from stand-alone building systems, and is generated by an electric residential-type heater in each building. These should be replaced with gas-fired heater.

Additionally, all existing domestic water piping insulation contains asbestos.

Chilled Water

The University used to have a centralized mechanical system with steam and chilled water distribution, but much of this was abandoned in the mid-2000s. While University Commons and the Science Complex are serviced from a chiller farm, there is no service to the Academic Zone and the chiller farm does not have significant excess capacity. Raubinger Hall and the Shea Center are supplied with chilled water from the air cooled chiller plants located in each building's vicinity. Coach, Hunziker Hall, Hunziker Wing and Wightman Gym are not supplied with chilled water and do not have building-wide HVAC systems.

It is University policy that all buildings in the future have stand-alone chilled water systems (with the exception of University Commons and the Science Complex, which share a centralized chiller farm).

Graphic 5.3
Existing Sanitary Sewer Infrastructure
Sanitary Sewer

5 EXISTING CONDITIONS
INFRASTRUCTURE

Sanitary Sewer

The campus sanitary sewer system is a gravity collection system that connects to the Wayne Township sewer main line along Pompton Road. The age, condition and capacities of much of this system (including service from Wayne Township's Department of Public Works) are unknown. The Academic Zone's sanitary sewer services the entire campus, including University Commons, the Library and Atrium. There are no known combined sewer overflow [CSO] outlets.

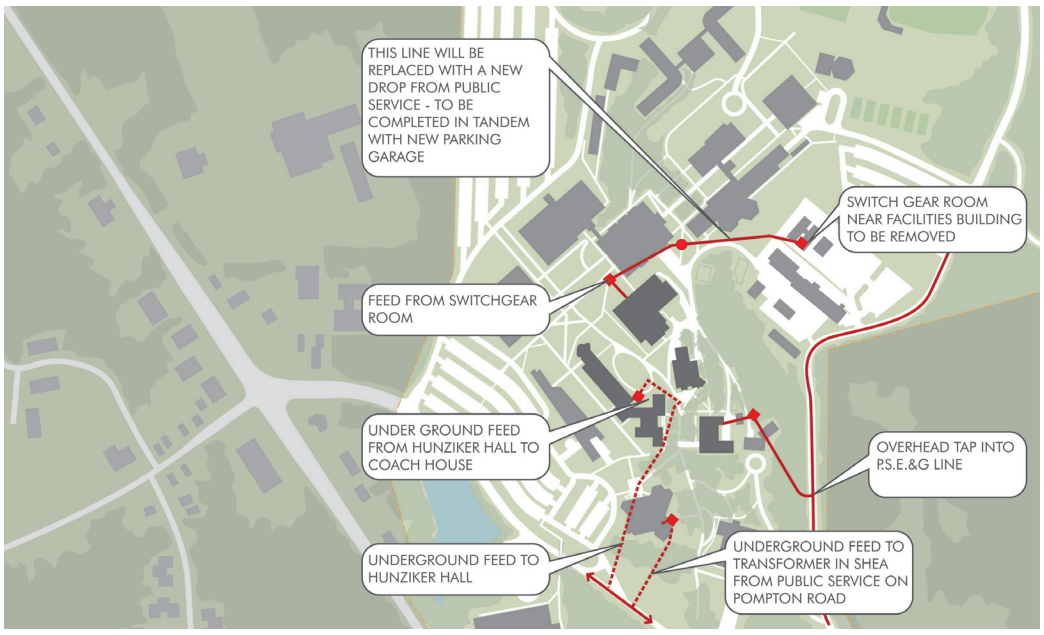
Storm Drain

The campus storm sewer system is a gravity collection system. It connects to the main storm lines and spills into a stream on the south side of the campus, beyond the built-up areas. Conditions and capacities of much of this system are unknown.

Natural Gas

Natural gas service to the Academic Zone is from PSE&G's Pompton Road line, and comes up from between Morrison Hall and the Shea Center. This line also services the rest of the campus. While the age, condition and capacities of much of this system (including service from PSE&G) are unknown, this system was the subject of significant investment when the University abandoned the central steam system.

Graphic 5.4
Existing Electrical Infrastructure
Electrical - Overhead
Electrical - Underground
Switch Gear Room



Electric

The University's electric utility is Public Service Electric and Gas [PSE&G] with the main electrical drops off of PSE&G's lines on Pompton Road and East Road. A secondary distribution system exists on campus, though at the time of the Academic Zone study the University is in the middle of planning for the reorganization and upgrade/replacement of much of the electrical infrastructure.

Additionally, William Paterson's public-private partnerships with Nautilus Solar Energy and SunDurance Energy has resulted one of the largest solar panel installations at a higher-education institution in the United States. The installed system has a three-megawatt capacity (with an additional 500kW expected upon the completion of the new parking structure). This installation covers large portions of rooftops and notably parking lots (with arrays mounted on tilted, elevated arrays).

The impact of this installation on the campus' electrical distribution system is unknown.

Tele/Data

Little is known about the age, condition and capacities of much of this system. Due to the confluence of the campus' and technology's development, the incoming telecommunication cabling, copper and fiber campus cabling are distributed from the Hunziker Wing server room and routed through the south west wall. The server room is where the telephone system cross connects to the campus and where the private branch exchange [PBX] is located. The route of the telephone lines to Hunziker Wing, as well as fiber optics, cable, and wi-fi hotspots are unknown.

Graphic 5.5
Existing Natural Gas Infrastructure

Gas

5 EXISTING CONDITIONS
COACH HOUSE

Graphic 5.6
Coach House

COACH HOUSE

Summary Analysis

The Coach House's exterior, interior and building systems are generally in very poor condition and require costly upgrades in the near-term. Additionally, the multiple renovations and additions to the building have made the building a mess with multiple structural systems, floor levels and mechanical systems that do not fully coordinate.

A full analysis of these systems can be found in Appendix 1.

Recommendations

Near-Term Repairs (0–2 Years)

- Building Exterior
  - Replace the roof of this building immediately.
- Health, Safety & Access
  - Replace the stairs to the second level as they are highly unsafe in the event of an emergency.
- Mechanical System
  - Replace rooftop units with variable air volume type units or DX.
  - Install new ductwork distribution with VAV boxes for both floors.
- Plumbing System
  - Replace all asbestos insulation on existing piping and install new asbestos-free insulation.
  - Install one three-inch RPZ on the existing domestic water service.

- IT/Telecommunication System
  - Install proper grounding for IDF room racks.
  - Install conduit sleeves for cables passing through walls. Fire-proof sleeve if wall is rated.
- Audio-Visual
  - Remove any existing wireless access point from podium locations and install at ceiling level centered in the classroom.
  - Install the correct number of data ports at podium locations and eliminate any 8-port switches.
  - Install equipment that conforms to University standards, has a user interface that is consistent across University facilities, and is current at the time of construction.

Intermediate-Term Repairs (2–5 Years)

- Building Exterior
  - Replace all windows to improve thermal efficiency.
  - Replace exterior doors and frames.
- Building Interior
  - Renovate interior walls. Conditions vary, but interior walls are generally in poor condition with damaged and degraded finishes. The upper level is aged and in extremely poor condition.
  - Replace interior doors and frames throughout.
- Mechanical System
  - Steam line shall be capped and hot water provided from Hunziker Wing plant for new hot water radiators.
  - The American Society of Heating, Refrigerating and Air-Conditioning Engineers [ASHRAE] estimates of service lives of various system components (in median years): Centrifugal fans—25 years; Terminal boxes—20 years; Coils—20 years; Ductwork—30 years; Dampers—20 years; Pneumatic Controls—20 years. The service life of majority of the equipment listed above has already been exceeded. The systems are inadequate for present use and should be replaced.
- Electrical System
  - The main building service is in excess of 50 years old and is located in a recessed closet in which access is limited. It is also challenging for the campus electricians to find replacement parts for the system.
  - While the current electric service adequately serves the present loads of the building, any forthcoming renovations or program changes should include a replacement of the electric service.

- Plumbing System
  - Replace the existing hot water 50-gallon storage residential type heater with a new instantaneous gas-fired heater.
  - Replace existing water closets, urinals and lavatories to reduce water consumption.
  - Install one 3" RPZ on the existing domestic water service.
  - Examine whether the structural system was designed to accommodate water buildup on the roof and, in the event it was not, install secondary drains and/or scuppers. Presently the building storm water drainage system does not have secondary overflow drains.
  - Examine the original building upper-level cast iron sanitary and storm water piping for its remaining life expectancy and consider upgrade/replacement depending on testing results.
- IT/Telecommunication System
  - IDF Horizontal
    - The existing horizontal cabling no longer meets current standards. New CAT6 cabling for Gigabit Ethernet bandwidth or CAT6A cabling for 10G Ethernet bandwidth is recommended to be installed throughout Academic building.
    - New communication outlets and faceplates to be installed where needed.
    - All cables, faceplates and patch panels should be labeled according to TIA-942 standards.
    - Install proper cabling supports which shall include cable tray of J-hooks.
  - Build new dedicated IDF rooms on the first and second floors.

Long-Term Repairs (5–10 Years)

- Building Interior
  - Replace interior lighting for improved operations and energy-efficiency. Interior spaces are largely lit with fluorescent fixtures, though lighting is not standardized.
- Health, Safety & Accessibility
  - Though not required to be ADA-compliant by grandfather clauses, the building should be made ADA compliant. This requires the addition of two means of egress from all floor levels and the addition of an elevator.
  - Though not required by code, the building should be made fully sprinklered.
- Mechanical System
  - Install elevator.
- Plumbing System
  - Replace existing cast iron storm water and sanitary piping.

Graphic 5.7
Hunziker Hall

HUNZIKER HALL

Summary Analysis

Hunziker Hall's exterior, interior and building systems are generally in poor condition and require significant upgrades in the near to intermediate terms.

A full analysis of these systems can be found in Appendix 1.

Recommendations

Near-Term Repairs (0–2 Years)

- Mechanical System
  - Refurbish or replace existing units in kind. Unit ventilators are a good option for providing cooling and heating in classrooms in retrofit applications where ductwork distribution is impractical. Attention needs to be given to reducing unit noise, which can impede instruction.
- Plumbing System
  - Replace the existing duplex sump pumps.
  - Replace the existing duplex ejector pumps.
  - Replace all asbestos insulation on existing piping and install new asbestos-free insulation.
  - Install one four-inch RPZ on the existing domestic water incoming service.
- IT/Telecommunication System
  - Defer the installation of fiber and APC Pigtails to Hunziker Hall for CATV (item E-006-08 under Deferred Maintenance List). The installation should occur

when the new IDF rooms are built.
    - Defer the installation of a 300-pair cable to Hunziker Hall for phone lines (item E-006-10 under Deferred Maintenance List). The installation should occur when new IDF rooms are built.
    - Install proper grounding for IDF room racks.
    - Install conduit sleeves for cables passing through walls. Fire-proof sleeve if wall is rated.
- Audio-Visual
    - Remove any existing wireless access point from podium locations and install at ceiling level centered in the classroom.
    - Install the correct number of data ports at podium locations and eliminate any 8-port switches.
    - Install equipment that conforms to University standards, has a user interface that is consistent across University facilities, and is current at the time of construction.

Intermediate-Term Repairs (2–5 Years)

- Building Exterior
    - Repair the foundation of this building as it is in poor condition; leaking and flooding has occurred in the basement level and there are visible signs of water damage.
    - Replace the roof of this building within the next five years as it is nearing the end of its useful life.
    - Replace all windows to improve thermal efficiency.
    - Replace exterior stairwell doors and frames throughout.
- Building Interior
    - Replace interior stairwell doors throughout.
- Mechanical System
    - Replace all existing window AC units with either unit ventilators or centralized DX split systems.
    - Water cooled systems shall be considered if condenser or chilled water is available nearby.
    - Install a centralized HVAC system for corridor ventilation as required by Code.
- Plumbing System
    - Replace the existing hot water 50-gallon storage residential type heater with a new instantaneous gas fired heater.
    - Replace existing water closets, urinals and lavatories to reduce water consumption.
    - Examine whether the structural system was designed to accommodate water

buildup on the roof and, in the event it was not, install secondary drains and/or scuppers. Presently the building storm water drainage system does not have secondary overflow drains.
    - Examine the original building upper level cast iron sanitary and storm water piping for its remaining life expectancy and consider upgrade/replacement depending on testing results.
    - One four-inch RPZ should be installed on the existing domestic water service.
    - The existing duplex sump pumps and pit cover should be replaced.
    - The existing duplex ejector pumps and pit cover should be replaced.
- IT/Telecommunication System
    - IDF Horizontal
        - The existing horizontal cabling no longer meets current standards. New CAT6 cabling for Gigabit Ethernet bandwidth or CAT6A cabling for 10G Ethernet bandwidth is recommended to be installed throughout Academic building.
        - Install new communication outlets and faceplates to be installed where needed.
        - Install proper cabling supports which shall include cable tray of J-hooks.
        - Label all cables, faceplates and patch panels according to TIA-942 standards.
    - Build new centered dedicated IDF rooms on the first and second floors.

Long-Term Repairs (5–10 Years)

- Health, Safety & Accessibility
    - Though not required by code, the building should be made fully sprinklered.
- Mechanical System
    - Refurbish elevator.
- Electrical System
    - The branch circuit panels which serve the rest of the buildings (non computer classrooms, corridors, etc.) are antiquated and because of their age are challenging to maintain. While they adequately serve the present load, if any renovations are undertaken to these areas the branch circuit panels should be replaced.
- Plumbing System
    - Replace existing cast iron storm water and sanitary piping.

5 EXISTING CONDITIONS
HUNZIKER HALL WING

Graphic 5.8
Hunziker Hall Wing

HUNZIKER HALL WING

Summary Analysis

Hunziker Hall Wing's exterior, interior and building systems are generally in fair to poor condition and require significant upgrades in the near to intermediate terms. This building is also the tele/data hub for the campus.

A full analysis of these systems can be found in Appendix 1.

Recommendations

Near-Term Repairs (0–2 Years)

- Mechanical System
  - Refer to Hunziker Hall
- Electrical System
  - Refer to Hunziker Hall
- Plumbing System
  - Replace all asbestos insulation on existing piping and install new asbestos-free insulation.
  - Install one four-inch RPZ on the existing domestic water service.
  - Install one four-inch DDCV on the existing fire water service.
- IT/Telecommunication System
  - Server Room - Main Point of Entry and Campus Riser - Ground Floor
    - Remove abandoned cables and obsolete equipment.
    - Install a telecommunications grounding infrastructure.

- Install proper grounding for IDF room racks.
- Install conduit sleeves for cables passing through walls. Fire-proof sleeve if wall is rated.

- Audio-Visual
  - Remove any existing wireless access point from podium locations and install at ceiling level centered in the classroom.
  - Install the correct number of data ports at podium locations and eliminate any 8-port switches.
  - Install equipment that conforms to University standards, has a user interface that is consistent across University facilities, and is current at the time of construction.

Intermediate-Term Repairs (2–5 Years)

- Building Exterior
  - Replace all windows to improve thermal efficiency.
  - Replace exterior stairwell doors and frames throughout.
- Building Interior
  - Replace interior stairwell doors throughout.
- Mechanical System
  - Refer to Hunziker Hall
- Electrical System
  - Refer to Hunziker Hall
- Plumbing System
  - Replace the hot water 80-gallon storage residential type heater with a new instantaneous gas fired heater.
  - Replace existing water closets, urinals and lavatories to reduce water consumption.
  - Install one four-inch RPZ on the existing domestic water service.
  - Examine whether the structural system was designed to accommodate water buildup on the roof and, in the event it was not, install secondary drains and/or scuppers. Presently the building storm water drainage system does not have secondary overflow drains.
  - Examine the original building upper level cast iron sanitary and storm water piping for its remaining life expectancy and consider upgrade/replacement depending on testing results.
- IT/Telecommunication System
  - Server Room—Main Point of Entry and Campus Riser—Ground Floor
    - Renovate the layout of the server room so that it reflects current industry standards utilizing a hot/cold aisle configuration.
    - Install a proper wire management system to provide future ease of cable management.

- Install additional single mode fiber for redundancy.
- Implement a logical ring topology.
- Organize all cables to be bundled, supported and labeled according to TIA-942.

- IDF Horizontal
  - Install new CAT6 cabling for Gigabit Ethernet bandwidth or CAT6A cabling for 10G Ethernet bandwidth. The existing horizontal cabling no longer meets current standards.
  - Install new communication outlets and faceplates as needed.
  - Install proper cabling supports which shall include cable tray of J-hooks.
  - Label all cables, faceplates and patch panels according to TIA-942 standards.
- Build new dedicated IDF rooms.

Long-Term Repairs (5–10 Years)

- Health, Safety & Accessibility
  - Though not required by code, the building should be made fully sprinklered.
- Mechanical System
  - Refurbish elevator.
- Electrical System
  - Refer to Hunziker Hall
- Plumbing System
  - Replace existing cast iron storm water and sanitary piping.

Graphic 5.9
Hunziker Hall Wing
Interior Corridor

Graphic 5.10
Raubinger Hall

RAUBINGER HALL

Summary Analysis

Raubinger Hall's exterior, interior and building systems are generally in fair condition and require modest upgrades in the near to intermediate terms.

A full analysis of these systems can be found in Appendix 1.

Recommendations

Near-Term Repairs (0–2 Years)

- Mechanical System
  - All air handling units in the basement MER shall be completely replaced with VAV type units. All return fans shall be replaced in kind.
  - Insulation shall be reapplied on the piping inside MER.
  - Piping, fittings and valves that have been damaged or rusted shall be replaced.
- Plumbing System
  - Replace all asbestos insulation on existing piping and install new asbestos-free insulation.
  - Install one four-inch RPZ on the existing domestic water service.
  - Install one four-inch DDCV on the fire water service.
- IT/Telecommunication System
  - Install proper grounding for IDF room racks.
  - Install conduit sleeves for cables passing through walls. Fire-proof sleeve if wall is rated.

- Audio-Visual
  - Remove any existing wireless access point from podium locations and install at ceiling level, centered in the classroom.
  - Install the correct number of data ports at podium locations and eliminate any 8-port switches.
  - Install equipment that conforms to University standards, has a user interface that is consistent across University facilities, and is current at the time of construction.

Intermediate-Term Repairs (2–5 Years)

- Building Exterior
  - Replace all windows to improve thermal efficiency.
  - Replace exterior stairwell doors and frames throughout.
- Building Interior
  - Replace interior stairwell doors throughout.
- Mechanical System
  - Replace the air handling units, fans and existing ductwork as they have well exceeded their useful service life.
  - Install new ductwork distribution from basement to the floors currently served by respective units.
- Electrical System
  - The main building service is in excess of 50 years and is challenging for the campus electricians to find replacement parts. While the current electric service adequately serves the present loads of the building, any forthcoming renovations or program changes should include a replacement of the main electric service and associated branch circuit panels.
- Plumbing System
  - Replace the existing hot water 50-gallon storage residential type heater with a new instantaneous gas fired heater.
  - Replace existing water closets, urinals and lavatories to reduce water consumption.
  - Install one four-inch RPZ on the existing domestic water service.
  - Examine whether the structural system was designed to accommodate water buildup on the roof and, in the event it was not, install secondary drains and/or scuppers. Presently the building storm water drainage system does not have secondary overflow drains.
  - Examine the original building upper level cast iron sanitary and storm water piping for its remaining life expectancy and consider upgrade/replacement depending on testing results.

- IT/Telecommunication System
  - IDF Horizontal
    - Install new CAT6 cabling for Gigabit Ethernet bandwidth or CAT6A cabling for 10G Ethernet bandwidth. The existing horizontal cabling no longer meets current standards.
    - Install new communication outlets and faceplates as needed.
    - Install proper cabling supports which shall include cable tray of J-hooks.
    - Label all cables, faceplates and patch panels according to TIA-942 standards.
- Renovate IDF Room #1—Lower Level floor and reposition rack for proper front and rear service clearances.
- Build new centered dedicated IDF rooms on floors one through four.

Long-Term Repairs (5–10 Years)

- Health, Safety & Accessibility
  - Though not required by code, the building should be made fully sprinklered.
- Mechanical System
  - Refurbish elevators to improve lift speeds and reliability. This becomes a higher priority if a higher population load is located on the top floor of the building.
- Plumbing System
  - Replace existing cast iron storm water and sanitary piping.

Graphic 5.11
Raubinger Hall
Lobby

5 EXISTING CONDITIONS
SHEA CENTER FOR PERFORMING ARTS

Graphic 5.12
Shea Center for Performing Arts

SHEA CENTER FOR PERFORMING ARTS

Summary Analysis

Shea's exterior, interior and building systems are generally in poor to fair condition and require some significant upgrades in the near to intermediate terms. This includes significant accessibility challenges, multiple floor level elevations and awkward room and corridor arrangements in the lower level of the building.

A full analysis of these systems can be found in Appendix 1.

Recommendations

Near-Term Repairs (0–2 Years)

- Mechanical System
  - Replace insulation on the piping inside MER.
  - Replace piping, fittings and valves that have been damaged or rusted.
  - Replace chilled water pumps in kind.
- Plumbing System
  - Replace all asbestos insulation on existing piping and install new asbestos-free insulation.
  - Install one three-inch RPZ should be installed on the domestic water service.
- IT/Telecommunication System
  - Defer the installation of fiber and APC Pigtails to Hunziker Hall for CATV (item E-007-09 under Deferred Maintenance List). The installation should occur when the new IDF rooms are built

  - Defer the installation of a 50-pair cable from the Training room to Hunziker Hall for phone lines (item E-007-011 under Deferred Maintenance List). The installation should occur when new IDF rooms are built.
  - Install proper grounding for IDF room racks.
  - Install conduit sleeves for cables passing through walls. Fire-proof sleeve if wall is rated.
- Audio-Visual
  - Remove any existing wireless access point from podium locations and install at ceiling level centered in the classroom.
  - Install the correct number of data ports at podium locations and eliminate any 8-port switches.
  - Install equipment that conforms to University standards, has a user interface that is consistent across University facilities, and is current.

Intermediate-Term Repairs (2–5 Years)

- Building Exterior
  - Replace all windows to improve thermal efficiency.
  - Replace exterior stairwell doors and frames throughout.
- Building Interior
  - Replace interior stairwell doors throughout.
- Mechanical System
  - New ductwork distribution shall be provided as well from basement to the floors currently served by respective units.
  - Replace the air handling units and existing ductwork as they have exceeded their useful service life. Air handling units in the basement MER shall be replaced with VAV type units.
  - Replace the BMS system with a DDC type.
- Electrical System
  - The branch circuit panels which serve the rest of the buildings (non performance area classrooms, corridors, etc.) are antiquated and, because of their age, are challenging to maintain. While they adequately serve the present load, if any renovations are undertaken to these areas the branch circuit panels should be replaced.
- Plumbing System
  - Replace the hot water 65-gallon storage residential type heater with a new instantaneous gas fired heater.
  - Replace existing water closets, urinals and lavatories to reduce water consumption.
  - Install one three-inch RPZ on the existing domestic water service.

- Examine whether the structural system was designed to accommodate water buildup on the roof and, in the event it was not, install secondary drains and/or scuppers. Presently the building storm water drainage system does not have secondary overflow drains.
- Examine the original building upper level cast iron sanitary and storm water piping for its remaining life expectancy and consider upgrade/replacement depending on testing results.

- IT/Telecommunication System
  - IDF Horizontal
    - Install new CAT6 cabling for Gigabit Ethernet bandwidth or CAT6A cabling for 10G Ethernet bandwidth. The existing horizontal cabling no longer meets current standards.
    - Install new communication outlets and faceplates as needed.
    - Install proper cabling supports which shall include cable tray of J-hooks.
    - Label all cables, faceplates and patch panels according to TIA-942 standards.
  - Build new centered dedicated IDF rooms on each floor.

Long-Term Repairs (5–10 Years)

- Health, Safety & Accessibility
  - The building is widely inaccessible. Though not required by code, the building should be made fully accessible to improve the access of people and the movement of furniture and instruments.
  - Though not required by code, the building should be made fully sprinklered.
- Mechanical System
  - Install elevator.
- Plumbing System
  - Replace existing cast iron storm water and sanitary piping.

Graphic 5.13
Wightman Gym

WIGHTMAN GYM

Summary Analysis

Wightman's exterior, interior and building systems are generally in very poor condition and require costly upgrades in the near-term. This includes significant accessibility challenges, deteriorated building systems and structural concerns.

A full analysis of these systems can be found in Appendix 1.

Recommendations

Near-Term Repairs (0–2 Years)

- Building Exterior
  - Immediately examine structural concerns at the northwest corner of the building (where there are notable cracks in the brickwork) and remedy if necessary.
- Mechanical System
  - Replace all H&V units and associated return fans with VFD type units.
  - Replace all ductwork distribution to the gym, pool and lower level.
- Plumbing System
  - Replace all asbestos insulation on existing piping and install new asbestos-free insulation.
  - Install one four-inch RPZ on the existing water service.
  - Install one four-inch RPZ on the water service for the swimming pool.

- IT/Telecommunication System
  - Install conduit sleeves for cables passing through walls. Fire-proof sleeve if wall is rated.
- Audio-Visual
  - Install equipment that conforms to University standards, has a user interface that is consistent across University facilities, and is current at the time of construction.

Intermediate-Term Repairs (2–5 Years)

- Building Exterior
  - Replace all windows to improve thermal efficiency.
  - Replace exterior stairwell doors and frames throughout.
- Building Interior
  - Replace interior stairwell doors throughout.
- Mechanical System
  - Replace the supply fans with VFD type and the CAV boxes with variable air volume type (VAV) in order to reduce the energy consumption. Otherwise the rooftop units are in good working condition.
- Electrical System
  - The main building service is in excess of 50 years and is challenging for the campus electricians to find replacement parts. While the current electric service adequately serves the present loads of the building, any forthcoming renovations or program changes should include a replacement of the main electric service.
- Plumbing System
  - Replace the hot water 50-gallon storage residential type heater with a new instantaneous gas fired heater.
  - Replace all existing cast iron waste piping for the swimming pool drainage system with polypropylene plastic piping.
  - Replace existing water closets, urinals, lavatories and showers to reduce water consumption.
  - Install one hot water circulating pump.
  - Install one four-inch RPZ on the existing domestic water service.
  - Install one four-inch RPZ on the water service for the swimming pool.
  - Examine whether the structural system was designed to accommodate water buildup on the roof and, in the event it was not, install secondary drains and/or scuppers. Presently the building storm water drainage system does not have secondary overflow drains.

    - Examine the original building upper level cast iron sanitary and storm water piping for its remaining life expectancy and consider upgrade/replacement depending on testing results.
- IT/Telecommunication System
    - IDF Horizontal
        - Install new CAT6 cabling for Gigabit Ethernet bandwidth or CAT6A cabling for 10G Ethernet bandwidth. The existing horizontal cabling no longer meets current standards.
        - Install new communication outlets and faceplates as needed.
        - Install proper cabling supports which shall include cable tray of J-hooks.
        - Label all cables, faceplates and patch panels according to TIA-942 standards.
    - Build new dedicated IDF room.

Long-Terms Repairs (5–10 Years)

- Building Interior
    - Replace interior lighting for improved operations and energy-efficiency. Interior spaces are largely lit with fluorescent fixtures, though lighting is not standardized.
- Health, Safety & Accessibility
    - The building is widely inaccessible. Though not required by code, the building should be made fully accessible to improve the access of people and the movement of furniture and instruments.
    - Though not required by code, the building should be made fully sprinklered.
- Mechanical System
    - Install elevator.
- Plumbing System
    - Replace existing cast iron storm water and sanitary piping.
    - Replace existing swimming pool black steel waste piping with polypropylene plastic piping.

SPACE NEEDS 6

To understand the space needs of the Academic Zone, it is necessary to understand the general University-wide context, the manner in which the Academic Zone relates to that context, and to identify department-specific needs that meet project enrollment and pedagogical demands. William Paterson University's instruction space exists in several major clusters:

- Academic Zone (Coach House, Hunziker Hall, Hunziker Wing, Raubinger Hall, Shea Center and Wightman Gym)
- Academic Zone+ (Atrium, Hobart Hall and Morrison Hall)
- North Academic Zone (Science Complex and Ben Shahn)
- 1600 Valley Road (home to the Colleges of Business and Education)
- Other (consisting of all other non-residential facilities)

While not exhaustive, these clusters represent the vast majority of learning environments. As 1600 Valley Road is located several miles from the main campus, its general instruction space only services departments with activities at that location. The Academic Zone and North Academic Zone on the main campus are mutually supporting, but their usage patterns reflect adjacencies to faculty offices, class lab environments and preferences for facilities that are more contemporary or in better shape.

Graphic 6.1
Various Building Portfolios and the Academic Zone

- Academic Zone
- Academic Zone+
- North Academic Zone
- Non-Academic Areas

6 SPACE NEEDS

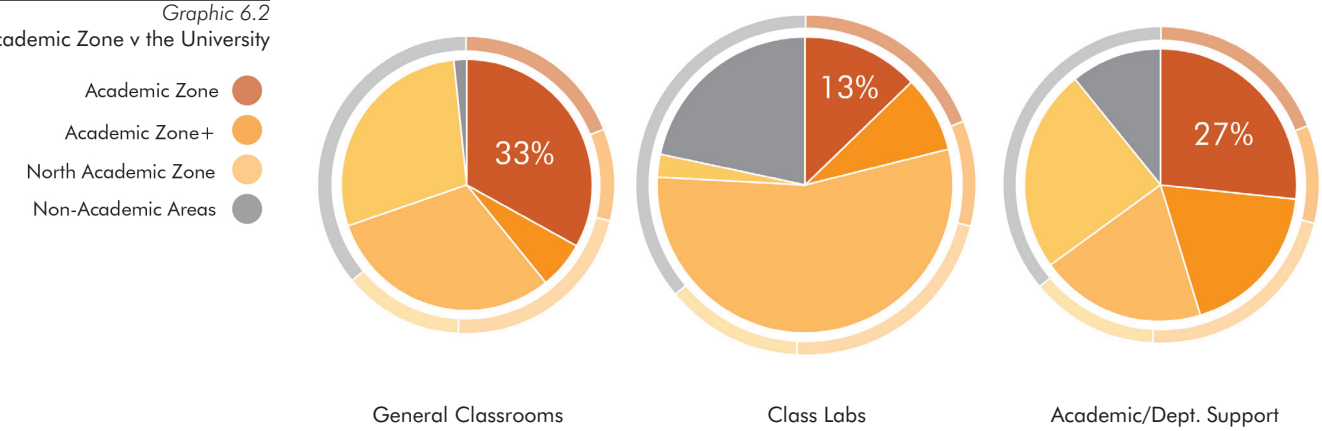
Table 6.1
Comparison of Space Composition Across University Facilities Portfolio

A profile of instruction space and academic office space across the University:

Zone (nasf)		Classrooms		Class Labs		Acad. Offices		Total
Academic	33%	33,504	13%	19,247	27%	33,820	19%	142,048
Academic+	6%	6,508	8%	12,552	19%	23,546	10%	73,049
North Acad.	31%	32,883	55%	81,998	20%	25,038	22%	160,616
Valley Road	29%	31,026	2%	3,692	24%	30,626	13%	95,423
Other	1%	1,537	22%	32,076	10%	13,524	36%	266,127
Total	15%	**105,458**	20%	**149,565**	17%	**126,554**		**737,263**

As the table demonstrates, the Academic Zone contains a third of all classroom space across the University's facilities. While this is the largest percentage, it is also the oldest classroom stock and does not feature many of the contemporary instructional spaces as found at Valley Road or in the new Science West.

Graphic 6.2
Academic Zone v the University



The Academic Zone contains few class lab environments relative to the rest of the University. While this is not surprising given the high concentration of space-intensive science and art labs in the North Academic Zone and at Power Arts (which has over 30,000 nasf of class lab space), both the Academic Zone and Valley Road should have a greater balance of class labs space. The Academic Zone in particular houses several departments such as Nursing and Communication Disorders that are generally class lab-rich. And when the Academic Zone+ is considered, there is little accommodation for English, writing and language instruction which increasingly relies upon class lab environments.

The Academic Zone also represents the greatest concentration of faculty offices and academic support space. Almost half of all departmental support space is found in the Academic Zone and Academic Zone+, despite only comprising less than a third of campus net assignable area.

The departmental use of facilities within the Academic Zone can be viewed from the perspective of several groups:

- Provost (Academic Affairs, Academic Support & General Instruction)
- Administration & Finance (Facilities)
- College of Arts & Communication
- College of Education
- College of Humanities & Social Sciences
- College of Science & Health
- Student Development & Activities
- Inactive Space

PROVOST & GENERAL INSTRUCTION

As Chief Academic Office, the Provost has primary responsibility for the delivery of the University's academic programs, including responsibility for the Colleges, various academic support efforts, and general instruction space.

Academic Affairs

This grouping consists of four departments and space that is currently inactive (in 2011) due to various renovations. There is no particular need to co-locate any of these departments, though all should remain within the Academic Zone. The Provost's office in particular should be easily accessible to faculty.

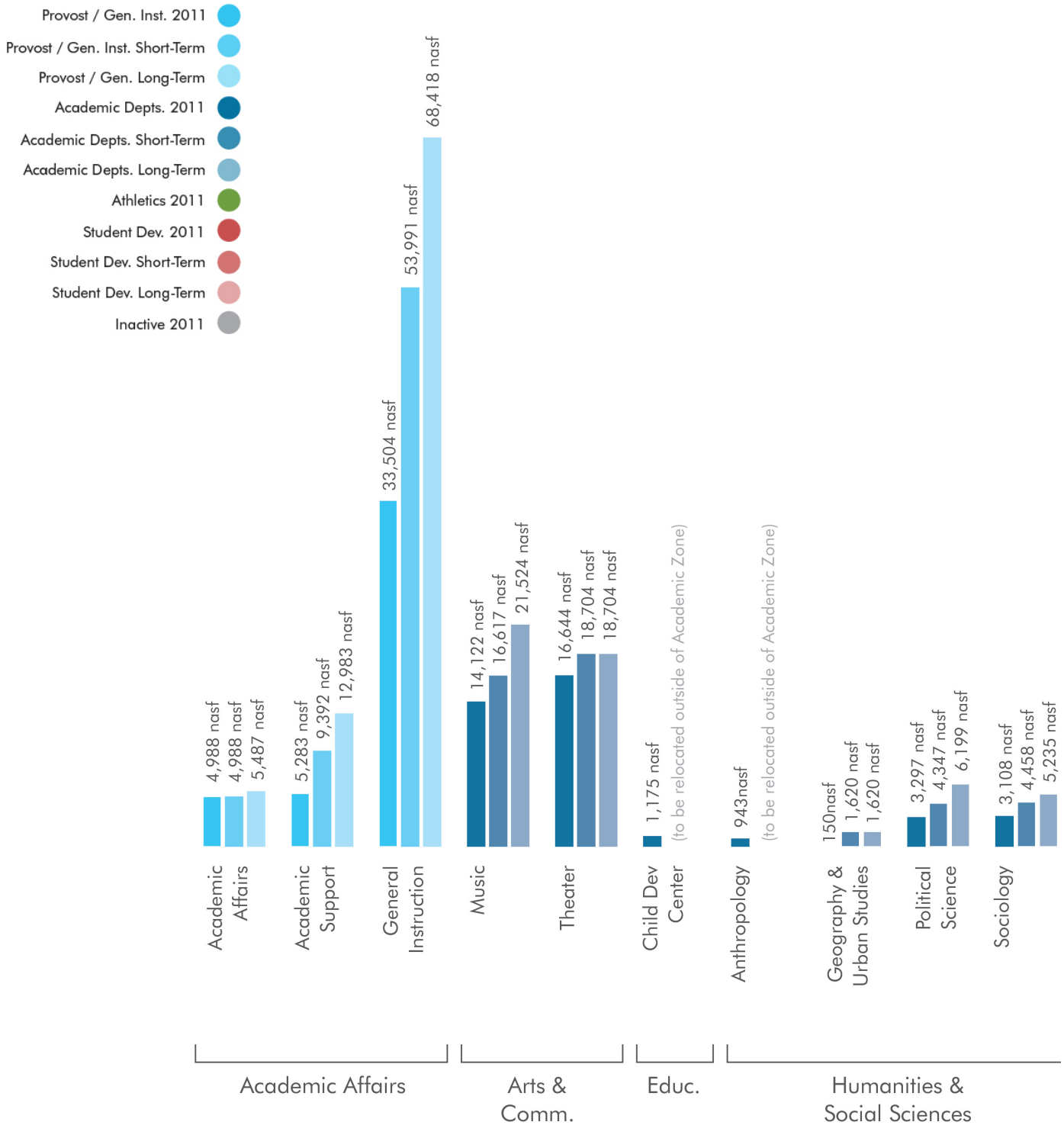
Table 6.2
Academic Affairs Space and Suggested Program

Department	2011 Inventory	Short-Term Program	Long-Term Program	L-T +/- Factor
Provost & Executive VP	2,801	2,801	3,081	1.10
Faculty Senate	225	225	248	1.10
SBR Humanities & Soc.Sci.	106	106	117	1.10
Scholarship Office	700	700	770	1.10
Sponsored Programs	1,156	1,156	1,272	1.10
Other/Inactive/Under-Reno.	0	0	0	n/a
Total NASF	**4,988**	**4,988**	5,487	

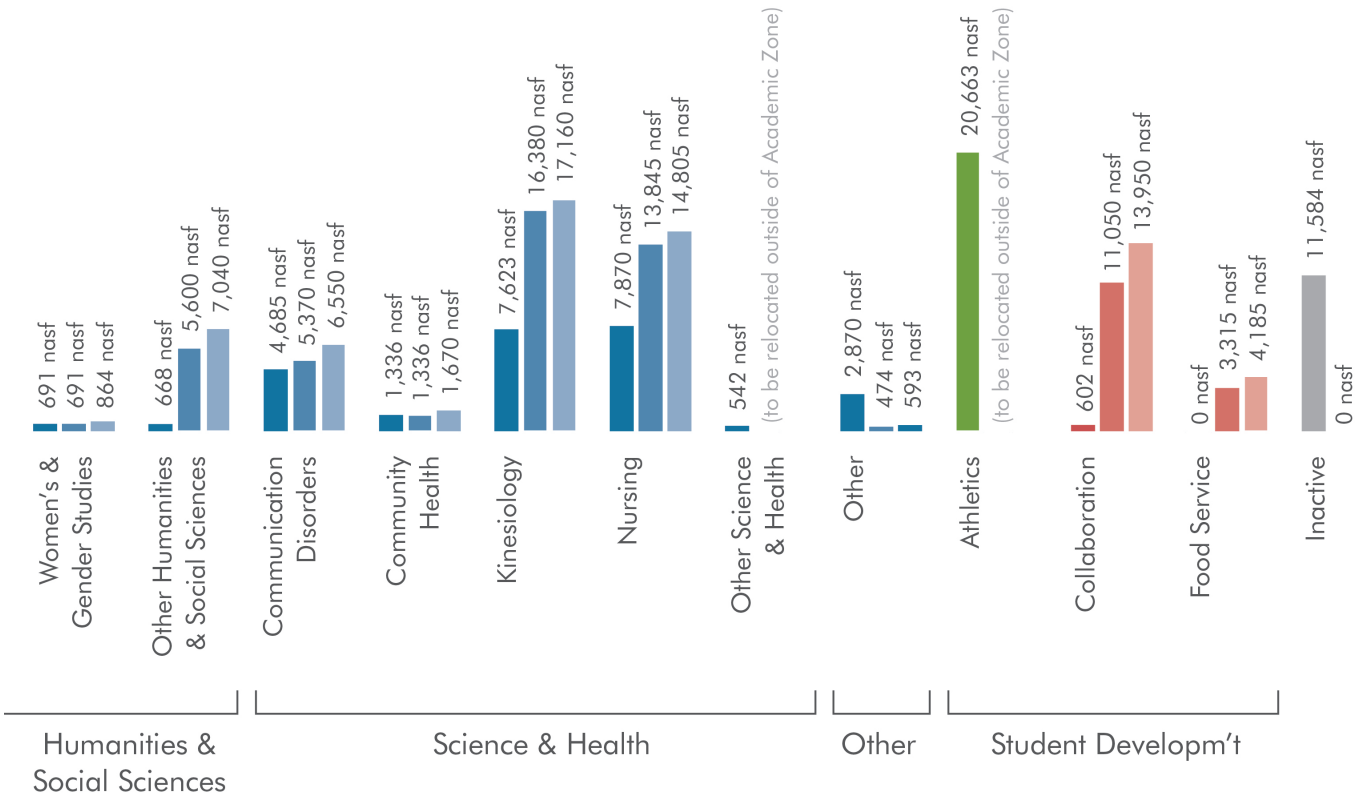
This study has not identified any significant existing space deficiency and is only projecting a 10% growth in long-term space need. This reflects modest growth of these departments in support of the University's more ambitious growth targets, from a short-term need that is the same as existing inventory, eventually out to 5,487 nasf.

6 SPACE NEEDS
PROVOST & GENERAL INSTRUCTION

Graphic 6.3
Academic Zone Space and Suggested Program by Department



6 SPACE NEEDS
PROVOST & GENERAL INSTRUCTION



6 SPACE NEEDS
PROVOST & GENERAL INSTRUCTION

Academic Support (& Development)

This grouping of departments is currently scattered in several locations within the Academic Zone and Atrium Hall and currently do not have functional relationships with each other. Their current space allocation is a mixture of classrooms, labs and offices. These departments are generally undersized and have existing space needs, yet in many cases these space needs can be met through shared resources.

Table 6.3
Academic Support (& Development) Space and Suggested Program

Department	2011 Inventory	Short-Term Program	Long-Term Program	L-T +/- Factor
First Year Experience	627	627	767	1.22
Academic Support Center	1,651	4,067	6,763	4.10
Honors College	966	942	1,215	1.26
Instructional Research & Tech.	534	2,207	2,207	4.13
International Education	744	744	744	1.00
Testing Center	761	805	1,287	1.69
Total NASF	**5,283**	**9,392**	12,983	

The Academic Zone Master Plan recommends an expanded approach to Academic Support with recognition of the University's academic development responsibilities for both students and faculty. This approach includes co-located departments that are larger, a more diverse portfolio of shared spaces, and a conceptual design approach that envisions more visually open and accessible space. This identifies a short-term suggested program of 9,392 nasf, growing to a long-term suggested program of 12,983 nasf.

- First Year Experience reflects above-average investment in academic development and retention.
- Academic Support Center reflects a significant outgrowth of the strategic plan to significantly expand the University's academic support and development efforts. This growth includes dramatically expanded learning commons, open and instructor facilitated computer labs and an attendant classroom. These spaces could also be used to deliver writing development courses. The Academic Support Center's mission is also to be expanded to include faculty development (student and faculty spaces, however, will remain distinct and separate, but with shared back-of-house facilities).
- Honors College reflects above-average investment in academic development and retention.
- Instructional Research & Technology is the combination of the existing Help Desk located in the Coach House, as well as IR&T's space located at the north end of Atrium Hall. The space in Atrium Hall is to be vacated to allow for other uses. It is also beneficial to co-locate IR&T with the expanded Academic Support &

Development as it can support student and faculty training.

- International Education was not identified as needing additional space (this group, however, was not interviewed).
- Testing Center growth reflects both University-wide growth and station and room right-sizing. Though co-located with Academic Support, testing should be spatially distinct and separate.

General Instruction Space (Lecture Halls and Classrooms)

As of Fall 2011, general instructional space included 47 classroom/seminar/lecture halls. Of the six buildings in the Academic Zone, the vast majority of general instructional spaces are located in Hunziker, Hunziker Wing and Raubinger Halls. All general instruction computer labs are located in Raubinger Hall.

Table 6.4
General Classrooms by Academic Zone Building

Building	# Rooms	Total NASF
Coach House	0	0
Hunziker Hall	11	7,413 (+152 of service)
Hunziker Wing	16	12,959
Raubinger Hall	16	10,636 (+52 of service)
Shea Center	2	1,262
Wightman	2	1,030
Total	**47**	**33,504**

These instructional spaces vary greatly in size, from 192 nsf to 1,780 nasf. To better understand the distribution of space and identify potential space needs, existing classrooms, seminar rooms, and lecture halls are grouped by size:

Table 6.5
General Classrooms by Seats

Size (NASF)	# Rooms	Total NASF
0-560	7	3,606 (+204 of service)
561-750	27	16,962
751-1,000sf	8	6,628
1,000sf+	5	6,104
Total	**47**	**33,504**

The majority of existing classrooms fall into the middle range of 561 nasf to 750 nasf. Few classrooms exist in the smallest (less than 560 nasf) and largest (more than 1,000 nasf) groups.

6 SPACE NEEDS
PROVOST & GENERAL INSTRUCTION

In addition, two computer labs for general instruction are listed in the Physical Space Inventory (PSI), totaling 1,146 nasf.

General instruction space is quantitatively and quantitatively insufficient within the Academic Zone. This was heard in user group interviews and borne out by analysis. Understanding the interrelationship of room size and utilization, as well as station-size utilization and how that impacts William Paterson's usage patterns is key to addressing this issue.

Sizing and Utilization Standards

As part of the Academic Zone Master Plan, size and utilization expectations were established based upon benchmarks with other state standards in the region including: Maryland, New York, Pennsylvania, and Virginia. Of these, New York's is one of the first standards established in the United States and has not been subsequently updated. Maryland's is one of the most progressive. All standards are intended as guidelines to help set usage expectations.

Table 6.6
General Classroom
Cross-State Benchmarking

Classroom Standards

	WPU Prop	WPU Exst	MD	NY	PA	VA
Weekly Hours Available	50 hrs	50 hrs	45 hrs	40 hrs	50 hrs	50 hrs
Room Utilization Rate [RUR]	80%	83%	60%	75%	75%	80%
Expected Hours Scheduled	40 hrs	42 hrs	27 hrs	30 hrs	38 hrs	40 hrs
Station Utilization Rate [SUR]	67%	52%	80%	80%	70%	80%

- "Weekly Hours Available" defines the amount of hours a classroom is generally available for use over the course of a week (24/7). Though common, 50 hours is at the high end of state standards and reflects a standard operating day and week for most academic institutions. Going beyond 50 hours means greater operational expenses such as higher rates of evening and/or staffing, later hours for custodial servicing and classrooms not able to be purposed for other non-instructional uses such as meetings or student-directed activities. Institutions with Weekly Hours Available above 50 hours are generally found in locations with significant real estate pressure where high land costs outweigh higher operating costs, or at institutions where non-traditional (after-hours) students are a major focus of enrollment.
- "Room Utilization Rate" [RUR] is the percentage metric used to understand how often a room is used for a class, regardless of size or number of stations (also known as seats). A percentage consistently at or over 80% signifies a shortage of classrooms and results in tightly scheduled rooms with little set-up time between classes.

- "Expected Hours Scheduled" is the numeric metric version of RUR.
- "Station Utilization Rate" [SUR] is the percentage of seats used when a classroom is used.

Room Utilization

At present, William Paterson is not pushing to lengthen its day. Therefore this study maintains the facilities operational approach of a 50-hour week (organized as 10-hour days, 8am to 6pm, Monday through Friday). Of the 50-hour week, an 80% RUR is recommended. This is a high utilization rate and reflects a fiscally conservative approach to facilities scheduling.

As the classroom standards table shows, William Paterson uses classrooms in the Academic Zone 42 hours per week (not including non-credit bearing continuing education courses which are additional load). This is higher than any of the benchmark standards and the recommended RUR, and significantly higher than Maryland's standard of 27 hours. WPU's high RUR indicates a need for additional classrooms.

Station Utilization

Despite the University's high RUR, almost half of all seats go unused when a class is scheduled. This low station utilization rate [SUR] of 52% can be driven by many factors, some of which may include accreditation class-size standards, a teacher's union agreement, or a policy of smaller class sizes. This study recommends a SUR of 67%. This rate is considerably below the expectations of the benchmark state standards, but SUR standards of 70% or 80% are rarely met. Rather, such high SURs indicate a strong need for additional capacity (i.e. more space). While high RURs and SURs are theoretically desirable, institutions with them often face scheduling difficulties, crowded corridors and a host of other operational challenges.

Room Size

The RUR and SUR collectively indicate that William Paterson needs 11 more classrooms than can be accommodated within the existing classroom portfolio.

Station Size

This study also reviewed each classroom's maximum capacity as based upon data provided by the Registrar. This data indicates overcrowding in many classrooms with extremely small station sizes that do not support today's student with books, notebooks, laptop computers, personal data assistants [PDAs], and smartphones. This is evident in the University's

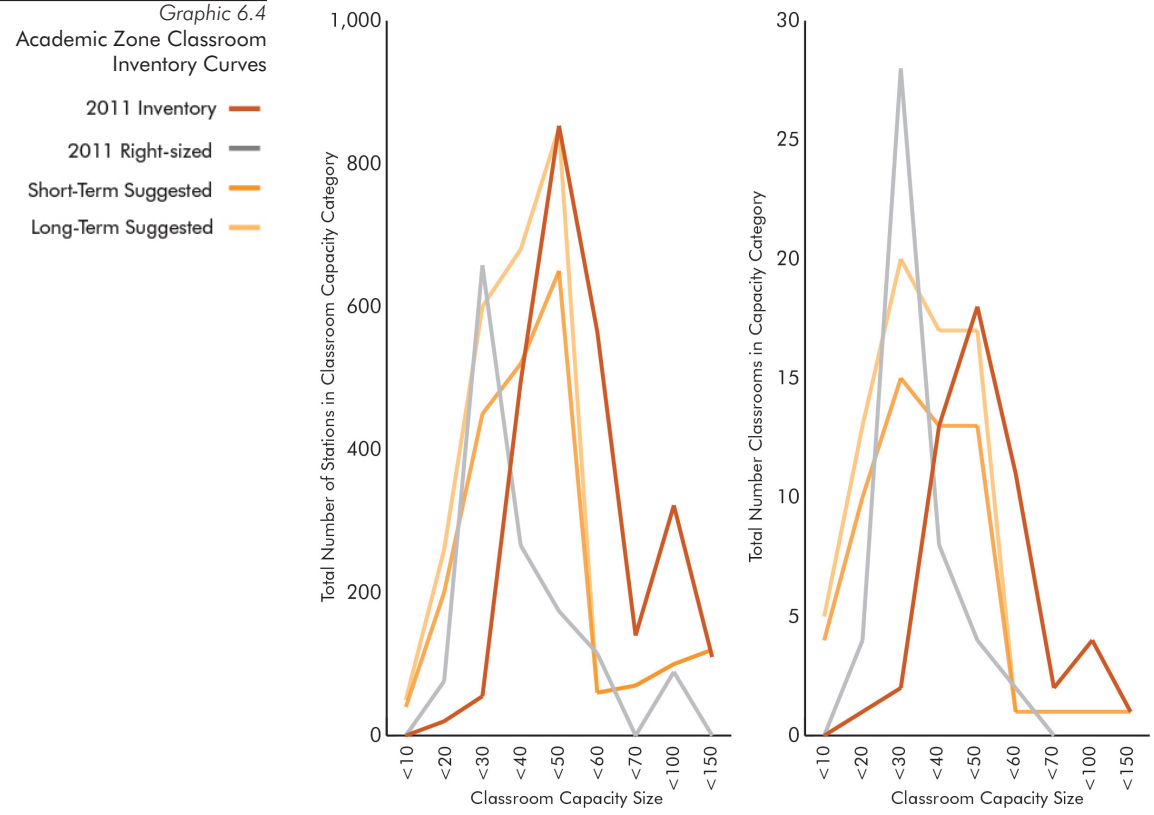
reliance on outdated tablet armchairs in many classrooms. Additionally, station sizes vary greatly across the Academic Zone from 10 nasf/station to 46 nasf/station, and are in need of standardizing. For reference, 10 nasf/station is the same as a Broadway theater seat.

Table 6.7

Classroom Station Sizes in Academic Zone

Room Capacity	# of Exst Rooms	Range of Stat. Size	Average Stat. Size
<10	0	n/a	n/a
<20	3	14-27	22
<30	2	18-20	19
<40	16	10–22	15
<50	18	11-16	13
<60	5	13-15	14
<70	3	12-14	12
<100	4	13-20	15
<150	1	10	10

Graphic 6.4
Academic Zone Classroom Inventory Curves



Recommendations for Addressing High Room Utilization

As the following table shows, the Academic Zone needs 11 new classrooms. While this is not an exceptionally large number, it is significant. This need can be addressed in several different ways:

Operational measures (a combination of what is currently done):

- The University could extend the Weekly Hours Available
- Utilize the existing inventory at current high rates
- Offer fewer course sections at larger sizes in the larger classrooms
- Shift instruction delivery to on-line learning

Alternately, this need could be addressed through capital investment (new construction).

Recommendation for Right-sizing Station Size

Fortunately for William Paterson University, there exists the opportunity to address station utilization and station right-sizing once the high room utilization rate issue is addressed. As the following table shows, the Academic Zone's existing classroom inventory is capable of supporting smaller class sizes simply by increasing station size to meet contemporary needs.

Table 6.8

Repositioning Existing Classroom Inventory to Right-Size Station Size

Room Cap.	2011 Classrooms		2011 Classrooms with Stations Right-Sized		2011 Classrooms Required at 80% SUR (standard is 67%)		2022 Classrooms Required at 80% SUR (standard is 67%)	
	#Seats	#Rms	#Seats	#Rms	#Seats	#Rms	#Seats	#Rms
<10	0	0	0	0	40	4	50	5
<20	20	1	76	4	200	10	260	13
<30	55	2	658	28	450	15	600	20
<40	495	13	266	8	520	13	680	17
<50	853	18	174	4	650	13	850	17
<60	565	11	115	2	60	1	60	1
<70	140	2	0	0	70	1	70	1
<100	322	4	89	1	100	1	100	1
<150	110	1	0	0	120	1	120	1
	2,345	47	1,378	47	2,210	59	2,790	76
	33,504 nasf		33,504 nasf		53,991 nasf		68,418 nasf	

6 SPACE NEEDS
PROVOST & GENERAL INSTRUCTION

Addressing right-sizing before adding additional classrooms is not recommended. While most classrooms can be right-sized with new furniture and little practical impact to capacity (since classrooms on average have 48% of seats unfilled), a reduced classroom capacity will limit flexibility and not accommodate above average-sized classes.

The repositioning of the existing classroom inventory at the higher room size is complicated by the lecture halls, which are difficult to modify due to their tiered, poured-in-place concrete floor construction.

The following sections will detail usage and need by department, with a specific focus on the acute class lab needs within the Academic Zone. However, at a glance class labs in the Academic Zone are heavily oversubscribed, not the right size and non-competitive.

Table 6.9
Class Lab
Cross-State Benchmarking

Class Lab Standards

	WPU Prop	WPU Exst	MD	NY	PA	VA
Weekly Hours Available	50hrs	50 hrs	45hrs	40hrs	50hrs	50hrs
Room Utilization Rate [RUR]	48%	(below)	33-47	75%	46%	75%
Expected Hours Scheduled	24hrs	24hrs	15-21	24hrs	23hrs	24hrs

Computer Lab RUR	136%
Music Lab RUR	65%
Anthropology Lab RUR	185%
Comm. Disorders Lab RUR	73%
Kinesiology Lab RUR	84%
Nursing Lab RUR	204%

COLLEGE OF ARTS & COMMUNICATION

Music and University Performing Arts (Theater)

Music and Theater represent the College of Arts & Communication in the Academic Zone and are housed in the Shea Center for Performing Arts and Hunziker Hall. The majority of space is located in Shea Center for Performing Arts, with a handful of offices and the black box theater located in Hunziker Hall. Most of the space allocated to Music belongs to the category of class laboratory (class, open or service) or office.

Classroom space for Music includes:

Table 6.10

Building	Room Type	# Rooms	Total NASF
Hunziker Hall	Classroom	3	1,693
Total		**3**	**1,693**

Existing class laboratory space includes:

Table 6.11

Building	Room Type	# Rooms	Total NASF
Shea Center	Audio Recording Lab	1	268
Shea Center	Audio Recording Studio	1	1,541
Shea Center	Brass Studio	1	188
Shea Center	Percussion Studio	2	636
Shea Center	Piano Lab	1	536
Hunziker Hall	Computer Lab	1	390
Hunziker Hall	Theater/Rehearsal (Performing Arts)	1	1,014
Total		**8**	**4,573**

Open laboratory space includes:

Table 6.12

Building	Room Type	# Rooms	Total NASF
Shea Center	Practice Room	18	1,850
Shea Center	Rehearsal Room	2	2,755
Shea Center	Teaching Studio	1	85
Total		**21**	**4,690**

6 SPACE NEEDS
COLLEGE OF ARTS & COMMUNICATION

Spaces supporting the laboratories are categorized as "laboratory service":

Table 6.13

Building	Room Type	# Rooms	Total NASF
Shea Center	Light/Sound Booth	1	60
Shea Center	Choral Library	1	163
Shea Center	Lockers/Vending	1	150
Shea Center	Locker Room	1	383
Total		**4**	**756**

All but one of the Music offices are located in Shea:

Table 6.14

Building	Room Type	# Rooms	Total NASF
Shea Center	Admissions Office	1	80
Shea Center	Faculty Office	20	1,818
Shea Center	Jazz Office	1	120
Shea Center	Music Office	1	164
Hunziker Hall	Orchst./Perf. Arts Office	1	550
Shea Center	Secretary	1	135
Total		**25**	**2,867**

Room 201 in Hunziker Hall (1,014 nasf) is dedicated to Performing Arts.

Feedback from user group interviews and subsequent review indicate that Music class lab environments are significantly undersized and inadequate. Practice rooms and faculty offices are too small. There are an insufficient number of ensemble rooms and very little storage space. The challenges of the space layout on the lower (academic) level of Shea Center make daily use difficult and any future reconfiguration very challenging.

Suggested College Program

Table 6.15
College of Arts & Communication Space and Suggested Program

Department	2011 Inventory	Short-Term Program	Long-Term Program	L-T +/- Factor
Music	14,122	16,617	21,524	1.52
Theater	16,644	18,704	18,704	1.12
Total NASF	**30,766**	**35,321**	**40,228**	

This study recommends addressing the most critical space needs for the Music department in the short-term, including the inadequate size of practice rooms and faculty offices. The long-term suggested program provides an enhanced suite of rehearsal spaces including additional tutorial and ensembles spaces.

The minor growth for Theater entails addressing Hunziker Black Box Theater's inadequate back-of-house support space. Any investment in this space should also allow the Black Box to function as a University-wide meeting and events resource.

Additionally, any alteration to the Shea Center or Hunziker Hall will need to consider accessibility of the public for performances and the movement of large instruments such as pianos.

COLLEGE OF EDUCATION

The College of Education is represented in the Academic Zone by the Child Development Center (1,175 nasf) located in Hunziker Wing. The Center is negatively impacted by a series of factors that reduce its effectiveness and complicate operations:

- It is distant from vehicular circulation and a convenient child drop-off and pick-up location is not possible
- It is distant from visitor parking which, when combined with William Paterson's parking challenges, makes WPU an unattractive place for parents looking for convenience
- The interior circulation of Hunziker Wing bisects the Center's current space
- There are insufficient adult and child toilet rooms
- The Center is not co-located with any other College of Education program or department

Beyond these factors, the Academic Zone does not have any intrinsic value that would recommend the continued location of the Center in the original core of the campus. Therefore, it is recommended that the Child Development Center be relocated outside the Academic Zone, possibly to 1600 Valley Road and the remainder of the College of Education. Such a location should provide adequate vehicular access and visitor parking. A detailed program study will also be needed to determine the long-term space needs of this department.

Suggested College Program

Department	2011 Inventory	Short-Term Program	Long-Term Program	L-T +/- Factor
Child Development Center	1,175	0*	0*	n/a
Total NASF	**1,175**	**0***	**0***	

Table 6.16
College of Education Space and Suggested Program

6 SPACE NEEDS
COLLEGE OF HUMANITIES & SOCIAL SCIENCES

COLLEGE OF HUMANITIES & SOCIAL SCIENCES

The bulk of space designated to the College of Humanities & Social Sciences within the Academic Zone is located in Raubinger Hall. This includes Geography & Urban Studies, Political Science and Sociology. Criminal Justice has no dedicated space. An additional 1,359 nasf is located in Hunziker Hall, split fairly equally between Women's Studies and general Humanities. Aside from smaller support spaces (copy rooms, storage, etc.), Women's Studies includes one faculty office (225 nasf). An adjunct office (523 nasf) and resource room (145 nasf) are dedicated to Humanities.

The majority of office space in the College of Humanities & Social Sciences is dedicated to Sociology (2,195 nasf), followed by Political Science (1,597 nasf). Geography & Urban Studies has the smallest amount of dedicated office space (150 nasf).

Table 6.17

Building	Room Type	# Rooms	Total NASF
Hunziker Hall	Faculty Office	1	225
Hunziker Hall	Adjunct Office	1	523
Hunziker Hall	Secretary	1	238
Raubinger Hall	Office/Faculty Office	43	3,543
Raubinger Hall	Secretary	5	399
Total		**51**	**4,928**

There are no dedicated classrooms or laboratories for Humanities & Social Sciences in the Academic Zone. Some programs, such as Criminal Justice (which is not a department), would benefit from class labs/simulation environments. Such spaces could include a mock courtroom, and a criminology class lab to support crime scene and forensics training.

Suggested College Program

Table 6.18
College of Humanities & Social Sciences Space and Suggested Program

Department	2011 Inventory	Short-Term Program	Long-Term Program	L-T +/- Factor
Anthropology	943	0	0	n/a
Geography & Urban Studies	150	1,620	1,620	10.80
Political Science	2,997	4,347	6,199	2.07
Sociology	3,108	4,458	5,235	1.68
Women's & Gender Studies	691	691	864	1.25
Other Humanities & Social Sci.	668	6,268	7,708	11.54
Total NASF	**30,766**	**35,321**	**40,228**	

The growth of "Other" includes the relocation of doubled-up faculty offices in Atrium.

COLLEGE OF SCIENCE & HEALTH

Within the Academic Zone, the College of Science & Health represents 22,056 nasf of program area in Coach House and Hunziker Wing. Departments located in these buildings include Communication Disorders, Nursing, Community Health, and Biology.

Communication Disorders

The department of Communications Disorders has a total of 4,685 nasf in Hunziker Wing, the majority of which is office, lab and therapy/clinic space. This department has recently added a graduate program and may soon add a doctoral program.

Communication Disorders has a number of research labs in addition to a clinic. The department could benefit from greater visibility to the public and better organized spaces.

Existing office space includes:

Table 6.19

Building	Room Type	# Rooms	Total NASF
Hunziker Wing	Office/Faculty Office	4	518
Total		**4**	**518**

Research (non-class) laboratories include:

Table 6.20

Building	Room Type	# Rooms	Total NASF
Hunziker Wing	Computer Lab	3	454
Hunziker Wing	Diagnostics Lab	1	82
Hunziker Wing	Observation Room	1	125
Hunziker Wing	Observation Lab	1	85
Total		**6**	**746**

Clinic space is in a separate category:

Table 6.21

Hunziker Wing	Clinic Office	3	313
Hunziker Wing	Clinic Staff Room	1	536
Hunziker Wing	Diagnostics Lab	1	120
Hunziker Wing	Reading Lab	1	344
Hunziker Wing	Speech/Hearing Lab	1	565
Hunziker Wing	Therapy Suite	7	560
Hunziker Wing	Waiting Room/Hall	1	170
Total		**15**	**2,608**

6 SPACE NEEDS
COLLEGE OF SCIENCE & HEALTH

Community Health

Dedicated space for Community Health includes 1,032 nasf of office space in Hunziker Wing.

Table 6.22

Building	Room Type	# Rooms	Total NASF
Hunziker Wing	Faculty Office	10	910
Hunziker Wing	Chair's Office	1	122
Total		**11**	**1,032**

Kinesiology

Kinesiology is located in Wightman. The department offers undergraduate programs in Athletic Training, Exercise Science, Physical Education K-12 and a graduate program in Exercise and Sport Studies. Feedback from user group interviews indicated that Kinesiology might benefit from being in a separate facility from athletics and recreation. Although facilities in Wightman Gym are sometimes shared, Kinesiology is an academic department and has little relationship to campus athletics. It should also be noted that Kinesiology is one of the largest academic departments at William Paterson University.

Presently, Kinesiology uses much of Wightman Gym's athletic and recreation space as class lab environments. Kinesiology, however, does not require full gymnasium or natatorium spaces, but rather a series of smaller kinetic studio environments with attendant classrooms. The short- and long-term suggested programs recommend a semantic reallocation of these gymnasium environments from Athletics to Kinesiology. It was noted in interviews with Athletics and Recreation that Wightman Gym was not highly-utilized by either group, was undesirable and was the scheduled space of "last-resort." The reallocation of this space to Kinesiology should not have significant impact on either Athletics or Recreation.

Additionally, this department benefits from its current location in the center of campus.

Existing office space includes:

Table 6.23

Building	Room Type	# Rooms	Total NASF
Wightman Gym	Faculty Office	11	1,124
Wightman Gym	Secretary	2	310
Total		**13**	**1,434**

Nursing

Nursing is located in Hunziker Wing. Office Space includes:

Table 6.24

Building	Room Type	# Rooms	Total NASF
Hunziker Wing	Faculty Office	23	1,963
Hunziker Wing	Secretary	1	434
Total		**24**	**2,397**

Research (non-class) laboratory space for Nursing includes:

Table 6.25

Building	Room Type	# Rooms	Total NASF
Hunziker Wing	Computer Lab	1	721
Hunziker Wing	Research Lab	1	313
Total		**2**	**1,034**

Dedicated class laboratory space includes:

Table 6.26

Building	Room Type	# Rooms	Total NASF
Hunziker Wing	Laboratory	1	920
Total		**1**	**920**

The Nursing department is anticipating growth and could benefit significantly from more class lab, faculty office, and meeting space to support present and future needs. Specifically, a wider variety of lab types could enrich the department. Such lab types may include a surgical/pediatric/oncology lab, a specialized patient care lab and a home health lab. A computer-based research space would also be beneficial.

Suggested College Program

Table 6.27
College of Science & Health
Space and Suggested Program

Department	2011 Inventory	Short-Term Program	Long-Term Program	L-T +/- Factor
Communication Disorders	4,685	5,370	6,550	1.40
Public Health	1,336	1,336	1,670	1.25
Kinesiology	7,623	16,380	17,160	2.25
Nursing	7,870	13,845	14,805	1.88
Other Science & Health	542	0	0	n/a
Total NASF	**22,056**	**36,931**	40,185	

6 SPACE NEEDS
STUDENT DEVELOPMENT

STUDENT DEVELOPMENT

Athletics & Recreation

A total of 20,663 nasf for athletics and recreation is located in Wightman Gym. This includes a gymnasium, the weight room, trainer's room, and support spaces such as locker rooms and showers. The swimming pool is also included as athletic space. Feedback from user group interviews indicated that athletic and recreation space does not benefit from its location in the campus core; this space could be better suited for academics or other purposes.

It is recommended that Athletic and Recreation space be relocated outside of the Academic Zone—most likely as an addition to the Recreation Center. It was determined that the University needs an on-site pool/natatorium, but a programming study is required to determine the scope of such a facility, which can greatly vary in size depending on which regulation length the pool is design for, the number of lanes, whether there is a diving well, varsity and/or recreation locker rooms, etc.

An additional study will need to be conducted on whether Varsity Athlete Training and Sports Therapy spaces (now co-located with Kinesiology) should also be relocated outside of the Academic Zone. For the purposes of this study, Kinesiology benefits from the current co-location and that relationship is continued by this plan.

Collaboration

The Academic Zone Master Plan recommends the introduction of informal and collaborative learning environments. This space provides many benefits, including relieving pressure from the Library, distributing group study and social space (and co-locating it with instructional environments, providing ad-hoc break-out space and providing for impromptu conversation (more information can be found on collaboration space in the next section of this report).

Food Service

The introduction of a staffed light food service component (cold-prep only) is recommended to both activate various collaboration areas, provide a localized social hub for the Academic Zone and provide a convenience for farther afield facilities like Hobart Hall.

OTHER

Custodial Services & Facilities Storage

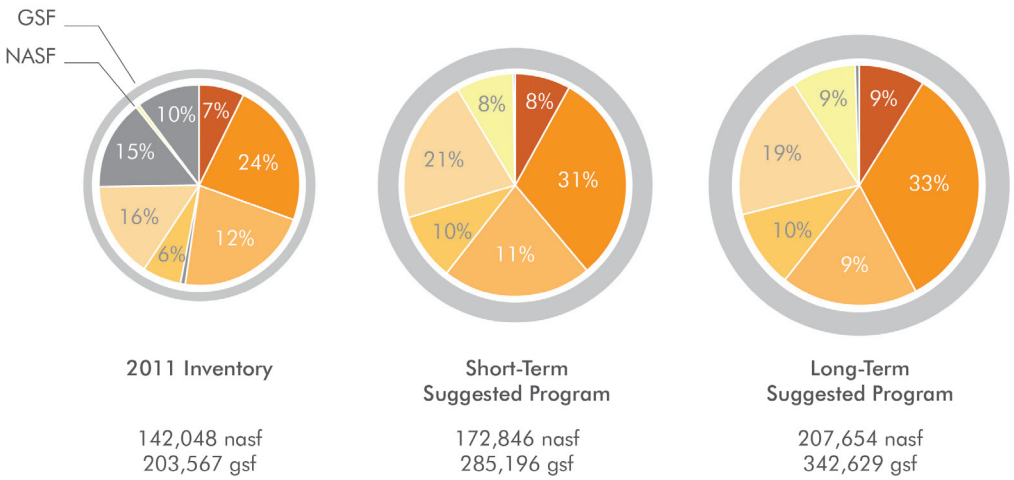
Custodial Services' offices as well as some long-term storage for the Facilities department are located in the rear (north-western) portion of the Coach House. These functions do not significantly benefit from their location in the Academic Zone and it is recommended that be located elsewhere on campus.

Suggested Departmental Program

Table 6.28

Department	2011 Inventory	Short-Term Program	Long-Term Program	L-T +/- Factor
Athletics & Recreation	20,663	0	0	n/a
Collaboration	602	11,050	13,950	23.17
Food Service	0	3,315	4,185	n/a
Total NASF	**21,265**	**14,365**	**18,135**	

SUMMARY OF CURRENT, SHORT-TERM AND LONG-TERM PROGRAM



Graphic 6.5
Summary of Current, Short-Term and Long-Term Program

WPU needs to thoroughly realign and optimize its academic facilities to meet the needs of current and future educational environments.

Yet the College is not simply defined by instructional space. One of the clearest shifts in higher education campus planning over the last 20 years is the move away from the notion that learning happens only within typical instructional spaces—in fact, learning happens everywhere. The most successful—and indeed the most competitive—higher education environments are those that breakdown such rigid barriers and conceive of all college space within a spectrum of learning environments.

This paradigm shift is rooted in major changes in American and Western society that include the:

- Flattening of social hierarchies
- Increase of informal interactions
- Move away from rigid nine-to-five work-day schedules

Understanding how any campus needs to physically adapt means facilities planning needs to shift just as dramatically. As a whole, with the addition of several new buildings, additions and renovations over the past decade, the WPU campus is moving in a positive direction. However, the buildings in the Academic Zone are more than 50 years old and have received little investment since their original construction. It is not only the physical condition of these buildings (which, for the most part, is poor), but the types of spaces they contain. Hunziker Hall, Hunziker Wing, and Raubinger Hall, for example, are the academic "workhorses," of the campus, containing the bulk of general instruction space. Yet, these buildings were designed with a very different (and now antiquated) notion of higher education instruction.

FACILITIES AND THE UNIVERSITY STRATEGIC PLAN

William Paterson University has initiated a strategic planning process for 2012–2022 informed by recent facilities and academic planning efforts and the 2009 self-study for reaccreditation by the Middle States Commission on Higher Education. Under the leadership of its seventh and newest president, Dr. Kathleen Waldron, the University has embarked upon an ambitious process to outline its mission, vision, values and strategic goals for the next decade.

As stated in the draft of the Strategic Plan: 2012–2022, it is the mission of the University to provide an "outstanding and affordable education to both traditional and nontraditional students through baccalaureate, graduate and continuing education programs." It is

7 CAMPUS PLANNING
FACILITIES AND THE UNIVERSITY STRATEGIC PLAN

stated that the University's vision for the future is to become a "model of outstanding and affordable public higher education," with nationally recognized programs and a variety of experiential, co-curricular and extra-curricular offerings. Five core values are identified:

- Academic Excellence
- Creating Knowledge
- Student Success
- Diversity
- Citizenship

With these values in mind, five key goals are stated to direct the development of the University over the next decade:

I. Offer Academic Programs of the Highest Quality
II. Achieve Student Success by Increasing Matriculation, Retention and Graduation
III. Provide Students with Exceptional Opportunities Beyond the Classroom
IV. Enhance the Sense of Community Throughout and Beyond the University
V. Be a Model of Outstanding and Affordable Public Higher Education

It is the objective of this process to support the mission, values and goals identified by the University in its Strategic Plan. In particular, the focused master plan of the Academic Zone provides an opportunity to strengthen the feeling of community throughout and beyond the University. In regard to this undertaking, the Strategic Plan states an intention to "update the University's current facilities master plan to ensure that the campus is modern and fully modernized."

Although the University has recently made significant progress in solving important space and facilities issues on campus, it has a ways to go to ensure the campus is appropriately modernized and promotes a stronger sense of community for all. Thus, it will:

- Undertake a new Facilities Master Plan for the decade of 2014–2024 to ensure that the University's facilities support its evolving academic programming, planned enrollment growth and technological needs.
- Address the University's needs for additional smart classrooms, student common space and offices. In 2012, the University will prepare an academic zone mini-master plan of the main campus corridor and determine the order of renovation of Hunziker Hall, Hunziker Wing, Raubinger Hall, Shea Center for the Performing Arts, and the Wightman Gymnasium as well as plan for better utilization of the space now occupied by the Coach House.
- Utilize a traffic study begun in fall 2011 to analyze traffic patterns to determine if a redesign of major access points and internal drives is appropriate and assess how best to locate and fund a new parking garage.

- Accelerate the renovation and maintenance of selected critical facilities projects over the next several years, including new roofs on the Shea Center, Cheng Library and Wightman Gym, as well as improvements to the Shea performance space, the Hobart Hall television production facilities and music practice rooms.
- Modernize existing residence halls and consider possible construction of additional residences to provide about one-third of undergraduate students with an opportunity to reside on campus.

UNDERSTANDING THE LEARNING SPECTRUM

Today's successful institution of higher education must be designed to facilitate "always-on" learning; that is, to provide opportunities for learning and teaching experiences in unexpected places. The entire campus must be viewed as a classroom of sorts—dining halls, outdoor lawns, corridors, and dormitories all have the potential to support encourage the exchange of ideas among students and faculty. At the core of this approach is the deliberate blurring of social boundaries to align with current pedagogies, highlight experience-based learning and structure opportunities for continuous learning. This section outlines:

- The range of these space types
- Where current thinking is in the short-term (3–5 years)
- Where facilities might be in the long-term (10–15 years)

Understanding the relationship between scheduled instructional environments and informal instructional environments (such as library, food service, and campus open space) is imperative to this strategy.

Scheduled instructional environments:

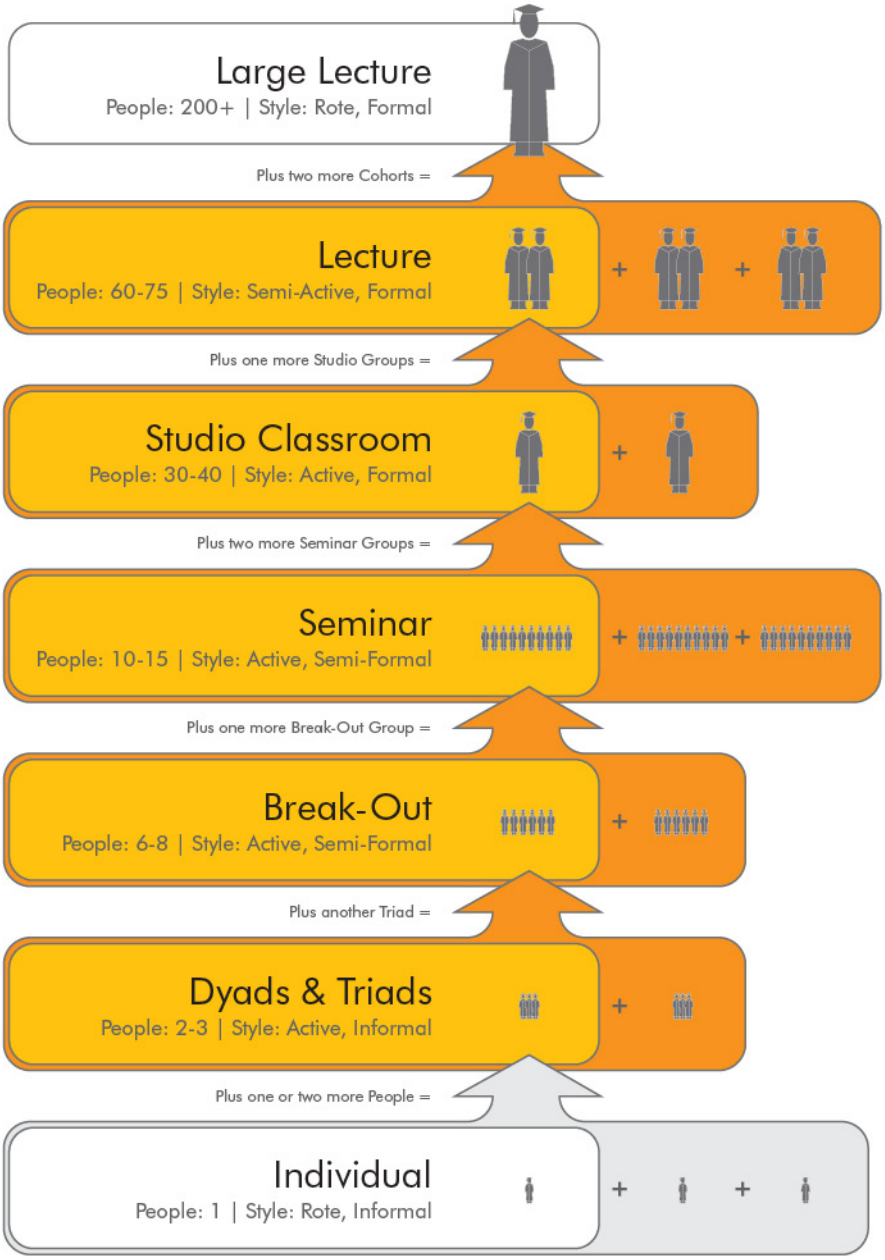
- Classrooms
- Class labs
- Lecture halls (traditional and case-methods)

Informal instructional environments:

- Libraries and learning commons
- Food service and amenity spaces
- Connective areas
- Open space
- Student residential environments
- Office space (administrative and departmental)
- Health, wellness and athletic spaces

7 CAMPUS PLANNING
UNDERSTANDING THE LEARNING SPECTRUM

Graphic 7.1
The Learning Spectrum



Of these types of spaces, informal instructional environments are the most challenging. These spaces redefine learning and broaden the understanding of where and how learning happens.

Scheduled Instructional Environments

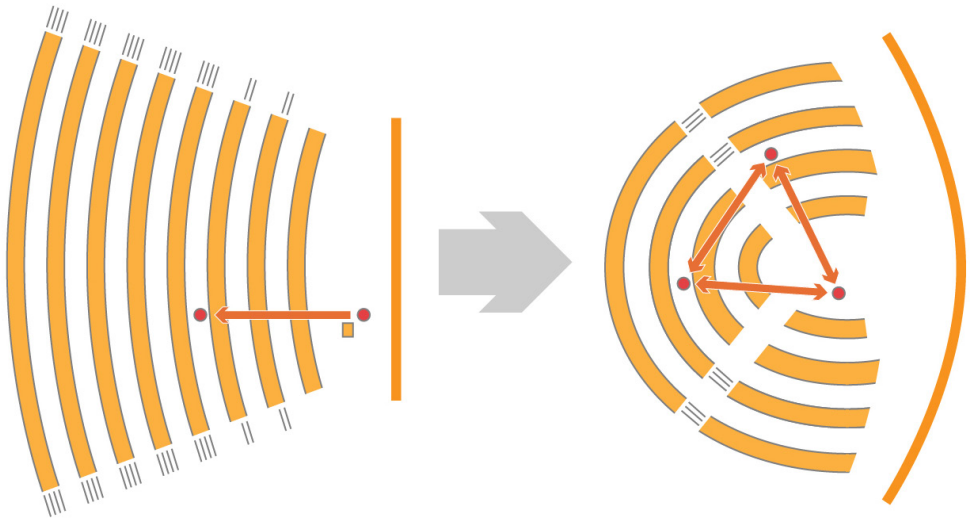
The impacts of this shift are most dramatic in instruction delivery, to which a significant amount of study has been devoted.

In recent years, pedagogies have shifted away from rote learning towards project-based and team-based problem solving. This is supported with a dramatic increase in curriculum-specific class lab environments, and such shifts in pedagogy underpin the adjustments to the University's space needs as defined in the previous section. Contemporary facilities have responded with smaller classrooms, furnishings that support peer-to-peer learning, and break-out rooms. Technology is fully integrated and multi-media capabilities are everywhere. Class time has become more flexible, with a greater focus on study that takes place outside of the classroom. Faculty members are now expected to be available 24-hours a day via e-mail, instant message, web-chat, social networking sites, etc. The idea of "office hours" is antiquated and facilities need to catch up.

The Academic Zone Master Plan builds upon these trends by redirecting scheduled instructional space towards:

- More seminar style classrooms
- More class labs across a wide array of departments and programs
- Greater physical transparency between spaces for increased visual communication
- Greater reliance on case-methods lecture classrooms for undergraduate instruction

Graphic 7.2
From Traditional Lecture Hall
to the Case-Methods Lecture Hall



Informal Instructional Environments—Libraries & Learning Commons

The aforementioned paradigm shift has had a profound impact on the physical and functional qualities of libraries. No longer are libraries viewed as a place to store and preserve a material collection, but as a resource for media literacy and instruction for the gathering, sorting and digesting of the vast digital information that is now available. Though the Library is not in the scope of this study, its future impacts the amount of collaboration and informal learning environments within the Zone.

Informal Instructional Environments—Food Service & Activities Areas

Food service and activity areas are also rapidly evolving to meet the needs of contemporary students. Within the Academic Zone, opportunities exist to enhance academic buildings with breakout spaces and informal study nooks to encourage students to linger after their scheduled classes to continue discussions, share ideas and socialize.

Informal Instructional Environments—Connective Spaces

The expectation of circulation space has also evolved. Higher education facility planning now seeks to foster the power of chance encounters and conversations—and no space better supports spontaneous collaboration than connecting space. Corridors and stairs do more than move people and goods from point A to point B; they are an active part of the learning spectrum. Conversations that start in the classroom should continue into the hallway, and that hallway should be designed to encourage conversation as opposed to yielding to an overbearing need for space efficiency.

The Academic Zone Master Plan recommends that programming within the Academic Zone investigate opportunities to enhance connective spaces, particularly with an adjacency to instructional spaces. Examples include:

- Non-parallel walls to encourage conversations that do not block movement
- Convenience seating at intersections, particularly immediately outside general classrooms
- Extensive glazing and borrowed light to increase visual connection between programmed space and circulation
- Convenience (non-egress) stairs

Informal Instructional Environments—Open Space & Landscape

Similar to interior connective spaces, campus open space is also an informal instruction environment. While outdoor classes are a nice option, and some softscape and hardscape space should be provided for them, formal outdoor instruction is not expected to occur on a regular basis. However, there are many ways that open space can function as informal instructional space, particularly when it is coordinated with interior environments and academic curriculum.

The Academic Zone Master Plan recommends the coordination of campus landscape to provide:

- Expanded individual and group study spaces such as small seating groups
- Outdoor instructional space (coordinated with indoor programming if possible)
- Outdoor seating connected to study commons
- The strengthening of pedestrian routes to increase chance encounters
- Provisions for conversation spots along pedestrian routes
- Planting and landscape as an instructional tool, with particular regard to native vegetation and sustainable maintenance and operations

Informal Instructional Environments—Residential Environments

The expectations of campus residential facilities have significantly changed over the last few decades, having gone from midcentury cellular communal housing to full-service suite environments, and back to communal housing again. Much of this shifting was and still is influenced by competitiveness in the dormitory housing market, but the shift back to midcentury practices is driven by the need to teach students to socialize with each other, to comingle with more than their suite-mates and to facilitate group learning. Residential environments are not in the scope of this study.

Informal Instructional Environments—Office Space (Administrative and Departmental)

Trends in workplace environments have shifted from private offices to open plan offices, pointing towards promoting collaboration, flattening hierarchies and improving capital investments. This concept can be applied to administrative and faculty office space in several ways:

- While private faculty offices will not be eliminated in the foreseeable future, their importance can be overstated; it is desirable to balance the virtues of the private office (solitude for contemplation and focused work, as well as private meetings and tutoring of students) with the understanding that faculty are often engaged

in forms of study that would benefit from increased communication and visibility.
- Improved efficiencies in shared office resources (i.e. copy, conference and multi-media support), including open workstation hoteling for adjunct faculty
- Collaborative space can double as student-faculty meeting areas, seminar space, faculty meeting space, etc. Their co-location can enhance student faculty interaction

Health, Wellness & Athletic Space

Health, wellness, and athletic space meet critical needs such as:
- Helping teenagers transition to adulthood by preparing students (particularly undergraduates) to make healthy life choices. Undergraduate-focused institutions such as WPU have had to pay more attention to the deficiencies of secondary education, whether in reading, writing, and arithmetic or life skills.
- Teaching team-work; there are significant parallels between team-based project-based learning and intercollegiate and intramural sports.
- Taking a holistic view of what and how a student learns—undergraduate students attend college for more reasons than simply getting a college degree.
- Such spaces are also major community amenities and help to foster strong relationships between an institution and the broader public.

SPACE GUIDELINES

Align Direct Instructional Environments with Contemporary Pedagogy

Per Section 6 of this report, the University has an inadequate number of classrooms and lecture seats, and the arrangement of the seats it has does not support the University's contemporary or future methods of instruction delivery. There are far too many sections in large classrooms that are oversized, and too small seminar rooms that are oversubscribed. Furthermore, when large classroom spaces and seminar rooms are provided at an adequate size, the design of the room often does not support effective peer-to-peer learning. Opportunities to integrate tight c-shape seating configurations in both large seminar and case-method lecture spaces (and with attendant break-out spaces) would best align general instruction spaces with contemporary trends. Such spaces are no longer reserved for graduate education and can have significant impact on learning outcomes at the undergraduate level.

Additionally, the ration of traditional classroom and lecture spaces relative to class laboratories does not conform to contemporary needs. Increasingly, class lab spaces

are being employed for disciplines as diverse as developmental writing and sociology, in addition to the more traditional art and science class labs. The implication of this is that much of the instruction space on campus and particularly in the Academic Zone—whether general instruction or class labs—needs to be renovated to reflect smaller section sizes and more class labs (both shared and department specific).

Stimulate Campus Intellectual Life

One of the major charges of this effort is to organize space and social patterns to stimulate campus intellectual life. While the University's various Colleges and departments are not excessively siloed or fragmented, they are often socially and spatially discreet from each other. Some of this stems from the campus' commuter school characteristics, the lack of a food service venue that widely appeals to faculty, and fragmented circulation patterns that do not promote chance encounters.

To remedy this, the Academic Zone should have a rationalized circulation system with a clear route from Hobart Hall, through the Zone to University Commons. Interior space programming should be both visually and physically accessible from this route, which should function like an academic "Main Street." The Zone and this route should be activated by a higher-end food service café environment that acts as a satellite social hub for students, but also as a convenient place for conversation and grab-and-go purchases. This venue should also activate adjacent open space with outdoor seating when weather permits.

Per the earlier portion of Section 7, building interiors should be crafted to promote casual conversation, access to natural light from circulation spaces, and convenience stairs that are open to adjacent interior space.

Maximize Funding Resources

With such a pressing need to provide new and renovated space, maintenance and capital resources must be used judiciously and with the aim to meet multiple goals with the same dollar. While there are many competing needs at WPU, the need to comprehensively renovate and expand almost all of the Academic Zone's instruction space is the most pressing.

Utilize Unassigned Space

As of 2011, unassigned space within the Academic Zone includes 11,584 nasf in the Coach House and Raubinger Hall, with some of the inactive space shifting to Hunziker Wing upon the completion of the Academic Support Center's new space in Raubinger.

7 CAMPUS PLANNING
SPACE GUIDELINES

Existing unassigned space presents opportunities for:

- Surge space
- Ability to cost-effectively realign programs and their locations on campus
- Possible alternate uses of buildings
- Opportunity for removal and replacement of building if vacancy is sufficiently high (i.e. demolition does not generate high need for new surge space)

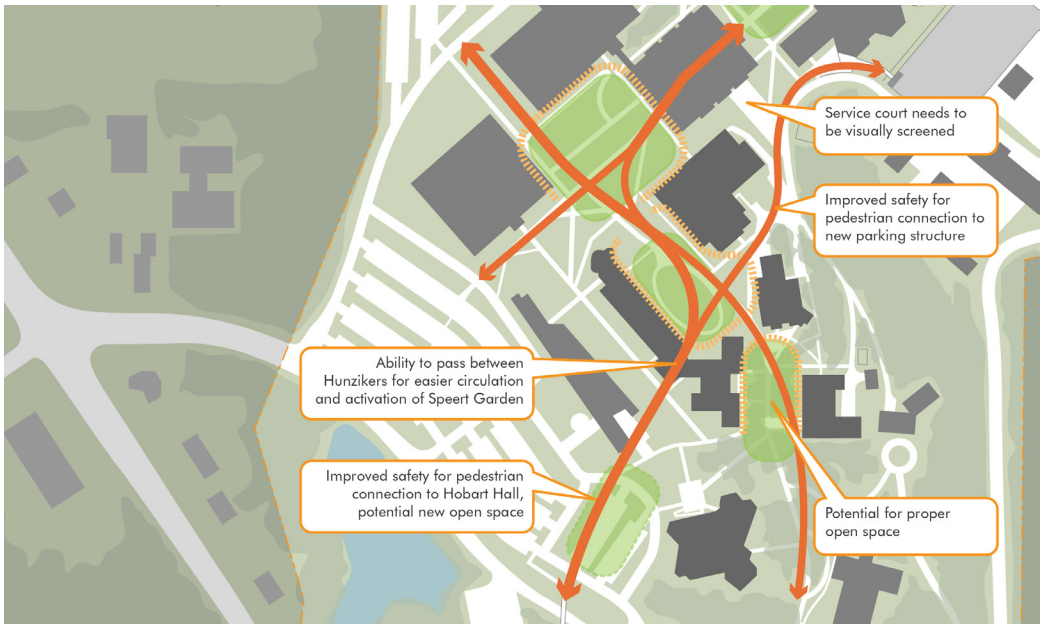
Create a Sense of Place

Despite William Paterson's size, the University's campus and facilities are relatively new, with almost no buildings dating from before 1950. Recent construction and expansion has erased the mid-century modernism of the Library and the Commons, and while these efforts have helped to keep the University up to date, the buildings and their adjacent open spaces seem unremarkable and without character.

Universities compete for students and faculty on many fronts, but the physical quality of a campus is one of the things most valued by higher education communities—they have the capacity to be centrally planned and maintained communities. William Paterson is fortunate to benefit from its extensive woodlands and dynamic terrain. Efforts in the Academic Zone and adjacent areas should seek to:

- Link open space features such as hilltops, overlooks, lawns, the pond along Pompton Road, and the woodlands

Graphic 7.3
Ideal Circulation Route Through Academic Zone Open Spaces



- Develop distinctive open spaces with subservient architecture
- Focus architectural design and flourish on a few key interior spaces that double as commons and gathering spaces, but otherwise pursue practical interior environments

The University could dramatically transform the campus experience with an effective, implementable and maintainable landscape plan that covers planting, lighting, signage, and is fully coordinated with campus architecture. In many cases a long-term relationship with a landscape architect who is also involved in all building construction projects (as much as procurement policies will allow) is far more valuable than a long-term relationship with an architect.

The value of consistent exterior building materials is often over-rated. The perception of a consistent "image" projected by some campuses often focuses on the look of buildings and overlooks the value of a strong, unifying and well-maintained open space system. Successful open space examples include:

- University of Virginia (a unified feel with strong open spaces in the historic core and surprisingly diverse architecture outside of the historic core)
- Yale University (a dynamic and lively campus with a strong street fabric and noteworthy plazas that knit together highly divergent architecture)
- University of California, Santa Cruz (a dispersed campus plan allows the dynamic terrain and forest to assert and insert itself, rendering the buildings secondary to the natural landscape)
- University of Cincinnati (a dozen foreground buildings are unified by an even more aggressive landscape master plan designed and implemented by one landscape firm over 20 years)

MEDIA & TECHNOLOGY GUIDELINES

Integrate In-Direct and Collaborative Instructional Environments

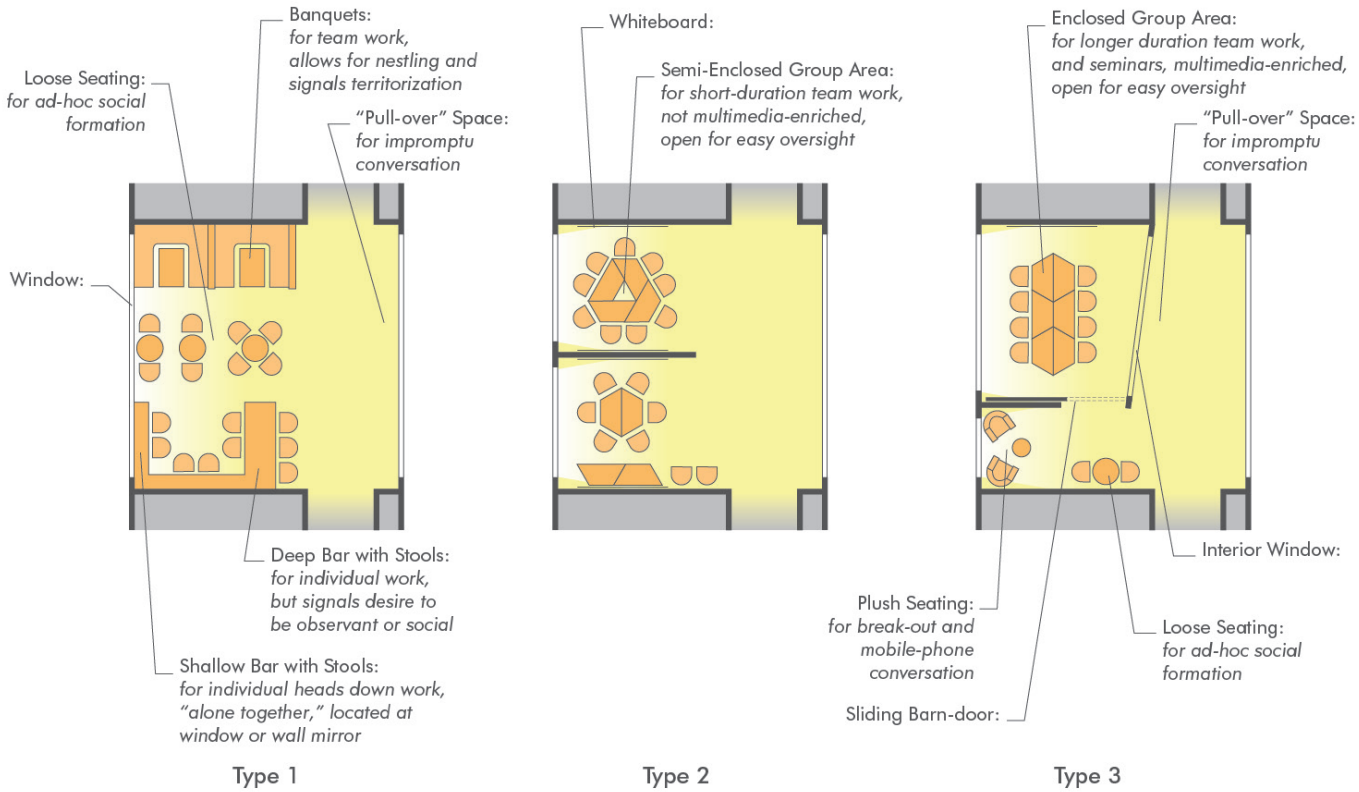
In addition to changes that have impacted classroom and class lab instruction spaces, how space supports learning outside the classroom is viewed very differently today. College buildings are no longer strictly understood as instruction and non-instruction spaces, but rather as spectrums of space that support a wide range of learning methods, direct and indirect instruction and group learning. The growing popularity of peer-to-peer, project-based learning not only impacts the classroom, it also means that WPU must provide a wealth of new space for collaboration and group study. These spaces need to be as diverse as how students learn, and the expectation of today's and tomorrow's student is that these

spaces are comfortable, often social, supportive of all manners of technology, sometimes loud and sometimes quiet, and always available on-demand. These spaces are loosely called learning commons or collaborative learning spaces. These spaces come in three types:

Type 1—Casual Learning (typically 5–30 minutes)

- Located along major circulation routes, often at hubs and vertical connections
- Access to direct natural light is essential
- Different types of on-demand seating
- Long bar-style counters
- Semi-soft seating
- Diverse seating styles in close proximity to each other
- Some seats are more private and allow for nesting
- Other seats are socially kinetic and highly visible
- Focused on how individual scaling to duo/trio learning

Graphic 7.4
Potential Layouts of
Collaboration Space Types



Type 2—Small Group Casual Learning (typically 15–90 minutes)

- Proximity to concentrations of general classrooms, major circulation routes and waiting areas is important
- Access to borrowed natural light is essential
- Furnishing focused on group activity
- Mixture of semi-soft and task furnishing
- Three walls, but not enclosed
- Not media enriched

Type 3—Small Group Semi-formal Learning (typically 30–180 minutes)

- Located near Type 1 collaboration space
- Can also supplement class lab environments and faculty office clusters, can double as small seminar space
- Access to borrowed natural light is helpful when it's visible from circulation routes
- Mainly task furnishings
- Three walls and can be enclosed by sliding panel if desired
- Supports in-person or remote faculty instruction
- Media enriched

Some of these needs are addressed in spaces outside of the Academic Zone, particularly the newly renovated University Commons. Integrating a diverse range of space types into the Academic Zone will bring vitality to the area and provide opportunities for students to linger before and after class. It is a goal of the University to encourage students to stay on campus outside of scheduled instruction times.

ENGINEERING THE ARCHITECTURE

New high performance campus architecture will be realized when William Patterson University and its architects and engineers design as an integrated team. With the increasing complexity of buildings and building systems required to serve a University, engineers must be fluent in the latest design tools and techniques to assist architects in building placement, massing, orientation, envelope performance, and building integrated renewable energy technology. This kind of architecture is deemed "climate responsive", and it is our goal. High performance integrated design is much more than applying a new technology to outdated inefficient design. High performance integrated design is about re-inventing the University's new buildings so that they have everything they need and none of what they don't.

Too often, design and construction of buildings is an overly rushed "relay race" in which team members complete their work and pass off the project to the next phase. We understand that the most successful projects occur when all parties have a voice early in the design process. We look for engineering solutions that enhance the architecture and planning of a facility rather than conflicting with or working around the architecture and planning decisions. Our experience tells us that up-front analysis and coordination between the design team and the University yields integrated design solutions far superior to conventional campus buildings.

Elements of Sustainability

In today's marketplace there is a lot of rhetoric about sustainability as applied to the built environment, but there is no universally accepted definition of sustainability or exactly what makes a "green building." Our vision of engineering sustainable and high performance buildings encompasses five basic principles:

- Load Reduction Strategies
  Design judgment, supported by modeling and simulation allows us to "engineer the architecture" by carefully considering the building construction and technologies to minimize the energy demands: reducing system size, space requirements and cost.
- Use of Passive Systems
  Passive technologies such as natural ventilation, thermal mass and day-lighting shall be implemented and coordinated where appropriate to achieve thermal and luminous comfort for occupants.
- Systems Optimization

With careful equipment selections, building operation strategies, and building energy management systems, the "right-sized" MEP systems are optimized to maximize effectiveness and efficiency.

- Renewable Energy Generation
  Opportunities shall be identified to incorporate on-site energy generation such as solar (photovoltaic, water heating) and wind generation to meet the reduced demands of an efficient building.
- Holistic Design
  Key to all of the above is our whole-building-philosophy. MEP systems cannot be designed independently of the building, but must be integrated with the architecture and structure to provide a holistic design.

By applying these principles, we will provide the engineering to the project to assist in delivering a building that is:

- Accessible, Functional and Safe: A building that will fulfill the user's needs for its intended purpose.
- Energy Efficient: A building that uses technology, sound design principles, innovative engineering, and an integrated ("whole-building") design approach to ensure energy efficiency while providing a comfortable, functional environment for the occupants.
- Sustainable: A building designed to provide continuous service for the next 50 years.

HIGH PERFORMANCE APPROACH & CONCEPTUAL STRATEGIES

Holistic Design

In integrated buildings, the architecture, structure, and systems work in concert to create an indoor environment which provides for occupant needs such as thermal comfort, acoustic privacy, quality illumination, visual stimulus, ergonomics comfort, and durability. Conversely, in the most non-integrated buildings the environmental needs conflict with each other, or with the aesthetic, programmatic of financial goals of the project. For the well-integrated solution, the architecture and structure become part of the machine to meet a project's environmental goals—they are integral indoor environmental modulators that can dramatically reduce the demands on the artificial mechanical and electrical systems supporting the built and occupied environment. To achieve these integrated buildings requires an integrated process.

Climate as Context

Climatic conditions for a given location shall be investigated as drivers and opportunities for high-performance design. The project site's climate capital shall be evaluated along with underlying building physics to see what we need to keep out and what we wish to invite inside. The climate-responsive design approach integrates both passive and active building systems with the natural systems of a site.

Simulation Guiding Design

Projects such as academic buildings derive substantial benefits from using modeling tools to design and optimize building systems. Modeling can help to investigate the influence and interaction of individual components or systems with the building as a whole. Analyzing the synergy between factors such as architectural massing and orientation, envelope design, lighting, day-lighting, and HVAC can greatly inform the decision making process early in design, resulting in energy and cost savings and guiding sustainable design strategies.

In the past HVAC, systems were sized based on design-day conditions and with capacities for extreme conditions. Now, energy models can compare the performance of different systems based on the unique variables of the space, project and owner's requirements. Rather than typical design days, the model can simulate a design hour-by-hour, providing a finer grain of design decision, often resulting in considerable savings.

The iterative, comparative use of the modeling tool to guide decision making sometimes seems like a series of small decisions with little impact. However, modeling the interaction of factors that affect performance such as the direction of sun, availability of daylight, natural air flow concurrently is a great leap forward for systems design. For any size facility these efficiencies can be considerable, and on a large space like a convention center the impacts are truly significant.

To LEED or not to LEED?

Whether or not a project seeks LEED certification, design approach and process should be integrated, iterative, and work towards high performance design. Engineering participation throughout the design process is critical to achieving the sort of high-performing, integrated design today's institutions demand. Ultimately, the only difference lies in the documentation submitted to the GBCI for actual certification.

8 RECOMMENDATIONS FOR INFRASTRUCTURE & SYSTEMS

INFRASTRUCTURE STANDARDS

The University should conduct an infrastructure study to determine the capacity and life-expectancy of systems, and whether they can support additional loading. Relevant system types are:

- Electrical
- Domestic Cold Water
- Sanitary Waste
- Storm Water Drainage
- Natural Gas
- Telecommunication

Additionally, it is University policy that all buildings have stand-alone mechanical systems.

MECHANICAL STANDARDS FOR NEW BUILDINGS

Building Management & Performance Systems

Academic buildings can employ numerous features to incorporate high-energy performance. Use of radiant cooling and heating will considerably improve energy performance of the facility. Classrooms and other spaces with substantial fluctuation in occupancy can utilize air quality monitoring to control required fresh outside air quantity supplied to the spaces.

A reliable Building Management System [BMS] is critical to insure proper operation of the building. BMS will insure that the facility operators have the required tools to run the buildings at peak performance.

One cannot manage what they cannot measure. Therefore we value the importance of Measurement & Verification [M&V] for all buildings and specifically any science buildings. M&V will not only assist William Patterson University with any LEED certification process, but it is also a very important facility management tool. This tool could also become part of student training at the University.

Natural Ventilation

When properly designed and implemented, natural ventilation strategies provide the dual benefit of energy savings and improved indoor air quality. For sustainable design,

mechanical engineers look for opportunities to reduce or eliminate mechanical air conditioning in favor of natural ventilation. Working with the building occupants and the architect, engineers can help determine how air might naturally flow through a building to make it more comfortable with less air-conditioning.

Under-Floor Air Distribution and Displacement Ventilation

Under-floor and displacement air distribution is rapidly becoming the preferred approach to providing HVAC services in office and academic buildings. Under-floor and displacement air distribution can provide multiple benefits over a conventional overhead HVAC system, including energy savings, greater flexibility in space planning and renovation, ease of cable management, improved indoor air quality, and increased floor-to-ceiling heights. Working together with the architect and University, the under-floor/displacement air distribution systems shall be introduced whenever feasible. The new buildings at William Paterson University can benefit from this distribution system.

Green Roofs & Rainwater Collection

Green roofs bring many benefits to academic facilities, along with reduction in energy consumption in the areas below these roofs. Irrigation of these areas can be provided by collecting and storing rainwater. Rainwater not used for irrigation can be used for toilet flushing, cooling tower make-up and assist with overall reduction of potable water consumption on the campus.

ELECTRICAL STANDARDS FOR NEW BUILDINGS

Renewable and Distributed Energy Systems

In an era of increasing volatility in energy markets, on-site energy systems offer reliable and predictable power. Renewable energy systems including photo-voltaics and solar water heating provide building owners with clean, reliable power generated on their site. Other, non-renewable energy technologies (such as fuel cells and cogeneration units) can also provide building owners with reliable, cost effective, and environmentally friendly alternatives for generating some or all of their energy demand on-site. The focus shall be primarily on limiting the demand for energy in the buildings, however, renewable and distributed energy systems shall be considered as a way to reduce the overall environmental impact.

8 RECOMMENDATIONS FOR INFRASTRUCTURE & SYSTEMS

Electrical Distribution System

New buildings shall receive electric service at 208/120 volts or 480/277—three phase four wires. Diversity factors as described in the NEC article 220 shall be used to reduce branch circuits, feeder equipment and service sizes. The main switchboard shall be designed to have adequate distribution sections with spare or space for initial and future loads. Power will be distributed throughout the building by feeders to the each floor lighting, power loads, and HVAC loads. If required by code, an emergency power system shall be designed including Generator and associated Automatic Transfer Switches.

Grounding shall be installed to conform to the national Electrical Code and applicable recommendations in the IEEE Standard. A central grounding point for connection of equipment grounds and system grounds to the grounding electrode system shall be established in the main electrical room and be distributed to ground bars in each electric closet. Separately derived systems to be grounded per NEC requirements. A telecommunication ground bus bar shall be provided in each telecommunication room and tied to the building main grounding system.

High Efficiency Lighting Systems

Lighting equipment, systems and controls have improved dramatically in the last several years. It is now possible to provide adequate lighting at a fraction of the operating expense that buildings were once accustomed to. The use of computer screens is also changing the way many interior spaces are lit. Lower ambient lighting levels and more variable conditions with appropriate use of task lighting and accent lighting is generally preferred. Energy efficient and high-quality interior and exterior lighting systems shall be designed to use energy efficiently while providing required lighting effectively.

Lighting system controls is another area with substantial opportunities for savings in energy consumption. Use of smart lighting controls can significantly improve quality of space and education experience at the University. The lighting systems shall be controlled via automatic control methods. Dual technology occupancy sensors will control the lighting within individual offices and rooms. The sensors will require a manual on when entering the room. The sensor will then automatically turn off the lights within that room once it is vacated. In addition, the occupants will have the capability to turn off the ambient lighting within a room even while it occupied.

Day-Lighting

Natural daylight is generally preferable to electric light for creating pleasing, attractive and visually comfortable indoor spaces. Electric lighting is also among the largest energy end-uses in most academic buildings. Careful architectural treatment and space planning decisions can allow for ample day-lighting of most academic buildings in almost any situation. Good day-lighting design also calls on the electrical engineer to design an efficient lighting system that is controlled in response to the available daylight. We understand that good day-lighting design is a matter of architecture and engineering principals. Low-energy, high-performance lighting strategies shall be provided for all new buildings at William Paterson University.

PLUMBING AND FIRE PROTECTION STANDARDS FOR NEW BUILDINGS

Flexibility: Multiple risers (minimum two) for each system are recommended to be provided from the base of the building to the roof and piped to horizontal distribution on each floor. The space and capacity for future expansion should be planned for each system. This will provide redundancy in case one of the water distribution system or gas lines are inoperable for a period of time.

The vertical infrastructure can consist of multiple stacked piping shafts. These risers should extend from the lowest floor to the upper floor. Utility services should enter the building at the basement level. Domestic water, gas and fire/sprinkler water services and sanitary and storm water sewers should connect to the University's site services.

Serviceability: Adequate space and pathway to access all equipment and devices should be provided and coordinated between all trades. Piped (drainable) bypasses around all major control valves, devices and equipment should be provided. The shut-off valves on all branch piping from risers/mains to plumbing fixtures and equipment should be designed.

Provide hot water distribution system to all fixtures at 120° to provide thermostatic mixing end use for each fixture. Provide instantaneous type water heaters. Implement hands free sensor type (infra-red) faucets and flush valves on the majority of fixtures throughout the building. This will assure water conservation and avoid cross-contamination in a public space. Hands free fixtures are preferred from a maintenance point of view by the building facility personnel.

Sustainability (water conservation) should be implemented the design. Provide low flow plumbing fixtures with sensor type faucets and flush valves. Appropriate insulation should be provided on hot and cold water piping systems.

8 RECOMMENDATIONS FOR INFRASTRUCTURE & SYSTEMS

The intent is to create systems capable of adapting to change with minimal disruption to the facility. The main plumbing infrastructure equipment and utilities should be located in the basement level MER with maintenance.

The basement level MER should house the following: one domestic water and fire services with meters, domestic hot water heaters, sewage ejectors, and sump pumps for fixtures located on the first floor and basement level. While the University only has one principal meter where inflow comes from the local municipality, metering at individual buildings is valuable for identifying leaks, monitoring usage and tracking efficiencies.

A gas meter should be provided and located outside the building to serve the domestic hot water heaters, boilers and other gas-fired equipment.

System Descriptions

Storm Water Drainage System:
Storm water for the roof areas should be drained by gravity through inside leaders, house drains and house sewers. The storm sewers should be extended and connected to the University's site storm sewer system. Secondary roof drains or scuppers should be provided on all roofs. Discharge piping from these drains should be routed separately from main roof drain system and spilled onto grade. Drains located on first floor and below the site sewer inverts should be routed to sumps pumps and lifted to the house drains.

Sanitary Waste and Vent System:
Plumbing fixtures on all floors above the ground level should be drained by gravity through soil, waste and vent stacks, house drains and house sewers. The new sanitary sewers should be extended and connected to the University's Center's site sanitary sewer system. Fixtures located on the first floor and below the site sewer inverts should be routed to sewage ejector pumps and lifted to the house drains.

Domestic Cold Water System:
One new cold water services with meter and backflow preventer should be provided from the University's site distribution water main and distributed to all new plumbing fixtures and equipment. The system should be designed with a maximum velocity of 6 fps at design flow conditions. Cold water should be distributed throughout the building via multiple risers. Valved horizontal piping should be provided on each floor to provide maximum flexibility for future renovations.

Domestic Hot Water System:
Duplex gas-fired instantaneous-type water heaters should be utilized to provide domestic hot water to all plumbing fixtures and/or equipment. Hot water heaters should produce 120°F water. Hot water return [HWR] piping should be provided with duplex circulating pumps to maintain temperature in the hot water system and 120°F water should be distributed throughout the piping system to all plumbing fixtures.

Fire Protection System:
A new Fire Protection System should be provided. One (one) new water service with meters and double detector check valve assemblies should be supplied from the University's site main located in basement and distributed to combined sprinkler/standpipe system risers in each stairwell. Two Siamese connections should be provided on the exterior of the building.

The new building should be fully sprinklered, supplied by combined fire standpipe-sprinkler risers in stairwells with shut-off valve, water flow and tamper switches (alarm). Standpipe risers with a 2 ½ inch fire department hose valve and hose should be provided in each exit stair. Additional fire department hose valves in a valve cabinet should be provided throughout the floors as required to provide total coverage. The system should be hydraulically calculated to provide a minimum pressure of 7 psi at the furthest head. A manual wet fire standpipe system should be provided. Manual wet standpipe system requires water from a fire department pumper to be pumped into the system to supply the standpipe system demand. Fire extinguisher cabinets should be provided throughout the building to supplement the fire sprinkler system per code.

TELECOMMUNICATIONS STANDARDS FOR NEW BUILDINGS

Telecom Room [TR] shall be designed per floor and multiple telecom rooms are required if the horizontal cable length exceeds 90 m (295 ft). A typical TR suitable for a maximum of 480, 4-pair cable terminations shall be eight feet by ten feet, maintain a temperature ranging from 65°F to 77°F with 40% to 55% relative humidity and be properly grounded. Network connectivity via fiber and voice lines via high pair copper cable shall be routed and terminated to the server room.

Horizontal cabling distribution shall be rated at minimum of Category 6 for Gigabit Ethernet bandwidth or Category 6A cabling for 10G Ethernet bandwidth is recommended for installation throughout Academic building. HC shall be properly supported via J-hooks and or cable tray and routed through sleeves when passing through walls. Sleeves shall be properly fire-stopped when penetrating fire rated walls. A minimum of two data ports per faceplate are required.

9 RECOMMENDATIONS FOR BUILDINGS & OPEN SPACE

The following section outlines recommendations for the existing buildings, proposals for two new buildings and a conceptual organization for open space in the Academic Zone. These recommendations were the result of an iterative process that examined several alternatives. Drivers of the final plan include:

- Address significant academic space needs
- Address significant building system needs
- Provide class labs before general instruction
- Stimulate campus intellectual life
- Create memorable open space
- Improve pedestrian circulation
- Only build along Pompton Road if it is a large building that reinforces perceptions of the University as a serious and significant institution

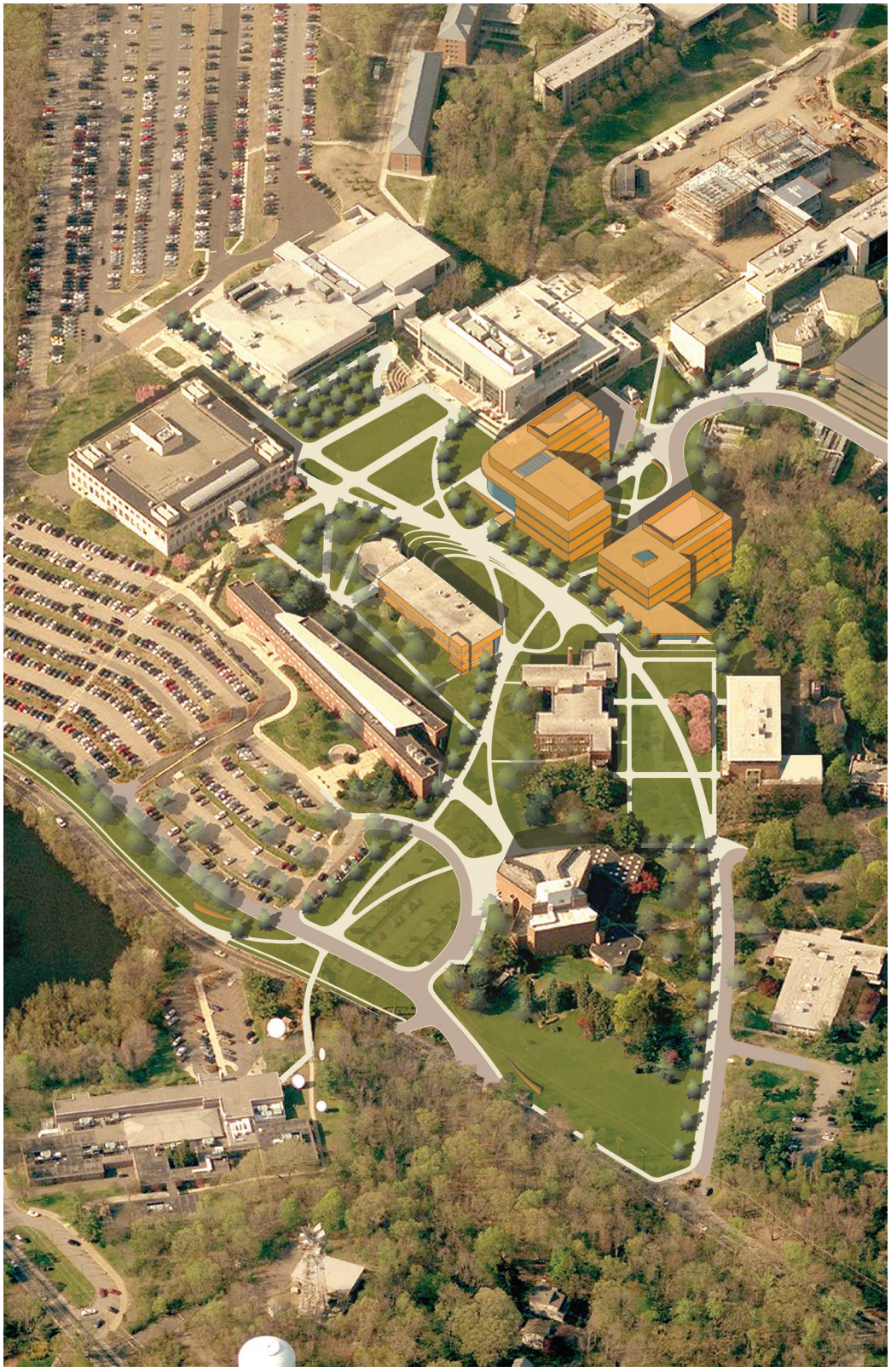
The resulting major moves include:

- Meet future needs of the Academic Zone within the Academic Zone
- Provide large increase in class lab space
- Provide more contemporary and right-sized classrooms
- Relocate natatorium, Child Development Center and Custodial Services outside of the Academic Zone
- Demolish the Coach House and Wightman Gym
- Build at Coach House site as first move
- Renovate Hunziker Wing as second move
- Create an integrated and safer circulation
- Activate open space
- Separate Hunziker Hall from Hunziker Wing
- Provide pedestrian route from new garage
- Maintain public access to Shea
- Extend open space to Pompton Road
- Extend open space to Coach House site
- Does not preclude any future building or landscape plans along Pompton Road

The Academic Zone Master Plan envisions an invigorated core that compliments recent investments in the University Commons by expanding opportunities for informal and social learning, as well as providing a wider array of active learning classrooms and class labs. These efforts are complimented by an integrated system of gently flowing walkways and distinctive open spaces that bolster the University's sense of place. Once realized, the Academic Zone will be a visual hive of social activity, intellectual investigation and cross-campus interaction—the heart of campus intellectual life.

9 RECOMMENDATIONS FOR BUILDINGS & OPEN SPACE

Graphic 9.1
Academic Zone Master Plan



Graphic 9.2
Aerial Image of Academic Zone Master Plan

9 RECOMMENDATIONS FOR BUILDINGS & OPEN SPACE

This plan will need to be coordinated with the results of the proposed 2013 campus-wide Facilities Master Plan. The distribution and oversight of informal learning, collaborative and learning commons space needs to be coordinated with the vision of the Library.

Additionally, the Academic Zone needs to be fully coordinated with the proposed new parking structure being built to the northeast of the Zone. This 1,000-space parking structure will meet a critical parking need for the University and provide significant capacity near the core of the campus, but it will also generate pedestrian traffic into the campus through routes not currently intended for such. Problematically, much of this pedestrian traffic will move through the existing truck service zone behind University Commons and up a steep hill into the Academic Zone. This conflict is addressed as part of two building projects (new academic buildings 1 and 2), unified by the new East Entry Court (which is between the new buildings), and through operational measures (reduction of the number of daytime service deliveries at the east side of University Commons).

Table 9.1
Existing and Recommended Space Distribution Across the Academic Zone

Building	2011 NASF	2011 GSF	Long-Term NASF	Long-Term GSF
Coach House	8,960	10,809	n/a	n/a
Hunziker Hall	18,154	25,667	18,000	25,000
Hunziker Hall Wing	31,954	49,403	24,000	37,050
Raubinger Hall	28,662	44,402	26,900	44,402
Shea Center	24,059	33,437	22,350	33,437
Wightman Gym	30,259	39,849	n/a	n/a
New Academic Bldg 1	n/a	n/a	50,925	84,000
New Academic Bldg 2	n/a	n/a	75,500	124,575
Totals	**142,048**	**203,567**	**217,675**	**348,464**
Long-Term Suggested Prog.			207,654	342,629
Difference from Suggested Program			**+10,021**	**+5,835**

COACH HOUSE

Recommended for Demolition

Due to the numerous issues raised in Section 5 (Existing Conditions) of this report, and despite the potential heritage aspect of this structure, the demolition of the Coach House is recommended. The cost to salvage and bring the Coach House to a state of good repair is estimated at approximately $2 million (see Appendix A2 for detail). This baseline includes efforts to control costs by removing the second floor to preclude the cost of an

elevator, or the introduction of two code-compliant means of fire egress. It also includes the demolition of all additions and reduction in the size of the Coach House from 10,809 gsf to approximately 2,800 gsf. The baseline also assumes that the renovation would involve significant investment in the existing building's foundation, structural system and exterior.

Heritage Considerations

The heritage considerations of the Coach House are examined in Section 3 (Academic Zone History & Development) of this report. Over time the Coach House has been dramatically altered and expanded, (and in Perkins Eastman's belief) rendering the building too altered to qualify for protection on the basis of architectural or physical heritage merit. And while the Coach House and Hobart Manor are the last remaining parts of the original larger farm (known as the Ailsa Farm and later the Hobart Estate), that context has been all but generally erased with the growth of the University, and specifically erased with the location of Raubinger Hall between the two buildings.

Furthermore, outside of age and materiality, what remains of the original building is believed to have little architectural or historic merit.

Despite this report's recommendation for demolition, the appeal of the Coach House to some segments of the University's community and alumni offers valuable lessons for the future of the Academic Zone and the University's physical development. Per Section 7 (Campus Planning) of this report, it is important that future architects working on the campus are attentive to issues of scale and physical character, as well as the desired connection to and activation of adjacent open space. While aesthetics are always subjective, the qualitative and anecdotal conversations and interviews leading to the preparation of this report suggest that future buildings need to balance the sometimes conflicting desires for:

- Human-scaled buildings (as opposed to the large-boxy structures in the campus core)
- Buildings that visually reinforce the University's image as a serious institution (a desire that usually pushes for larger and more imposing buildings)
- More stone and brick and less concrete and glass

Site Re-use Considerations

As of the end of 2011 much of the Coach House was inactive and available for use as surge space. The University should avoid making any undue investments in the facility. Upon demolition, any future use will need to negotiate the sloped site and the "back-of-house" service feel of the north-east side of the site. According to maps provided by the University, no significant infrastructure is impacted by the demolition of the Coach House.

9 RECOMMENDATIONS FOR BUILDINGS & OPEN SPACE

Project Sequencing Considerations

As the Coach House is largely vacant, with significant needs and the University looking for a "shovel-ready" capital project should the state's 2012 university bond referendum pass, the demolition and replacement of the Coach House is the highest priority project and should be the first move of the Academic Zone Master Plan.

HUNZIKER HALL

Recommended for Extensive Interior Renovation and Exterior Preservation

Hunziker Hall is the first University purpose-built structure at William Paterson and Section 3 (Academic Zone History & Development) details this building's architectural merits. Yet the building also has considerable challenges, including the replacement of its windows, most of the building's systems and an awkward connection to Hunziker Hall Wing.

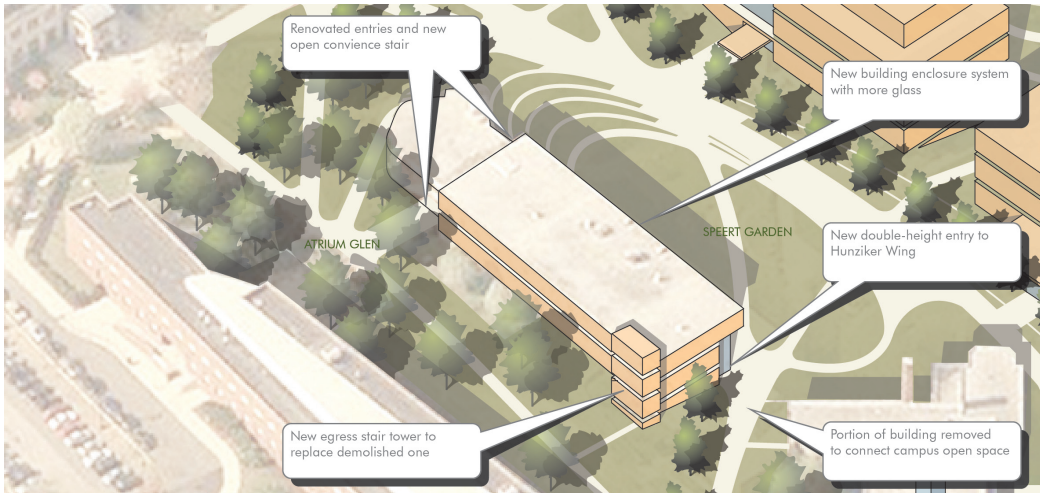
To address these concerns, a full interior demolition and fit-out is recommended. This would achieve the following:

- Introduce contemporary building systems and upgrade existing ones to LEED Gold performance standards
- Reorganize interior circulation and aesthetics to accommodate informal learning and collaboration space (and not appear like a primary school)
- Physically separate Hunziker Hall and Hunziker Hall Wing (with the strategic demolition of a portion of Hunziker Wing)
- Address support space deficiencies in the Hunziker Black Box Theater

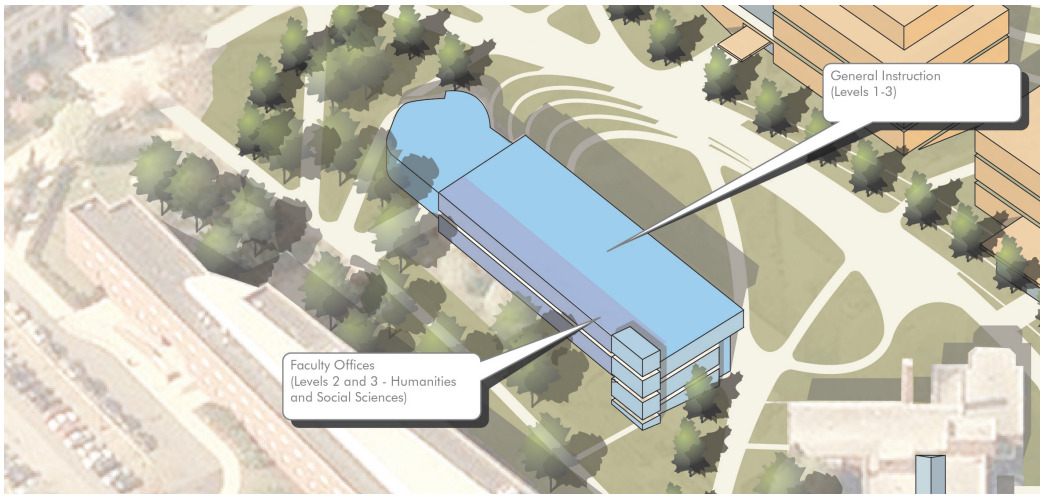
While this report does not determine where departments are located, it would be reasonable to use a renovated Hunziker Hall for general instruction space and/or expanded music and theater instruction/activities.

Programming and aesthetic considerations:

- If Hunziker Hall is to be a stand-alone building, it would befit its central location to be easily accessible from all sides—not just the original front/east side of the building; this would include a more significant entrance where the building currently meets Hunziker Hall Wing.
- Per Section 7's (Campus Planning) approach to connective space, the introduction of a multi-story atrium would serve to unify the building and provide a focal point for social interaction. This space could feature a skylight, a connector stair and several types of collaborative space. Additionally, this space would only connect



Graphic 9.3
Hunziker Hall Wing
Massing Notes



Graphic 9.4
Hunziker Hall Wing
Programming Notes

the main and upper levels of the building, and should not require expensive smoke exhaust systems found in taller atrium spaces.

- It is possible to leverage the materiality of Hunziker's brick exterior and structural system to achieve a "loft-style" interior aesthetic with exposed columns and high ceiling spaces. This would create a unique space on campus, and the only opportunity to add such a space "authentically" (considering the recommended demolition of the Coach House).

Building system considerations:

Hunziker Hall's basement steam plant also supports Hunziker Wing. Consideration needs to be given to whether the two buildings should remain mechanically linked, or be made stand-alone (current University policy). If the two buildings are made stand-alone, then the existing systems in Hunziker Hall (some of which are recent investments and can be

salvaged) would be oversized for their service needs. All existing distribution and collection systems need to be replaced.

Heritage Considerations

Per Section 3 (Academic Zone History & Development), the brick exterior has value and should be preserved as Hunziker Hall is a relatively unadulterated piece of period architecture that does not detract from the University's image or impede the building's current or potential function.

The interior of Hunziker Hall and its design (intended to resemble a primary school given its original function as a normal school class lab environment) is of no merit beyond historic curiosity. These interior environments detract from the efficiency, efficacy and attractiveness of the building. It is the opinion of this report that they do not merit preservation. It is also the understanding of this report that the University is not compelled to confer with NJDEP's Historic Preservation Office [HPO] prior to any building alteration.

Project Sequencing Considerations

Hunziker Hall currently houses a significant amount of general instruction and music classrooms, as well as the Hunziker Black Box Theater. The University cannot afford to have any significant amount of general instruction or music space taken off-line, so either alternative permanent or surge space will need to be provided.

HUNZIKER HALL WING

Recommended for Extensive Interior and Exterior Renovation

This heavy classroom and class lab building's structural system is in good condition, but almost everything else needs significant attention. Additionally, the enclosure system of the building is unloved and significantly undermines any possibility for a relationship between the Wing and Speert Garden.

To address these concerns, a full interior demolition and fit-out, as well as a complete building exterior replacement is recommended. This would accomplish:

- Introduction of contemporary building systems and upgrade of existing ones to LEED Gold performance standards (the building is without centralized HVAC)
- Reorganization of interior circulation and aesthetics to accommodate informal learning and collaboration space

- Improvement of natural light penetration into interior environments
- Physical separation of Hunziker Hall and Hunziker Hall Wing (with the strategic demolition of a portion of Hunziker Wing)
- Addition of a building entrance from Speert Garden

While this report does not determine where departments are located, it would be reasonable to use a renovated Hunziker Hall Wing for general instruction space and/or class lab environments that support programs and relationships with Atrium Hall.

Programming and aesthetic considerations:

- As part of separating and introducing open space between the Hunzikers, a portion of Hunziker Wing will need to be demolished. This involves:
  - Demolition of the current Child Development Center and greenhouse
  - Demolition of the southern-most 3-story structural bay (including an egress stair)
  - Construction of a new entrance at the southern end of the building that fronts a new walkway and Speert Garden
  - Construction of a new egress stair
  - Partial or complete replacement of the enclosure system to dramatically improve thermal and energy efficiency
  - Reducing Hunziker Wing's GSF and NASF capacity
- Hunziker Wing is the hub of the University's telecommunications infrastructure and any major investment in the building should examine the long-term value of maintaining this situation. If the University opts to maintain the building as its telecommunications hub, appropriate measures should be taken to ensure long-term system serviceability and redundancy.
- The old loading dock facing Wightman Gym should be replaced with a new secondary entry to/from Speert Garden.
- Spaces on the lower level and facing out to Speert Garden should allow visual and physical access to the Garden.

Table 9.2
Hunziker Hall Wing
Programming

Department	2011 Inventory	2011 Location	Long-Term Acad. Zone Program	Proposed Hun. Wing Program
Collaboration	n/a	n/a	13,950	3,000
General Instruction	33,504	n/a	53,991	12,000
Faculty Offices	n/a	n/a	7,708	7,850
Total NASF				**22,850**
w/Service Factor (NASF x 1.05)				24,000
w/Grossing Factor (Above x 1.65)				**37,050**

9 RECOMMENDATIONS FOR BUILDINGS & OPEN SPACE

Table 9.3
Hunziker Hall Wing
Building Capacity

Floor Level	NASF Capacity	GSF
3	10,250	13,250
2 (Entry at Atrium Glen)	9,750	13,250
1 (Entry at Speert)	4,000	10,550
Totals	**24,000**	**37,050**

Building system considerations:
Hunziker Wing's mechanical systems are supported by Hunziker Hall. Consideration needs to be given to whether the two buildings should remain mechanically linked, or be made stand-alone (current University policy). If they remain linked, a connecting trench will need to be included as part of this project. If the two buildings are made stand-alone, a new mechanical location will need to be identified within Hunziker Wing. The likely ground floor location will compete with the existing and continuing location for the campus telecommunications hub. All existing distribution and collection systems need to be replaced. Floor-to-floor heights will also be a constraining factor for HVAC.

Project Sequencing Considerations

Given pressing need to address class lab deficiencies, relocation of departments currently in Hunziker Wing is a high priority. With the high cost of nursing labs, it is recommended that a permanent alternative is provided as opposed to surge space. This would be accomplished with the construction of the New Academic Building 1, slated as the first move of the Academic Zone Master Plan.

Additionally, the building system relationship between Hunziker Hall and Wing impacts which project goes first. If the two are to be made stand-alone, then the Wing should go first and the Hall's systems can be replaced with small equipment. If the two remain linked then the Hall's equipment will need to be able to support the expanded services of both.

RAUBINGER HALL

Recommended for Interior Renovation

This building is one of the major instructional workhorses of the University, housing a number of classrooms, faculty and administrative offices. Raubinger is also home to the Academic Support Center. While this report does not determine where departments are located, it would be reasonable to maintain Raubinger Hall for general instruction space and faculty offices.

Programming and aesthetic considerations:

- The University may want to look for alternative locations within the Academic Zone for the Academic Support Center and the Provost's offices. The Wightman Gym site may be an ideal location for both of these departments.
- The through-hallway on the first/ground level is currently blocked by the Provost's office—it should be re-opened.
- Group study/collaboration space should be added to each of Raubinger's floors.
- Faculty offices should be better distributed across each of Raubinger's floors. The fourth (top) floor should remain primarily offices as the elevators cannot handle heavy pulse circulation generated by classes.

Building system considerations:
Some small sections of Raubinger have been upgraded and consideration needs to be given on whether any of these (i.e. the sprinkler system in the Provost's office) can be incorporated into new systems, replaced or maintained separately.

Project Sequencing Considerations

This building is in the best condition of all six relative to physical and programming considerations. As such, investment in this building is a lower priority than some of the other recommended initiatives. The University should aim to accomplish a building-wide renovation, but may opt to achieve this through a series of incremental efforts and summer work projects that maintain the serviceability of Raubinger.

SHEA CENTER FOR PERFORMING ARTS

Recommended for Interior Renovation

The Shea Center for Performing Arts is one of the most public "facing" buildings on campus, except that it does not actually face the public but rather turns its side towards Pompton Road. While evaluation of the auditorium component of Shea was beyond the scope of this study, it is clear that Shea needs better public access and visibility along Pompton Road.

The building is also in need of significant improvements related to its mechanical systems (on-going investment in the lower-level recital halls helps, but those rooms are being designed to be supported by stand-alone mechanical systems). The multi-level design of the lower-level also complicates how that floor is used.

Programming and aesthetic considerations:

- The music department and theater program's long-term suggested program cannot be met in Shea and will need additional space somewhere within the Academic Zone.
- The lower-level of Shea is difficult to reuse and should be oriented towards support and back-of-house functions as much as it financially feasible.
- The student entry on the north side of the building should be improved. This entrance also serves as the recital halls' public entry.

Building system considerations:
Any investment in Shea's mechanical systems should be coordinated with renovations to the Auditorium and the significant needs that accompany performance spaces.

Project Sequencing Considerations

While this building has a high degree of need, any investment in the academic spaces should be coordinated with renovations and upgrades to the Auditorium. From a programmatic standpoint, it may be preferable to address departmental needs in a less complicated building.

WIGHTMAN GYM

Recommended for Demolition

Due to the numerous issues raised in Section 5 (Existing Conditions) of this report, including structural concerns, the demolition of Wightman Gym is recommended. The cost to salvage and bring the building to a state of good repair is estimated at over $10 million. Such a sizable investment would only yield a building that was a poor host for any activity except athletic and recreation, which are located elsewhere and not in need on campus.

Heritage Considerations

Wightman Gym does not merit preservation for historic or design reasons. It is also the understanding of this report that the University is not compelled to confer with NJDEP's Historic Preservation Office [HPO] prior to any building alteration.

Site Re-use Considerations

The University should avoid making any undue investments in this facility; however, the building must remain functional until Kinesiology and the pool can be relocated. Due to the specifics of these space requirements, these departments are difficult to relocate unless there are purpose-built facilities available. Upon demolition, any future use will need to negotiate the sloped site and the "back-of-house" service feel of the northeast side of the site. As this site abuts the service court of University Commons, the area is used by large trucks requiring a wide-radius three-point turn.

No significant infrastructure is impacted by the demolition of Wightman Gym.

PROPOSED ACADEMIC BUILDING 1 (COACH HOUSE SITE)

Proposed Programming and Sequencing

This report proposes two new academic buildings to meet long-term suggested departmental programs. Per the reasoning presented earlier in this section for the demolition of the Coach House, it is possible for William Paterson to begin to address needs through new construction without significantly displacing existing groups, or sacrificing efficient and productive building area. However, to maximize this opportunity, this critical first move must also allow for the beginning of a series of steps that lead to providing short-term general instruction surge space, effective renovations, the replacement of Wightman Gym, and the minimal number of departmental moves.

Programming and aesthetic considerations:
The suggested program mix for the Coach House site provides general instruction space, a new suite of departmental space for the Health Sciences (Communication Disorders, Community Health, Kinesiology, and Nursing), as well as space for food service. Portions of Kinesiology's long-term suggested space in Academic 1 will function as short-term general instruction surge space (since the department will still have use of space in Wightman Gym until that building is demolished).

9 RECOMMENDATIONS FOR BUILDINGS & OPEN SPACE

Table 9.4
Academic 1
Programming

Department	2011 Inventory	2011 Location	Long-Term Acad. Zone Program	Proposed Acad 1 Program
Communication Disorders	4,685	Hun. Wing	6,550	6,550
Community Health	1,336	Hun. Wing	1,670	1,670
Food Service	n/a	n/a	4,185	2,815
General Instruction	33,504	n/a	53,991	5,000
Kinesiology	7,623	Wightman	17,160	17,160
Nursing	7,870	Hun. Wing	14,805	14,805
Total NASF				**48,000**
w/Service Factor (NASF x 1.05)				50,400
w/Grossing Factor (Above x 1.65)				**83,160**

Table 9.5
Academic 1
Building Capacity

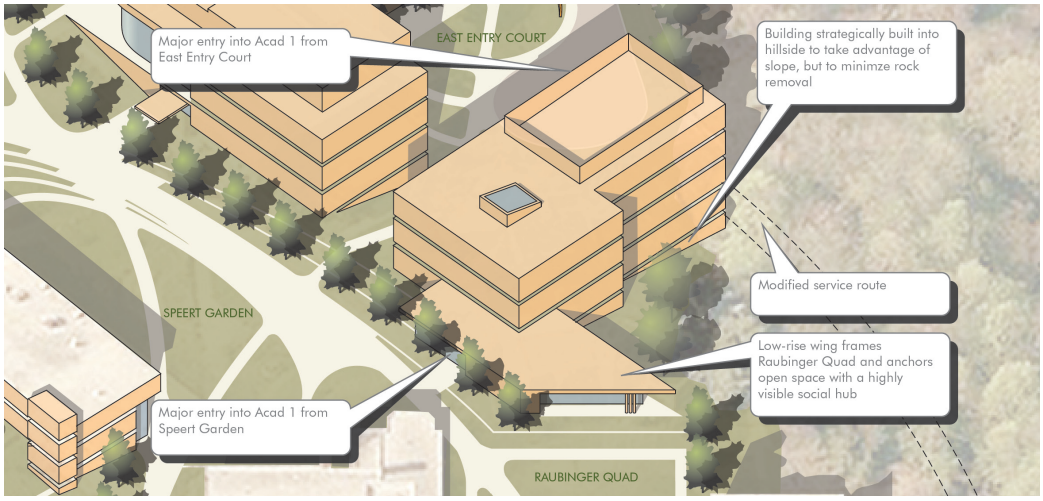
Floor Level	NASF Capacity	GSF
5	9,400	15,500
4	9,400	15,500
3 (Entry at Speert/Raubinger)	12,425	20,500
2	12,425	20,500
1 (Entry at East Gate)	7,275	12,000
Totals	**50,925**	**84,000**

Building System Considerations:
The University should pursue LEED Gold building performance specifications. Per University policy, all new buildings are to be on stand-alone systems.

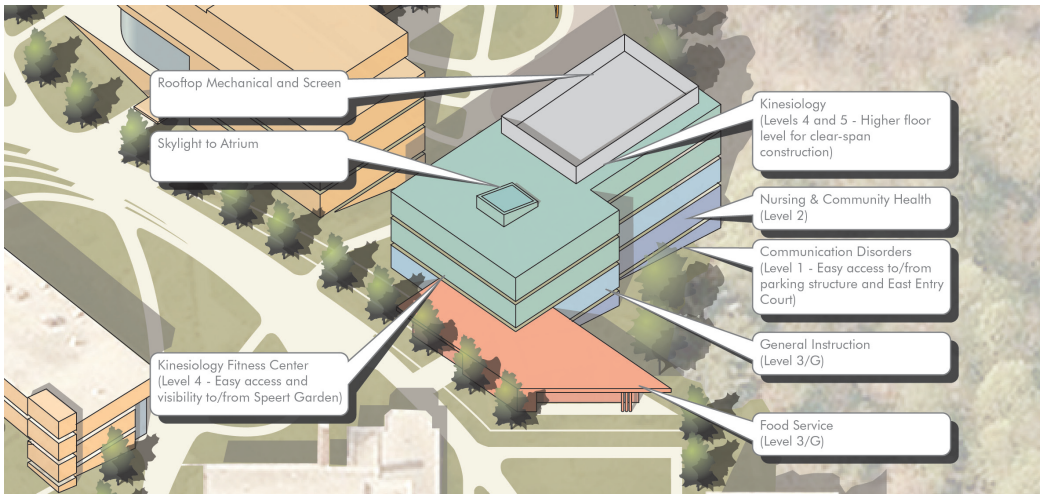
Massing and Architectural Considerations

Given the pivot-like location of the Coach House site (campus geometries shift between Speert Garden and Raubinger Quad), the massing of Academic Building 1 needs to accomplish several goals:

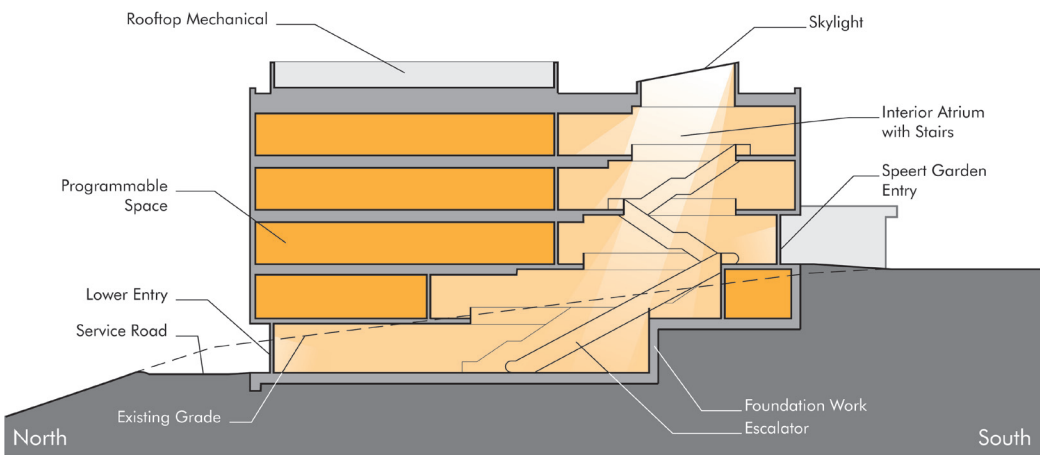
- Provide a transitional building size that is larger than the size of buildings facing Raubinger Quad, but not as large as University Commons.
- Establish a "street wall" of building face/mass that balances Hunziker Wing and frames Speert Garden.
- Set-back building mass from Raubinger Quad; the Coach House site is higher than either Hunziker Hall or Raubinger and the new building should not overwhelm.
- To achieve the volume of program desired by the University for this first move, the building will need to be five levels and nestled into the hillside.



Graphic 9.5
New Academic Building 1
(Coach House Site)
Massing Notes



Graphic 9.6
New Academic Building 1
(Coach House Site)
Programming Notes



Graphic 9.7
New Academic Building 1
(Coach House Site)
Building Section

- Provide large and visually accessible entrances from Speert Garden, Raubinger Quad and East Entry (this may need to include escalators from the East Entry level to that of Speert Garden).
- Provide a highly-active programmed space (food service) at Raubinger Quad.
- The northeast corner of the new building's footprint will impact service access to the back of Raubinger Hall and the Hobart Manor; the drive may need to be relocated, which may prove challenging due to sloped terrain.
- The East Entry façade should be as much a "front door" as that of Speert Garden or Raubinger Quad.

Project Sequencing Considerations

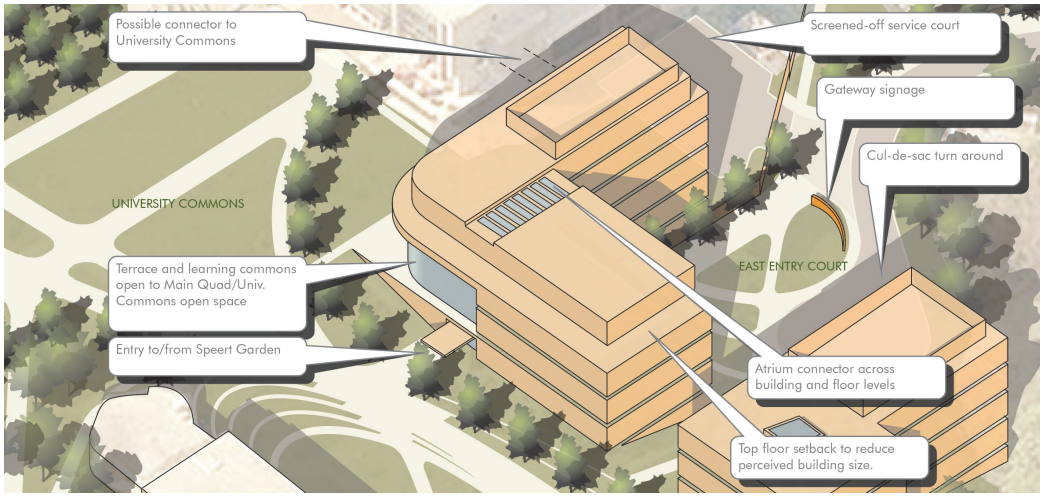
Per the recommendations for the Coach House, redevelopment of this site is the highest priority and should be the first move of the Academic Zone Master Plan.

PROPOSED ACADEMIC BUILDING 2 (WIGHTMAN GYM SITE)

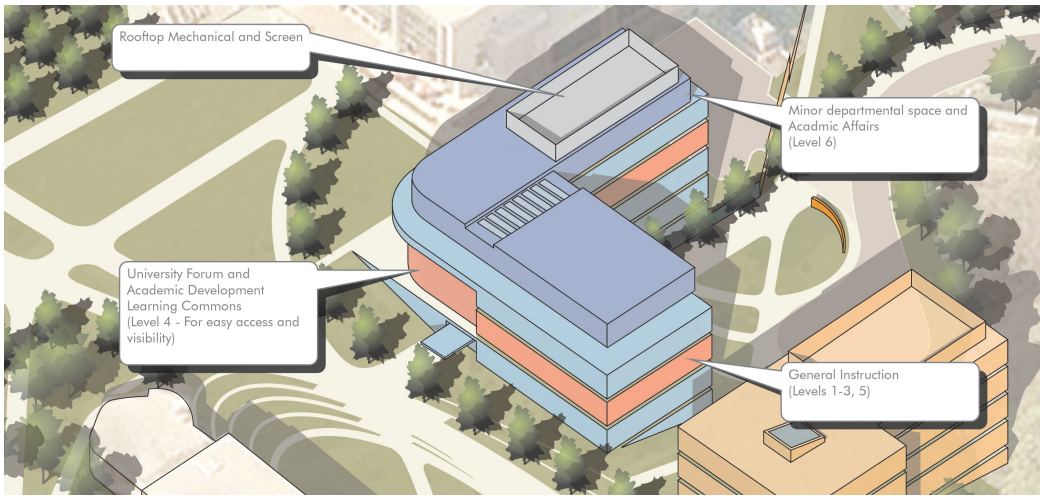
This is the second and largest new academic building proposed to meet the long-term suggested departmental programs. With the construction of Academic 1 and the relocation of the pool, the University can create in Academic 2 a pivotal and dramatic statement that fronts the campus' main open space. To maximize this opportunity, the building must both extend the University Commons into the Academic Zone (creating a fertile overlap) and present a front door to pedestrians coming from the new parking garage.

Programming and Aesthetic Considerations:
The suggested program mix for Academic 2 provides a significant amount of general instruction space, an expanded Academic Support & Development Center, Academic Affairs offices, collaboration space and minor space for food service. The building also has additional space for various academic departments and could be a possible location for a new black box theater and meeting/events space. The design of Academic 2's general instruction space may want to consider providing a series of case-method seminar classrooms in the range of 35–45 seats, as well as one larger case-method classroom of 85 seats (if this larger room is not provided for in Academic 1).

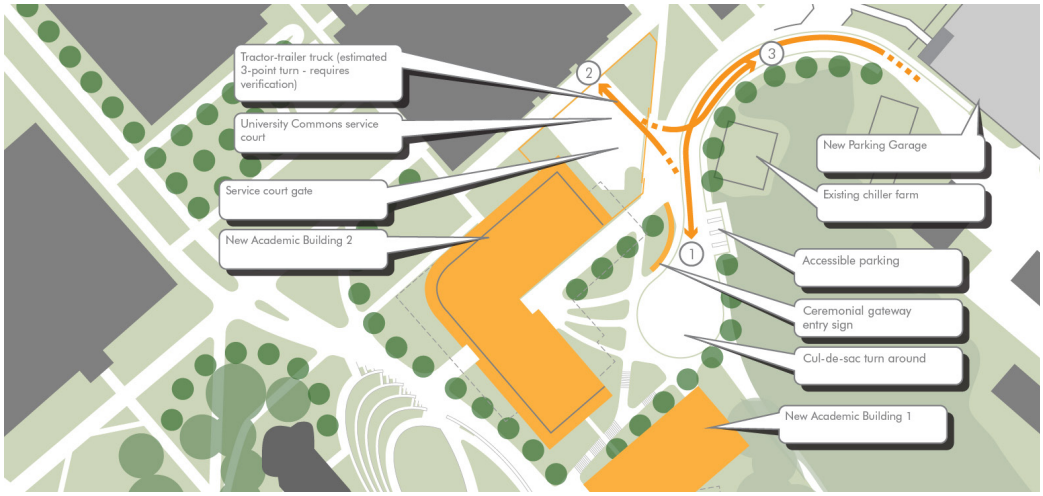
Building System Considerations:
The University should pursue LEED Gold building performance specifications. Per University policy, all new buildings are to be on stand-alone systems. Academic 2 is also a tall building for the University with entrances on three different levels. Consideration needs to be given to vertical transportation in order to maximize students using stairs, and minimize maintenance burdens on elevators and escalators.



Graphic 9.8
New Academic Building 2
(Wightman Gym Site)
Massing Notes



Graphic 9.9
New Academic Building 2
(Wightman Gym Site)
Programming Notes



Graphic 9.10
New Academic Building 2
(Wightman Gym Site)
University Commons Service Court Access Diagram

9 RECOMMENDATIONS FOR BUILDINGS & OPEN SPACE

Massing and Architectural Considerations

Given the corner location of the Wightman Gym site (between Speert Garden and the Main Quad), the massing of Academic Building 2 needs to accomplish several goals:

- Mitigate building size; Academic 2 is a large building and of a similar scale as University Commons, but its massing should be designed to not overwhelm existing buildings or open space.
- Establish a "street wall" of building face/mass that balances Hunziker Wing, Academic 1 and frames Speert Garden; break the Speert façade into two portions and set back the uppermost floor to be in keeping with Speert Garden's scale.
- Conversely, Academic 2 has no massing constraints on the East Entry Court façade and can have a suitably impressive massing.
- To achieve the volume of program desired by the University, the building will need to be six levels and nestled into the hillside.
- Provide large and visually accessible entrances from the Main Quad, Speert Garden and the East Entry Court (this may need to include escalators from the East Entry level to that of Speert Garden).
- Provide a highly active and visible learning commons on the Main Quad/Speert Garden corner.
- Since the northeast façade of the building abuts University Commons service court, care needs to be given to mitigate pedestrian, vehicular and service conflicts and allow for greater flexibility in the design of the East Entry Court.
- The East Entry Court façade should be as much a "front door" as that of the Main Quad or Speert Garden.

Table 9.6
Academic 2
(Wightman Gym Site)
Programming

Department	2011 Inventory	2011 Location	Long-Term Acad. Zone Program	Proposed Acad 2 Program
Academic Support (& Dev.)	5,283	Wing/Raub	12,983	12,983
Collaboration	n/a	n/a	13,950	6,450
General Instruction	33,504	n/a	53,991	38,025
Provost/Academic Affairs	4,988	Raub	5,487	5,487
Other Departmental	n/a	n/a	n/a	8,963
Total NASF				71,908
w/Service Factor (NASF x 1.05)				
w/Grossing Factor (Above x 1.65)				

Floor Level	NASF Capacity	GSF
6	11,075	18,000
5	13,500	22,000
4 (Entry from Univ. Commons)	11,075	18,000
3 (Entry at Speert Garden)	15,000	25,000
2	15,000	25,000
1 (Entry at East Entry Court)	9,850	16,575
Totals	**75,500**	**124,575**

Table 9.7
Academic 2
(Wightman Gym Site)
Building Capacity

Project Sequencing Considerations

This project cannot go forward until Wightman Gym can be demolished, which will require the relocation of both Kinesiology and the Natatorium. This project remains a priority if the University meets its enrollment targets, less so if it does not, or if the University shifts curriculum delivery and reduces need for general instruction space (i.e. this could be accomplished through greater on-line and hybrid course delivery).

PROPOSED CAPITAL INVESTMENTS OUTSIDE THE ACADEMIC ZONE—NATATORIUM

As part of the recommended demolition of Wightman Gym, the University determined that an on-campus pool was desirable for both the campus and the broader community, and that a pool would need to be provided without interruption. This study does not recommend where the replacement pool should be located, but an addition to the Recreation Center is an obvious consideration.

The Academic Zone Master Plan also does not recommend a size or cost for the replacement natatorium. Natatoriums can offer a wide array of features, including varied competitive pool lengths, diving wells, audience stands, varsity and recreation locker rooms, etc. The University should conduct a programming study to determine what is appropriate going into the future.

POSSIBLE CAPITAL INVESTMENTS OUTSIDE THE ACADEMIC ZONE—LOTS 3/4

It is possible that the proposed 2012/2013 Campus-wide Facilities Master Plan will result in the need for even greater increases in the facilities portfolio. Through the process of generating the Academic Zone, one possible building site stood out for its potential for visual impact: the Pompton Road frontage of Lots 3 and 4.

9 RECOMMENDATIONS FOR BUILDINGS & OPEN SPACE

Due to the existing condition needs of the buildings in the Academic Zone, the entire long-term suggested program was met within the Zone. This was in part because the University determined that if something was to be built on Pompton, it should be significant in scale. Investing in both the Academic Zone and Lots 3 and 4 would stretch the facilities investment (from a square footage standpoint) too thinly.

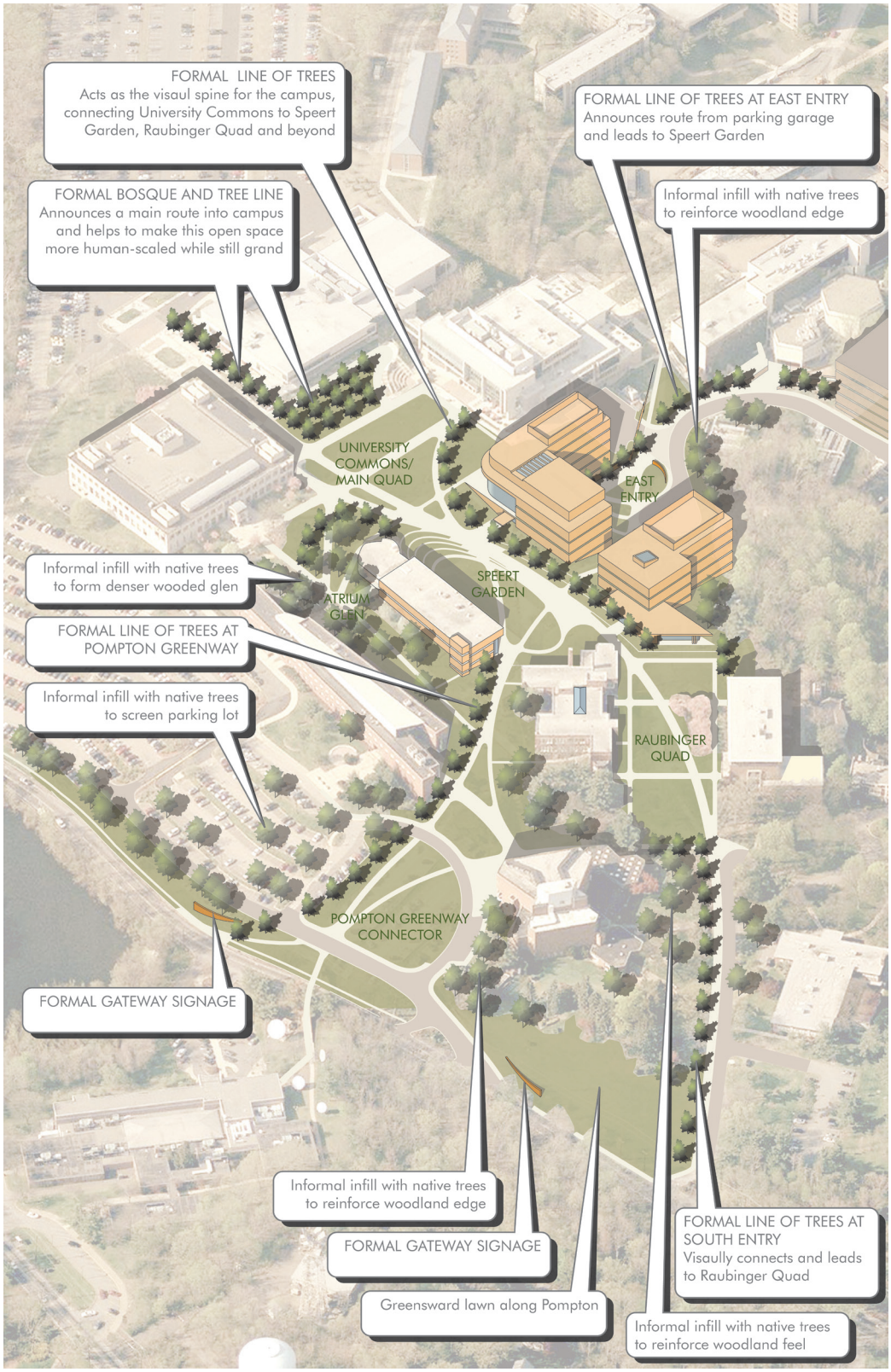
However, if a building is proposed along Pompton Road, the following should be considered:

- The building(s) should be significant in programmed size and not located simply for visual or aesthetic impact; they should generate foot traffic.
- William Paterson could use an 'iconic' building that acts as the University's visual/physical identity. If such a building had a vertical component (such as a landmark tower) it would be visible from Interstate 80 as it passes through Paterson (the University's only vertical icon is the watertower).
- The wall of Atrium facing Pompton Road is unfortunate and unloved. A new building could either address this or create a counter point (Atrium was intended to be the first part of three facades that would create a grand fore-court along Pompton Road—a campus planning idea that still has some merit if the facilities need exists).
- The University's main physical axis that runs from Ben Shahn through the Commons and past the Library should be extended, though any new building should sit adjacent to this axis or perhaps present a gateway.
- If a building seeks to create a gateway, a portal to Lots 3 and 4 is not an adequate or responsible move as the space between the Library and Atrium Hall is not an actual gateway for students who mainly arrive by car. This building needs to generate foot traffic and be more than simply symbolic.

GENERAL LANDSCAPE RECOMMENDATIONS

Landscape should be an integral part of the proposed 2012/2013 Campus-wide Facilities Master Plan. In particular, that plan should establish design guidelines for:

- Standardized walkway and driveway widths.
- Walkway and Driveway Surface Materials (Asphalt v Concrete and Unit Pavers):
  Asphalt should only be used to denote vehicular travel routes. Where possible, service routes should be surfaced with concrete walkways that are reinforced to support service and emergency vehicles, but which otherwise signal that they are used for pedestrian circulation.
- Standard Plantings:
  The Academic Zone Master Plan envisions strong and gently curving rows of conical trees and lighting that reinforces the path of walkways and contrasts to



Graphic 9.11
Tree Planting for Academic Zone Master Plan

the more informal woodlands. Areas of existing large-canopy trees would be reinforced (such as the proposed "Atrium Glen" between Atrium hall and Hunziker Hall Wing) and introduced, such as throughout Lot 3.

- Consistent lighting standards with contemporary lamp designs.
- Lighting fixtures that minimize light pollution.
- A campus-wide lighting scheme that is beautiful as well as functional, sustainable, energy efficient and highlights memorable architecture and evening activity.
- A strong campus way-finding system.
- New gateway signage that serves as campus branding on either side of the proposed Pompton Greenway Connector, as well as at the East Entry Court.

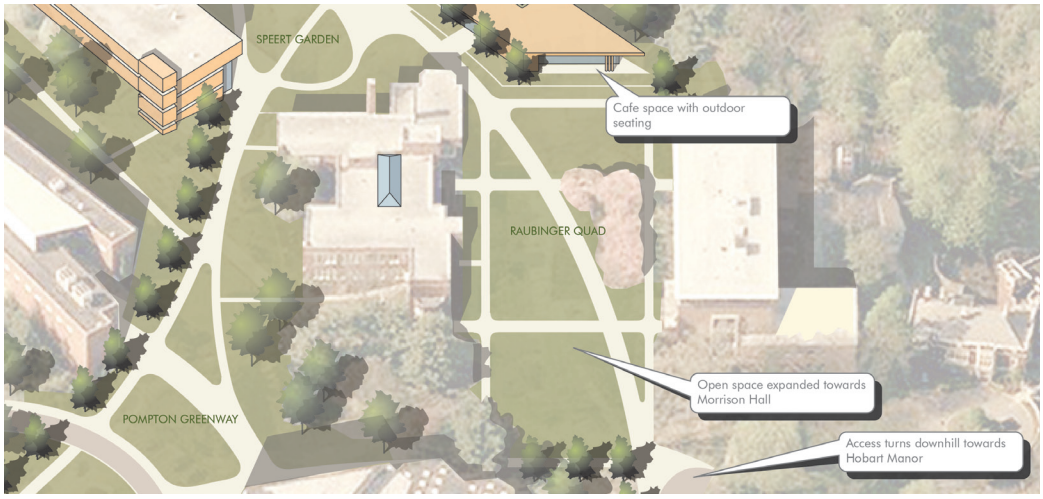
RAUBINGER QUAD

The space between Raubinger Hall and Hunziker Hall is currently an attractive area cherry trees. This open space, however, does not extend up to the Coach House or down towards Morrison Hall of the Shea Center. It is recommended that this space be formalized and extended in both directions, with efforts to preserve the existing and add new cherry trees. The Quad also features a large and gently curving walkway that connects the core of the campus through Speert Garden and down past Morrison Hall. This open space will not be a flat area, but work with the existing grade-change of approximately 12 feet.

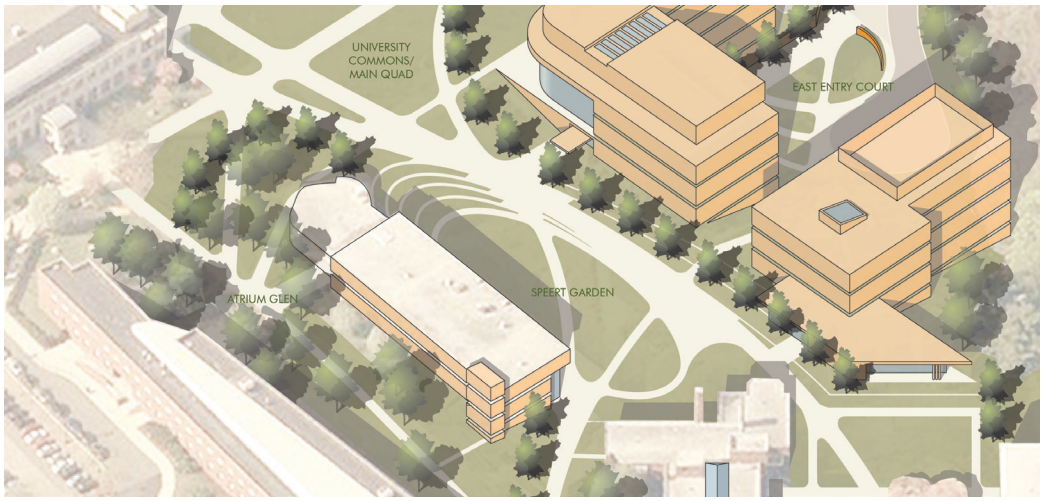
SPEERT GARDEN

The Academic Zone Master Plan envisions Speert Garden as a significant crossroads for both the Zone and the broader campus. However, achieving this aim is difficult because the space does not currently support cross-traffic. Therefore, the new design adds cross routes from between the newly opened up space between Hunziker Hall and Hunziker Wing, as well as between the new academic buildings. Both new academic buildings also have main entrances off of the Garden.

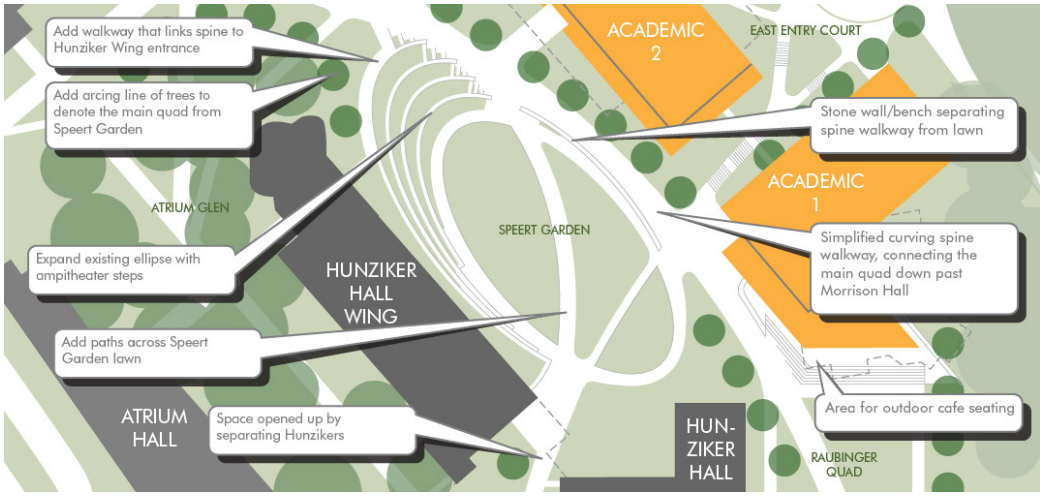
Additionally, the recently redesigned Garden features a central elliptical lawn. The new design builds upon that, and features a new amphitheater at the north end to mitigate the existing grade change, while activating the space. The existing walkway that connects the University Commons/Main Quad is rationalized as a wide-curving and ADA-compliant route that slopes down along the edge of the amphitheater and creates a gently curving route between the core of the campus all the way past Morrison Hall.



Graphic 9.12
Raubinger Quad



Graphic 9.13
Speert Garden



Graphic 9.14
Speert Garden

9 RECOMMENDATIONS FOR BUILDINGS & OPEN SPACE

Over the course of the implementation of the Academic Zone Master Plan, Speert Garden will be subject to extensive adjacent construction. It is anticipated that this project occur in conjunction with the construction and completion of the New Academic Building 2, the last project adjacent to the Garden.

PROPOSED EAST ENTRY COURT

With the construction of the new parking garage, a significant population of students, faculty and visitors will arrive on campus in an area that presently is a service court (and a already a shortcut between the Academic Zone and Science Hall). It is critical that the Academic Zone plan anticipate and adress this challenge.

The Academic Zone Master Plan recommends modifying the existing service roads behind Wightman Gym and the Coach House to end in an asphalt cul-de-sac that also provides a pick-up/drop-off point for the two new academic buildings. The Court will be framed by Academic 1 and 2, both of which will present relatively tall facades, and which will contrast with the existing woodlands.

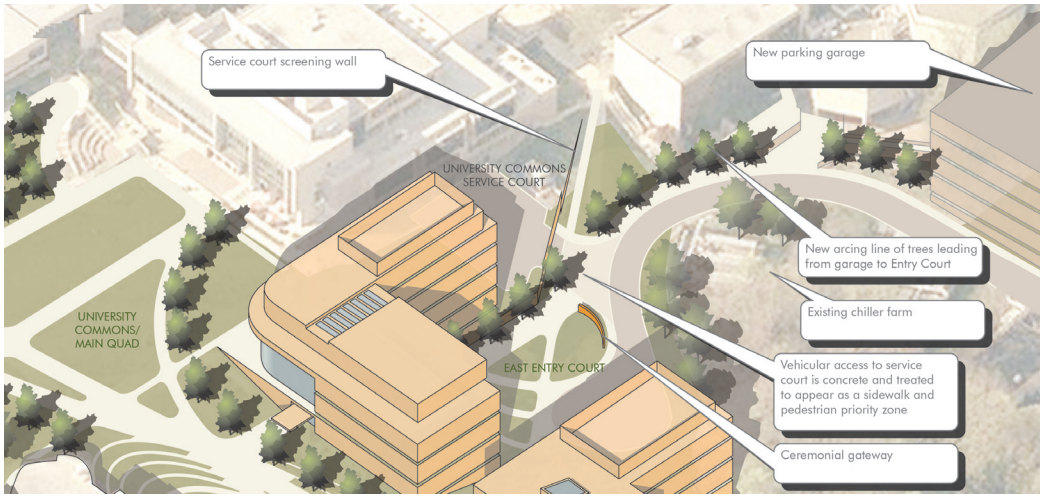
University Common's existing service court will be screened with a wall and gate that closes off the service area. A study will be required to minimize the impact of truck turn-arounds, with all surface treatment reinforcing that this is a pedestrian priority area. The University should also schedule deliveries to occur off-hours when pedestrian loads are lower, or to service University Commons from the Lot 5 side of the complex.

The current service road to the back of Raubinger and Hobart Manor will be maintained and modified with concrete surfacing.

PROPOSED POMPTON GREENWAY CONNECTOR

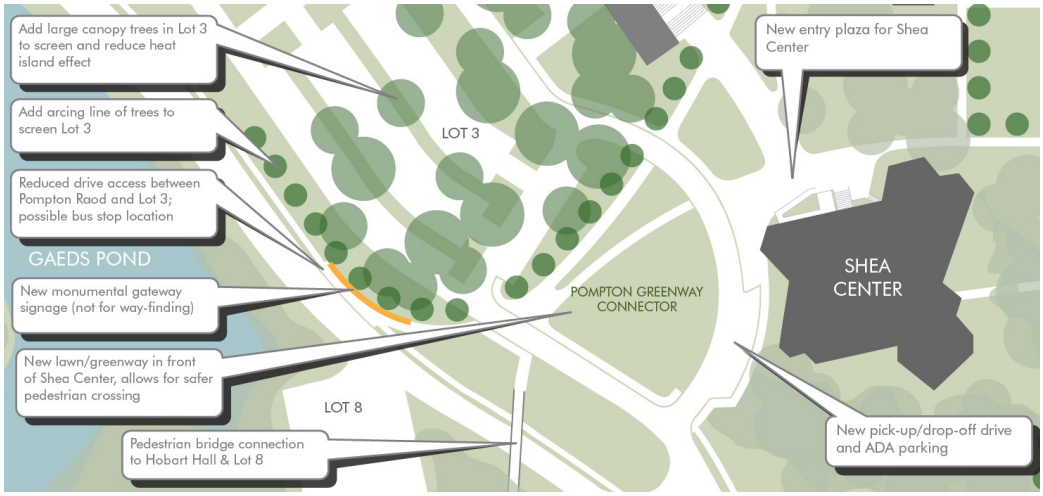
Per the earlier section "Possible Capital Investments Outside the Academic Zone—Lots 3/4" the Academic Zone addresses Pompton Road with green space as opposed to buildings. This initiative allows for:

- Improved pedestrian safety when traveling from Hobart Hall to the rest of the campus (pedestrians currently pass through Lot 3 on a striped walkway)
- Public vehicular access to the Shea Center
- Visibility of the Shea Center to Pompton Road
- ADA parking immediately adjacent to Shea Center
- There is only a modest loss of parking spaces as part of this project

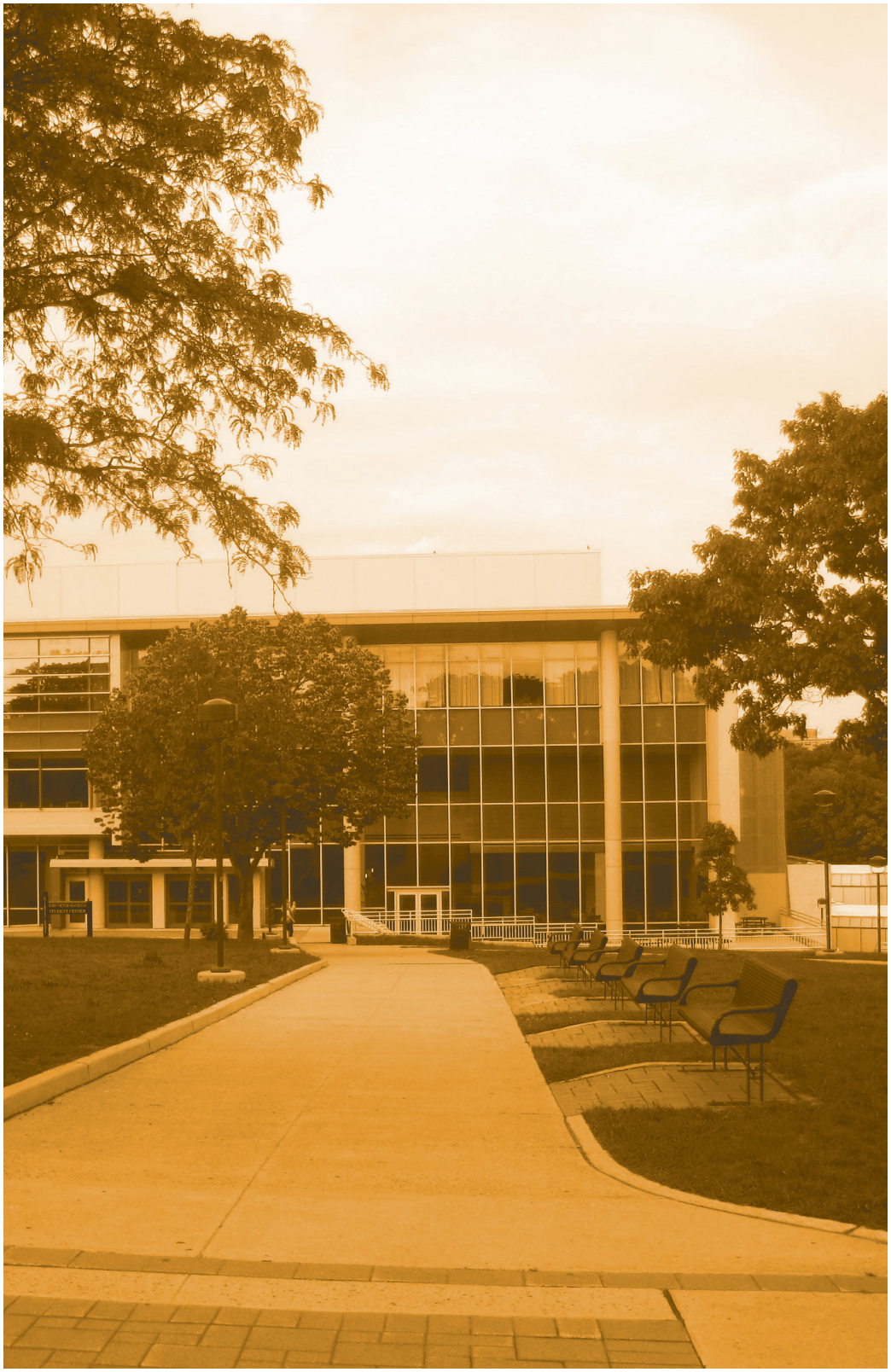


Graphic 9.15
East Entry Court

Graphic 9.16
Pompton Greenway Connector



Graphic 9.17
Pompton Greenway Connector



PRIORITIZATION, IMPLEMENTATION & COSTING 10

PRIORITIZATION

Per the previous section, the demolition of the Coach House and the construction of the New Academic Building 1 are the top priorities and first moves of the Academic Zone Master Plan. This move requires minimal surging because the Coach House is largely vacant.

It is also a priority to address class lab deficiencies before the deficit of general instruction space in order to keep various departments competitive. Provision for general instruction space happens in the middle of the plan and should be coordinated with needs that arise from the proposed 2012/2013 Campus-wide Facilities Master Plan.

Moves to address each of these priorities should allow for other buildings within the Academic Zone to come off-line for renovation/replacement, focusing first around Speert Garden and then around Raubinger Quad.

IMPLEMENTATION

Initiative 1—New Academic Building 1 (Coach House Site)

1a Assemble Project Funding
This may need to be closely coordinated with the proposed 2012 November Higher Education Capital Improvement Fund, as Academic 1 will need to be considered a "shovel-ready" initiative if this bond referendum passes.

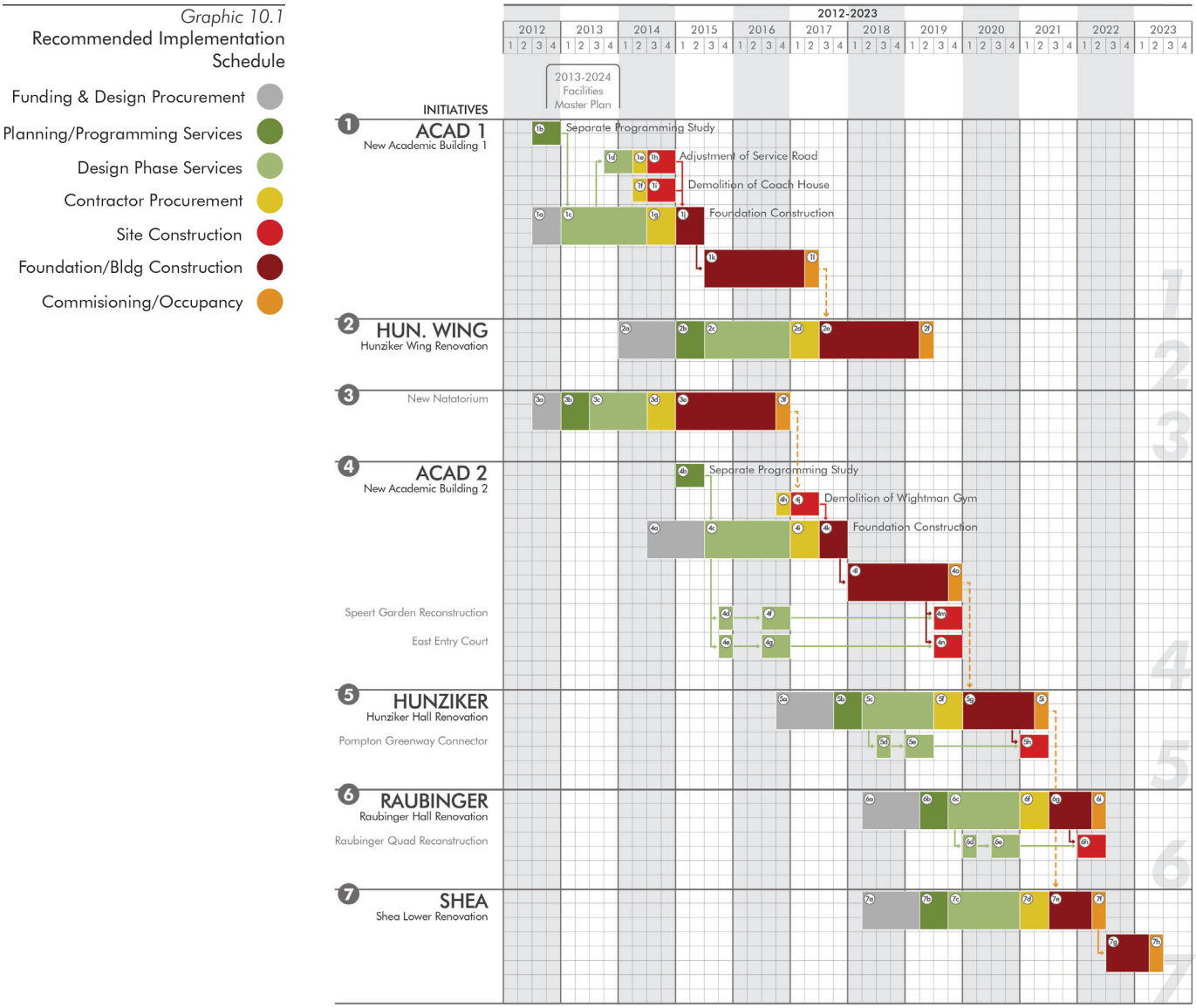
1b Procure and Conduct Building Programming Study (Separate from Design)
As part of item 1a, programming and concept design may need to be front loaded and concluded before November 2012. The resulting work could prove useful in promoting the referendum and generating support.

1c Procure and Conduct Building Design
There is extensive rock just below the soil all over the University's campus, and removal is costly, disruptive and time-consuming. Care should be given to minimize this. Attention should also be given to the movement of water through the soil and across the rock surface in heavy rain events in order to prevent basement flooding issues in any new or existing buildings.

1d Conduct Engineering Assessment and Design for Service Road Adjustment
Assessment of geotechnical conditions for the whole of the Coach House site would be useful at this time. There should also be a study for the new East Entry Court to determine the optimal way to maintain service to University Commons while re-orienting the service drive as a principal pedestrian gateway to the campus.

10 PRIORITIZATION, IMPLEMENTATION & COSTING

Graphic 10.1
Recommended Implementation Schedule



1e Procure Construction Services for Service Road Adjustment

1f Procure Demolition Services for Coach House

1g Procure Construction Services for New Academic Building

1h Construct Adjustments to Service Road

This should happen before construction of the new building to ensure service access to Raubinger and the back side of Hobart Manor.

1i Demolish Coach House

1j Excavate and Construct Foundation for New Building

1k Construct New Building

As part of the construction activity, the University should determine a communication

and branding approach to what will be a sustained period of construction in the heart of the campus.

1l Commission and Relocate Departments to New Building

Initiative 2—Hunziker Wing Renovation

2a Assemble Project Funding

2b Procure Design Services and Conduct Building Programming Study

2c Conduct Building Design
Consideration should be given to how the University envisions the organization of their tele/data system (Hunziker Wing being the campus entry point).

2d Procure Construction Services for Building Renovation

2e Renovate Building

2f Commission and Relocate Departments to Renovated Building

Initiative 3—New Natatorium (located outside of Academic Zone)

3a Assemble Project Funding

3b Procure Design Services and Conduct Building Programming Study
The location of the new Natatorium should be determined as part of the proposed 2012/2013 Campus-wide Facilities Master Plan, otherwise site selection should be part of the programming study.

3c Conduct Building Design

3d Procure Construction Services for New Building

3e Construct Building

3f Commission and Relocate Departments to New Building

Initiative 4—New Academic Building 2 (Wightman Gym Site)

4a Assemble Project Funding

4b Procure and Conduct Building Programming Study (separate from Design Services Contract)
Particular attention should be given to the physical, organization and operational structure of the proposed and expanded Academic Support (& Development) Center. If a 10-year visioning exercise has not been conducted for the Library, such a study would help to inform the Academic Support Center.

4c Procure and Conduct Building Design
There is extensive rock just below the soil all over the University's campus, and removal is costly, disruptive and time-consuming. Care should be given to minimize this. Attention should also be given to the movement of water through

the soil and across the rock surface in heavy rain in order to prevent basement flooding in any new or existing buildings.

4d Conduct Landscape Concept Design for Speert Garden Reconstruction
4e Conduct Landscape Concept Design for East Entry Court Construction
4f Conduct Documentation of Landscape Design for Speert Garden Reconstruction
4g Conduct Documentation of Landscape Design for East Entry Court Construction
4h Procure Demolition Services for Wightman Gym
4i Procure Construction Services for New Building
4j Demolish Wightman Gym
4k Excavate and Construct Foundation for New Building
4l Construct New Building
4m Reconstruct Speert Garden
4n Construct East Entry Court
4o Commission and Relocate Departments to New Building

Initiative 5—Hunziker Hall Renovation

5a Assemble Project Funding
5b Procure Design Services and Conduct Building Programming Study
5c Conduct Building Design
5d Conduct Landscape Concept Design for Pompton Greenway Construction
5e Conduct Documentation of Landscape Design for Pompton Greenway Construction
5f Procure Construction Services for Building Renovation
5g Renovate Building
5h Construct Pompton Greenway Connector
5i Commission and Relocate Departments to Renovated Building

Initiative 6—Raubinger Hall Renovation

6a Assemble Project Funding
6b Procure Design Services and Conduct Building Programming Study
6c Conduct Building Design
6d Conduct Landscape Concept Design for Raubinger Quad Construction
6e Conduct Documentation of Landscape Design for Raubinger Quad Construction
6f Procure Construction Services for Building Renovation
6g Renovate Building
6h Construct Raubinger Quad
6i Commission and Relocate Departments to Renovated Building

Initiative 7—Shea Center for the Performing Arts Renovation

7a Assemble Project Funding
7b Procure Design Services and Conduct Building Programming Study
7c Conduct Building Design
7d Procure Construction Services for Building Renovation
7e Renovate Phase 1 of Building
7f Commission and Relocate Departments to Phase 1 of Renovated Building
7g Renovate Phase 2 of Building
7h Commission and Relocate Departments to Phase 2 of Renovated Building

COSTING

The following are conceptual costs provided for order of magnitude pricing and prioritization. The costs of both new academic buildings could vary substantially based upon further sub-soil geotechnical examination and the desired amount of rock excavation (minimizing this is recommended). The partial demolition and re-cladding of Hunziker Wing is also subject to further structural examination to determine overall structural stability. Please see Appendix A2 for greater detail.

Building	Long-Term GSF	$/GSF[1]	Hard Costs[1]	Project Costs[1,2]	Escalated Costs[3]
Coach House Demo	n/a	$35	$0.4M	$0.5M	$0.6M
New Academic Bldg 1	84,000	$454	$38.1M	$51.5M	$57.2M
Hunziker Hall Wing	37,050	$333	$12.9M	$17.3M	$21.3M
New Natatorium	n/a	n/a	n/a	n/a	n/a
Wightman Gym Demo	n/a	$36	$1.5M	$2.0M	$2.5M
New Academic Bldg 2	124,575	$451	$56.1M	$75.8M	$93.5M
Speert Garden	70,000	$33	$2.3M	$3.1M	$4.4M
East Entry Court	37,500	$39	$1.4M	$2.0M	$2.8M
Hunziker Hall	25,000	$257	$5.0M	$6.7M	$8.9M
Pompton Greenway	100,000	$27	$2.7M	$3.6M	$5.1M
Raubinger Hall	44,402	$208	$9.2M	$12.4M	$17.6M
Raubinger Quad	45,000	$29	$1.3M	$1.8M	$2.5M
Shea Center	33,437	$265	$10.1M	$13.6M	$19.3M
Totals[4]			**$141.0M**	**$190.2M**	**$235.6M**

Table 10.1
Costing Summary

Note:
1 Costs are in 2012 dollars and not escalated.

2 Includes hard costs and 35% for soft costs (professional fees).

3 Project costs escalated to the mid-year of construction.

4 Totals may not sum due to rounding.

COACH HOUSE

Building Exterior

- The roof of this building needs to be replaced urgently. There are obvious signs of leakage on the interior of the building, including water stains and collapsed ceiling tiles.
- Windows need to be replaced.
- Exterior doors and frames need to be replaced.

Building Interior

- Interior spaces are largely lit with fluorescent fixtures, though lighting is not standardized.
- Interior wall conditions vary, but are generally in poor condition with damaged and degraded finishes. The upper level is aged and in extremely poor condition.
- Interior doors and frames need to be replaced.

Health, Safety & Accessibility

- The upper level of this building is not accessible, and the existing stair is not safe in an emergency.
- The basement level is not accessible from within the building.
- Though not required, the building should be made fully sprinklered.

Mechanical System

- The building is provided with a combination of central air conditioning and window air condition units. There are two rooftop units, DX air cooled, designed to provide constant air volume distribution to a portion of the building. One unit is not working, while the other is over 30 years old and in poor working condition. Some of the supply diffusers appear to be rusted and control devices like thermostats are either not working or have missing parts. Most window AC units have been removed for use elsewhere on campus, with the remaining units generally in poor working condition, rusted and sometimes missing filters.
- Perimeter heat is provided by baseboard fin tube radiators. While the heating system is working, the radiators are in poor conditions and control systems do not appear operational. Heating is provided by steam from the central plant located in Hunziker Wing. The connecting steam piping between the two buildings is leaking. Asbestos is present in the basement.

Electrical System

- The building has an electric service of 400A at 120/208V. The service originates from the facilities building where a meter is provided.

A1 BUILDING SYSTEMS ANALYSIS
COACH HOUSE

- There is one tap ahead of the service circuit breaker which serves the building fire alarm system. Once inside the building there is a 400A Main Circuit Breaker and a wiring trough/distribution board that serves branch circuit panels throughout the building.
- The building has a fire alarm system which was installed 10 years ago and meets code.
- There is no emergency generator and egress lighting is provided via battery packs.

Storm Drainage System

- The building's storm water drainage system consists of the main roof drains and storm leaders which drain by gravity to the campus storm sewer.
- All original building storm water piping shows significant signs of aging.

Sanitary Drainage System

- The building's sanitary drainage system consists of equipment drains, lavatories, water closets, urinals, floor drains and service sinks. The sanitary sewer drains by gravity via waste stacks. All the stacks are connected to a house sewer which exits the building and drains by gravity to the campus sanitary sewer system.
- All original building sanitary piping shows significant signs of aging.

Domestic Water Supply System

- The existing 3" water service was installed with a strainer and pressure-reducing valve.
- The hot water heater installed is an electric 50-gallon storage residential type heater. One hot water circulating pump was installed and has been refurbished or replaced over the years.
- All original building domestic water piping insulation contains asbestos.

Plumbing Fixtures

- The plumbing fixtures are from the original building. They appear old and not in compliance with ADA requirements and should be replaced.

Natural Gas System

- n/a

Fire Protection System

- There is no fire protection system in this building. It is not required per Uniform Construction Code NJAC 5:23."6. (Rehabilitation Subcode)

IT/Telecommunication System

- IDF Room #1—First Floor
  - The existing IDF room is located in a storage room that is in extremely poor condition. At the time of inspection lights did not work and the acoustical ceiling had collapsed. There is evidence of water leaking in the room and onto the rack.
  - This room currently supports the horizontal cabling for the first and second floors.
  - The room has a fiber connection to the Help Desk location on the first floor.
  - The IDF consist of (one) two-post rack.
  - The IDF is connected with only 62.5 multimode fiber backbone to the server room.
  - The majority of the horizontal cabling consists of Category 5 cable which does not meet today's standard that dictates CAT6 for Gigabit Ethernet bandwidth or CAT6A for 10G Ethernet bandwidth.
  - Horizontal cabling to the second floor may exceed distance limitations of 90 meters.
  - The IDF does not have proper cabling labels.
  - The IDF does not have proper vertical or horizontal wire management.
  - The IDF does not have any cooling.
  - The IDF does not have any telecommunications grounding.
- IDF room standards:
  - IDF rooms shall have proper service clearance in the front and rear of rack.
  - IDF rooms shall have racks that are properly grounded.
  - IDF rooms shall have proper horizontal and vertical wire management.
  - IDF rooms shall be backed up with UPS.
  - IDF rooms shall be supplied with cooling.
  - IDF rooms shall have single mode fiber installed from the Server Room. Single-mode fiber can achieve 10Gb/s bandwidth up to 2000m.
  - IDF racks shall have ladder racks installed above racks that are properly grounded.

Audio-Visual

- William Patterson University is currently in the process of implementing "Instruction Technology" to typical classrooms which includes:
  - 30" x 30" podium
  - Ceiling mounted or short throw projectors.
  - Motorized or manual 4:3 controlled projection screen.
  - VCR/ DVD.
  - Document camera.

- Media Link Controller.
- Laptop interface with LAN, VGA w/audio HDMI and composite inputs.
- Wireless Access point (located in podium).
- 8-port switch (used due to the lack of data ports at the podium location)

HUNZIKER HALL

Building Exterior

- The foundation of this building is in poor condition and needs to be repaired; leaking and flooding has occurred on the basement level through infiltration/ hydrostatic pressure and there are visible signs of water damage. Further study is required to determine the source, impact and required mitigating efforts. No visual evidence of a compromised foundation was observed.
- The roof of this building is nearing the end of its useful life and needs to be replaced within the next five years.
- Though double-paned glazing has been installed in many locations, all exterior windows need to be replaced. Many panes include integral blinds that are in disrepair, with poor or failed seals.
- The brick masonry of this build appears to be in adequate condition. However, consideration should be given to whether window flashing should be redone in conjunction with window replacement.
- A study should be conducted to determine the structural condition of the existing chimney stack.
- All exterior doors should be replaced.

Building Interior

- Interior stairwell doors need to be replaced throughout.
- Building interiors vary, with corridors generally in serviceable condition. The Hunziker Black Box Theater is in poor condition and is not fully accessible.

Health, Safety & Accessibility

- Though not required by code, the building should be made fully sprinklered.

Mechanical System

- The heating for the two buildings (Hunziker Hall and Hunziker Wing) is provided from the central heating plant located in Hunziker Wing. There are two AO Smith steam boilers, gas fired, 40 Hp each are 10 years old and in good working condition. The provide heating hot water to Hunziker Wing radiators via a heat exchanger and steam heating to Hunziker Hall and Coach House. The heat

exchanger, two hot water pumps and associated BMS Andover controls are in good working condition.

- The systems provided in Hunziker Hall spaces are Herman Nelson self-contained air cooled unit ventilators, vertical, floor standing, with steam heating. They are 40 years old and the cooling side of the units is mostly not working. There is no other central air conditioning system. Hunziker Wing is provided with a combination of DX split unit systems and window air condition units. There are four DX units, five tons each, ducted to the adjacent spaces, with condensing units located outside the building at ground level. They have been installed in the 80s and seem to be in good working condition. The DX split system in the Nursing Lab has been replaced three years ago.
- Cooling for the Lecture Hall is provided by a constant volume, Aon DX split air cooled roof top unit. Condensing unit is located next to the building on ground level. The unit is 13 years old and appears to be in good working condition. An emergency generator is provided for IT services in Hunziker Wing. Asbestos is present in both buildings.
- The condition of the existing elevator is unknown, but will probably require servicing within the next 10 years.
- The existing dumb-waiter system is inoperable.

Electrical System

- The buildings (Hunziker Hall and Hunziker Wing) are served by an exterior pad-mounted 1,500 KVA transformer provided by the utility company, PSE&G.
- The building receives a 277/480V service with a rated ampacity of 2,500A.
- The main switchboard lineup includes a 750KVA transformer which steps down the voltage from 277/480V to 120/208V. From the switchboard lineup there is distribution to branch circuit panels throughout the building including a computer lab.
- In addition to a normal service, the computer lab is provided with a 150KVA natural gas generator that is located adjacent to the building.
- A Simplex 4020 fire alarm system serves the buildings with horn/strobes, pull stations and photoelectric type smoke detectors.
- The main building transformer, switchboard, generator, and computer lab panels were all installed less than 10 years ago and are in very good condition and should not require renovations for the foreseeable future.

Storm Drainage System

- The building's storm water drainage system consists of main roof drains and storm leaders which drain by gravity to the campus storm sewer.
- The storm water system below grade drains to duplex sump pumps in a pit. The discharge of one sump pump is connected to the storm gravity system. The other

sump pump discharge piping is piped to a service sink with a leaking hose.

- All original building storm water piping shows significant signs of aging. The sump pumps and pit cover are in poor condition.

Sanitary Drainage System

- The building's sanitary drainage system consists of equipment drains, lavatories, water closets, urinals, floor drains, and service sinks. The sanitary sewer drains by gravity via waste stacks. All the stacks are connected to a house sewer which exits the building and drains by gravity to the campus sanitary sewer system.
- The sanitary system below glade is drained to duplex ejector pumps and pumped to the gravity sanitary sewer system.
- All original building sanitary piping shows significant signs of aging. One of the ejector pumps is not working. The ejector pumps and pit cover are in poor condition.

Domestic Water Supply System

- The existing four-inch water service was installed with a strainer and pressure reducing valve.
- The hot water heater installed is an electric 50-gallon storage residential type heater. It has been replaced in 2009. One hot water circulating pump has been refurbished or replaced over the years. One water-to-water heat exchanger (heat plate exchanger from the boilers) was installed over the years. It is used only during the winter months.
- All the existing insulation contains asbestos in the domestic water piping.

Plumbing Fixtures

- The plumbing fixtures are from the original building. They appear old and not in compliance with ADA requirements and should be replaced.

Natural Gas System

- The building is supplied with natural gas from an outdoor meter assembly. Gas is used to serve the boilers and mechanical equipment. The gas piping is in good condition with minimal rust.

Fire Protection System

- There is no fire protection system in this building. It is not required per Uniform Construction Code NJAC 5:23."6. (Rehabilitation Subcode)

IT/Telecommunication System

- IDF Room #1—First Floor
  - The existing IDF room is located in a room that once served as a bathroom. This room currently supports the horizontal cabling for the partial first floor, the entire second Floor, the partial Hunziker Hall Wing's first floor and ties the second first floor IDF Room over copper.
  - The IDF consist of (one) two-post rack.
  - The IDF is connected with 62.5 multimode fiber and single-mode fiber backbone to the server room.
  - The majority of the horizontal cabling consists of Category 5 cable which does not meet today's standard that dictates CAT6 for Gigabit Ethernet bandwidth or CAT6A for 10G Ethernet bandwidth.
  - Horizontal cabling may exceed distance limitations of 90 meters.
  - The IDF does not have proper rear service clearance.
  - The IDF does not have proper cabling labels.
  - The IDF does not have proper vertical or horizontal wire management.
  - The IDF does not have any cooling.
  - The IDF does not have any telecommunications grounding.
- IDF Room #2—First Floor
  - The existing IDF room is located in an electrical panel closet. This room currently supports the horizontal cabling for the partial first floor via copper connection to IDF Room #1 first floor. This IDF is an extension of IDF Room #1.
  - The IDF consist of wall mounted copper patch panel and switch.
  - The IDF is not connected with any fiber backbone to the server room.
  - Horizontal cabling may exceed distance limitations of 90 meters.
  - The IDF does not have proper front and rear service clearance.
  - The IDF does not have proper cabling labels.
  - The IDF does not have proper vertical or horizontal wire management.
  - The IDF does not have any cooling.
- IDF room standards:
  - IDF rooms shall have proper service clearance in the front and rear of rack.
  - IDF rooms shall have racks that are properly grounded.
  - IDF rooms shall have proper horizontal and vertical wire management.
  - IDF rooms shall be backed up with UPS.
  - IDF rooms shall be supplied with cooling.
  - IDF rooms shall have single mode fiber installed from the Server Room. Single-mode fiber can achieve 10Gb/s bandwidth up to 2000 m.
  - IDF racks shall have ladder racks installed above racks that are properly grounded.

A1 BUILDING SYSTEMS ANALYSIS
HUNZIKER HALL WING

Audio-Visual

- William Patterson University is currently in the process of implementing "Instruction Technology" to typical classrooms which includes:
  - 36" x 30" podium
  - Ceiling mounted or short throw projectors.
  - Motorized or manual 4:3 controlled projection screen.
  - VCR/ DVD.
  - Document camera.
  - Media Link Controller.
  - Laptop interface with LAN, VGA w/audio HDMI and composite inputs.
  - Wireless Access point (located in podium).
  - 8-port switch (used due to the lack of data ports at the podium location)

HUNZIKER HALL WING

Building Exterior

- The windows of this building need to be replaced. Many are single pane and thermally inefficient.
- Exterior stairwell doors need to be replaced throughout.
- The exterior brick masonry appears to be generally in fair to good condition.
- Roof is nearing the end of its anticipated life.

Building Interior

- Interior stairwell doors need to be replaced throughout.
- The interior condition of this building is generally poor.

Health, Safety & Accessibility

- There is no accessible route between Hunziker Hall and Hunziker Wing. Even though the buildings are connected and have linking hallways, the adjoining floor levels are not at the same elevation.
- Though not required by code, the building should be made fully sprinklered.

Mechanical System

- Refer to Hunziker Hall

Electrical System

- Refer to Hunziker Hall

Storm Drainage System

- The building's storm water drainage system consists of the main roof drains and storm leaders which drain by gravity to the campus storm sewer.
- All original building storm water piping shows significant signs of aging.

Sanitary Drainage System

- The building's sanitary drainage system consists of equipment drains, lavatories, water closets, urinals, floor drains and service sinks. The sanitary sewer drains by gravity via waste stacks. All the stacks are connected to a house sewer which exits the building and drains by gravity to the campus sanitary sewer system.
- All original building sanitary piping shows significant signs of aging.

Domestic Water Supply System

- The existing four-inch water service was installed with a strainer and a pressure reducing valve.
- The existing hot water heater is an electric 80-gallon storage residential type heater. It was replaced in 2007. One hot water circulating pump has been refurbished or replaced over the years.
- All existing insulation contains asbestos in the domestic water piping.

Plumbing Fixtures

- The plumbing fixtures were replaced 10 years ago. They are not in compliance with ADA requirements.

Natural Gas System

- The building is supplied with natural gas from an outdoor meter assembly. Gas is used to serve the boilers and mechanical equipment. Gas piping is in a good condition with minimal rust.

Fire Protection System

- The existing fire stand pipe system was installed and connected to the domestic water system. Fire hose cabinets were provided. There is no existing sprinkler system.
- Smoke detectors are provided.
- A sprinkler system is not required for this building per Uniform Construction Code NJAC 5:23."6. (Rehabilitation Subcode)

IT/Telecommunication System

- General observations:
  - The server room does not have proper wire management. Cables are tied

to conduits with plastic tie wraps and metal straps which do not meet current standard which dictates the use of Velcro tie wraps.

- There is no grounding protection installed. The server room must have a telecom grounding busbar which must be grounded to building steel or building ground. All cabinets, racks, ladder racks and conduits entering the server room must be properly grounded to the telecom grounding busbar.
- The server room does not have proper ceiling clearance for ladder rack installation. Ceiling height is 7'-6".
- Cabling currently pass through the walls without conduit sleeves and fire proofing.
- Server room has (one) CRAC unit for cooling and (one) move in cool unit used for backup. There is no cooling for the back room where the Core switches are located. The room layout does not reflect current industry standards utilizing a Hot/ Cold aisle configuration.

- Server Room - Main Point of Entry and Campus Riser -Ground Floor
  - The Server Room consist of the campus's server equipment, PBX, internet services, incoming telco carrier services and copper and fiber backbone cabling to all campus buildings. This Server Room also serves as an IDF that supports horizontal cabling on the ground floor.
  - The server row consist of (three) four-post racks with two cabinets having 75% of free space for expansion.
  - Above the server row is plumbing piping that have been abandoned.
  - Cables are patched without proper wire management.
  - The PBX consists of Lucent Technology equipment which is ran from DC power supported by two rows battery racks. The equipment appears to be in good condition.
  - The PBX cables (pig tails) are terminated to newer 110 style termination blocks on XLbet type double sided racks.
  - The PBX cables (pig tails) are routed and supported by a 12-inch ladder rack that has reached its 100% fill capacity.
  - The Campus Copper backbone cabling it terminated to outdated termination blocks on XLbet type double sided racks and is cross connected to the PBX termination 110 blocks.
  - Proper cable management is installed.
  - Internet servicers is provided by Optimum Lightpath and it is located in a separate row consisting of (two) two-post racks with proper vertical wire management and an empty four-post rack. The equipment appears to be in good condition.
  - Fiber Backbone and Core switches are located behind a wall which at one time was a separate room.

  - The Fiber Backbone consists of 62.5 multimode fiber distributed throughout the campus. Majority of this backbone is no longer used since it can no longer support the current campuses data rate.
  - The campus had recently upgraded their Fiber Backbone throughout the campus by installing single-mode fiber which gives them the data rate capacity of achieving 10Gb/s bandwidth up to 2000m.
  - The Core switches are installed in (one) two-post rack with proper vertical wire management.
  - Fiber racks do not have proper service clearance or patch cord wire management to the core switches. A minimum of 3′-0″ of clearance is required to service racks and wire management allowing cables to be easily maintained.
  - Current fiber backbone distribution is a Star topology. There is no fiber redundancy throughout the campus.
- IDF Room—First Floor
  - The existing IDF room is located in a storage room. This room currently supports the horizontal cabling for the entire first floor.
  - The IDF consist of (one) two-post rack.
  - The IDF is connected with 62.5 multimode fiber and single-mode fiber to the server room.
  - The majority of the horizontal cabling consists of Category 5 cable which does not meet today's standard that dictates CAT6 for Gigabit Ethernet bandwidth or CAT6A for 10G Ethernet bandwidth.
  - The IDF does not have proper service clearance in the front and rear of rack.
  - The IDF does not have proper cabling labels.
  - The IDF does not have proper vertical or horizontal wire management.
  - The IDF does not have any cooling.
  - The IDF does not have any telecommunications grounding.
- IDF Room #1—Second Floor
  - The existing IDF room is located in a electrical panel closet. This room currently supports the horizontal cabling for the partial second floor.
  - The IDF consist of wall mounted copper patch panel, wall mounted fiber enclosure and switch.
  - The IDF is connected with 62.5 multimode fiber and single-mode fiber to the server room.
  - The majority of the horizontal cabling consists of Category 5 cable which does not meet today's standard that dictates CAT6 for Gigabit Ethernet bandwidth or 6A for 10G Ethernet bandwidth.
  - The IDF does not have proper service clearance in the front and rear of rack.
  - The IDF does not have proper cabling labels.

- The IDF does not have proper vertical or horizontal wire management.
- The IDF does not have any cooling.
- The IDF does not have any telecommunications grounding.

- IDF Room #2– Second Floor
  - The existing IDF room is located in a storage room. This room currently supports the horizontal cabling for the partial second floor.
  - The IDF consist of (one) two-post rack.
  - The IDF is connected with 62.5 multimode fiber and single-mode fiber to the server room.
  - The majority of the horizontal cabling consists of Category 5 cable which does not meet today's standard that dictates CAT6 for Gigabit Ethernet bandwidth or 6A for 10G Ethernet bandwidth.
  - The IDF does not have proper service clearance in the front and rear of rack.
  - The IDF does not have proper cabling labels.
  - The IDF does not have proper vertical or horizontal wire management.
  - The IDF does not have any cooling.
  - The IDF does not have any telecommunications grounding.
- IDF room standards:
  - IDF rooms shall have proper service clearance in the front and rear of rack.
  - IDF rooms shall have racks that are properly grounded.
  - IDF rooms shall have proper horizontal and vertical wire management.
  - IDF rooms shall be backed up with UPS.
  - IDF rooms shall be supplied with cooling.
  - IDF rooms shall have single mode fiber installed from the Server Room. Single-mode fiber can achieve 10Gb/s bandwidth up to 2000m.
  - IDF racks shall have ladder racks installed above racks that are properly grounded.

Audio-Visual

- William Patterson University is currently in the process of implementing "Instruction Technology" to typical classrooms which includes:
  - 36" x 30" podium
  - Ceiling mounted or short throw projectors.
  - Motorized or manual 4:3 controlled projection screen.
  - VCR/ DVD.
  - Document camera.
  - Media Link Controller.
  - Laptop interface with LAN, VGA w/audio HDMI and composite inputs.
  - Wireless Access point (located in podium).
  - 8-port switch (used due to the lack of data ports at the podium location)

RAUBINGER HALL

Building Exterior

- The roof of this building is approximately 20 years old and may need to be replaced within the next five to seven years.
- The windows of this building need to be replaced.
- Exterior stairwell doors need to be replaced throughout.
- The exterior brick masonry appears to be generally in fair to good condition.

Building Interior

- Interior stairwell doors need to be replaced throughout.
- Interior partitions are generally in serviceable condition.

Health, Safety & Accessibility

- The building is not generally sprinklered; and though not required by code, it should be made fully sprinklered.
- The lower-level lecture hall is not accessible from the rest of the building.

Mechanical System

- The building is provided with heating and cooling from equipment located in the basement mechanical room. Heating was upgraded approximately 10 years ago with two Aerco hot water boilers, 2,000 MBH each, in good working condition. New Building Management System (BMS) was recently provided for the major HVAC components and lighting system. The four air handling units located in the MER are the age of the building (over 40 years old) and in extremely poor shape. Units are rusted, with missing components, piping insulation is ripped. The dual duct technology employed is outdated and extremely energy inefficient. As part of maintenance, coils have been replaced and controls updated. Return fans seem to be inoperable, as parts of their casing were missing.
- Air handling units are provided with hot water coils supplied by the boiler in the room, and cooling coils supplied with chilled water from the air cooled chiller plant located outside the building. The chiller capacity is 200 tons and approximately 10 years old. Associated hot water and chilled water pumps are also about 10 years old and appear to be in good working condition.
- Classrooms and other spaces in the building are provided with the following systems:
  - Packaged terminal air conditioner (PTAC) units provided for second and third floor are in good working condition.
  - Classrooms on first and fourth floors are provided with PTAC units as well as overhead distribution from the air handling units in the MER.

- Lecture hall is supplied from an independent air handling unit located in the basement MER.
- Provost office is supplied from a 10 year old Trane air handling unit provided with DX cooling coil and hot water heating coil, in good working condition.

- The building has two elevators; one is original to the building and the other installed at a later date. Both have slow service speeds and the original elevator is prone to breakdowns. Both will probably require rehabilitation over the next decade.

Electrical System

- The building is served by an exterior pad mounted 700 KVA transformer provided by the utility company, PSE&G.
- The building receives a 120/208V service with a rated ampacity of 3,000A.
- From the switchboard lineup there is distribution to branch circuit panels located throughout the building.
- The building has a fire alarm system which was installed 10 years ago and meets code.
- There is no emergency generator and egress lighting is provided via battery packs.

Storm Drainage System

- The building's storm water drainage system consists of the main roof drains and storm leaders which drain by gravity to the campus storm sewer.
- All original building storm water piping shows significant signs of aging.

Sanitary Drainage System

- The building's sanitary drainage system consists of equipment drains, lavatories, water closets, urinals, floor drains and service sinks. The sanitary sewer drains by gravity via waste stacks. All stacks are connected to a house sewer which exits the building and drains by gravity to the campus sanitary sewer system.
- All original building sanitary piping shows significant signs of aging.

Domestic Water Supply System

- One three-inch water service was connected to a six-inch combined water service and installed with a strainer and pressure reducing valve. One three-inch RPZ should be installed on the existing water service.
- The existing hot water heater is an electric 50-gallon storage residential type heater. It has been replaced in 2010. One hot water circulating pump has been refurbished or replaced over the years. One water-to-water heat exchanger (Heat Plate exchanger from the boilers) was installed eight years ago. It is used only during the winter months. The water piping within the MER has been replaced over

the years and is in a good condition.

- Asbestos insulation was provided on all the original building domestic water piping systems.

Plumbing Fixtures

- The plumbing fixtures were replaced 10 years ago. They are not in compliance with ADA requirements.

Natural Gas System

- The building is supplied with natural gas from an outdoor meter assembly. Gas is used to serve the boilers and mechanical equipment. The gas piping surveyed is in good condition with minimal rust.

Fire Protection System

- One four-inch existing fire water service was installed and connected to a six-inch fire and domestic water combined water main. The four-inch fire service piping is rusted and nearing its end of service life. A double detector check valve assembly should be installed.
- Fire department valves are provided on the standpipe risers in each stairway.
- The file room in the provost area is provided with (four) sprinkler heads, but no flow control assembly was found.
- A sprinkler system is not required for this building per Uniform Construction Code NJAC 5:23."6. (Rehabilitation Subcode)

IT/Telecommunication System

- IDF Room #1—Lower Level floor
  - The existing IDF room is located in a shared storage room. This room currently supports the horizontal cabling for the entire lower level floor.
  - The IDF is connected with 62.5 multimode fiber and single-mode fiber backbone to the server room.
  - Fiber Backbone for the Hobert Manor runs through Raubinger Hall's IDF room #1.
  - The IDF consist of (one) four-post rack.
  - The majority of the horizontal cabling consists of Category 5 cable which does not meet today's standard that dictates CAT6 for Gigabit Ethernet bandwidth or CAT6A for 10G Ethernet bandwidth.
  - The IDF does not have proper cabling labels.
  - The IDF does not have proper vertical or horizontal wire management.
  - The IDF does not have any cooling.
  - The IDF does not have any telecommunications grounding.

- Backbone cables are feed through the Mechanical space into the adjacent IDF Room #1 without any conduit sleeves or fire protection.
- Typical of IDFs on floors one through four.
  - The existing IDF room is located in a storage room. This room currently supports the horizontal cabling for the entire floor.
  - The IDF consist of (one) two-post rack.
  - The majority of the horizontal cabling consists of Category 5 cable which does not meet today's standard that dictates CAT6 for Gigabit Ethernet bandwidth or CAT6A for 10G Ethernet bandwidth.
  - The IDF does not have proper cabling labels.
  - The IDF does not have proper vertical or horizontal wire management.
  - The IDF does not have any cooling.
  - The IDF does not have any telecommunications grounding.
- IDF room standards:
  - IDF rooms shall have proper service clearance in the front and rear of rack.
  - IDF rooms shall have racks that are properly grounded.
  - IDF rooms shall have proper horizontal and vertical wire management.
  - IDF rooms shall be backed up with UPS.
  - IDF rooms shall be supplied with cooling.
  - IDF rooms shall have single mode fiber installed from the Server Room. Single-mode fiber can achieve 10Gb/s bandwidth up to 2000m.
  - IDF racks shall have ladder racks installed above racks that are properly grounded.

Audio-Visual

- William Patterson University is currently in the process of implementing "Instruction Technology" to typical classrooms which includes:
  - 36" x 30" podium
  - Ceiling mounted or short throw projectors.
  - Motorized or manual 4:3 controlled projection screen.
  - VCR/ DVD.
  - Document camera.
  - Media Link Controller.
  - Laptop interface with LAN, VGA w/audio HDMI and composite inputs.
  - Wireless Access point (located in podium).
  - 8-port switch (used due to the lack of data ports at the podium location)

SHEA CENTER FOR PERFORMING ARTS

Building Exterior

- The windows of this building need to be replaced.
- Exterior stairwell doors need to be replaced throughout.
- The exterior brick masonry appears to be generally in fair to good condition.

Building Interior

- Interior conditions are generally in poor shape.
- Most partitions are not constructed to adequately prevent sound transmission, thereby interfering with instruction and practice.
- Practice rooms have poor acoustics.

Health, Safety & Accessibility

- Significant portions of this building are not accessible.
- Though not required by code, the building should be made fully sprinklered.

Mechanical System

- The building is provided with heating and cooling from equipment located in the basement mechanical room. Heating was upgraded approximately 10 years ago with two Aerco hot water boilers, 2,000 MBH each, in good working condition. Associated hot water pumps appear to be in good working condition. The Building Management System (BMS) is about 15 years old and outdated. The two air handling units part of this scope of work (AHU-1&2) located in the MER are the age of the building (over 40 years old) and in satisfactory condition.
- Air handling units are provided with hot water coils supplied by the boiler in the room, and cooling coils supplied with chilled water from the air cooled chiller plant located outside the building. The chiller capacity is 225 tons and approximately three years old. Associated chilled water pumps are in extremely poor working condition. Piping shows extensive rusting, fittings appear damaged and some valves do not appear to be operable. Insulation is also ripped and missing throughout.
- The spaces in the building are provided with perimeter hot water heaters (baseboard) or fan coil units. The AV rooms are provided with DX units in good working condition.

Electrical System

- The building is served by an exterior pad mounted 500 KVA transformer provided by the utility company, PSE&G.
- The building receives a 120/208V service with a rated ampacity of 2,000A. From

the main switchboard lineup there is distribution to branch circuit panels to serve the building loads including an isolation transformer for the performance area.

- The building has a fire alarm system which was installed 10 years ago and meets code.
- There is no emergency generator and egress lighting is provided via battery packs.
- The main building transformer, switchboard and performance area panels were all installed less than 10 years ago and are in very good condition and should not require renovations for the foreseeable future.

Storm Drainage System

- The building's storm water drainage system consists of the main roof drains and storm leaders which drain by gravity to the campus storm sewer.
- All original building storm water piping shows significant signs of aging.

Sanitary Drainage System

- The building's sanitary drainage system consists of equipment drains, lavatories, water closets, urinals, floor drains and service sinks. The sanitary sewer drains by gravity via waste stacks. All the stacks are connected to a house sewer which exits the building and drains by gravity to the campus sanitary sewer system.
- All original building sanitary piping shows significant signs of aging.

Domestic Water Supply Systems

- One three-inch water service was installed with a strainer and pressure-reducing valve. One three-inch RPZ should be installed to the water service.
- The existing hot water heater is an electric 65-gallon storage residential type heater. It was replaced in 2006. One hot water circulating pump has been refurbished or replaced over the years. One water-to-water heat exchanger (Heat Plate exchanger from the boilers) was installed 8 years ago. It is used only during the winter months.
- Asbestos insulation was provided on all the original building domestic water piping.

Plumbing Fixtures

- The plumbing fixtures were replaced over the years. They are not in compliance with ADA requirements. The electrical hard wired fixtures (hand free) are recommended to replace the existing fixtures in the public toilets.

Natural Gas System

- The building is supplied with natural gas from an outdoor meter assembly. Gas is used to serve the boilers and mechanical equipment. The gas piping surveyed is in good condition with minimal rust.

Fire Protection System

- There is no fire protection system in this building. It is not required per Uniform Construction Code NJAC 5:23.”6. (Rehabilitation Subcode)

IT/Telecommunication System

- IDF Room #1—First Floor
  - The existing IDF room is located in a storage room. This room currently supports the horizontal cabling for the entire building.
  - The IDF consist of (one) two-post rack.
  - The IDF is connected with 62.5 multimode fiber and single-mode fiber backbone to the server room.
  - The majority of the horizontal cabling consists of Category 5 cable which does not meet today’s standard that dictates CAT6 for Gigabit Ethernet bandwidth or CAT6A for 10G Ethernet bandwidth.
  - Horizontal cabling may exceed distance limitations of 90 meters.
  - The IDF does not have proper cabling labels.
  - The IDF does not have proper vertical or horizontal wire management.
  - The IDF does not have any cooling.
  - The IDF does not have any telecommunications grounding.
- IDF room standards:
  - IDF rooms shall have proper service clearance in the front and rear of rack.
  - IDF rooms shall have racks that are properly grounded.
  - IDF rooms shall have proper horizontal and vertical wire management.
  - IDF rooms shall be backed up with UPS.
  - IDF rooms shall be supplied with cooling.
  - IDF rooms shall have single mode fiber installed from the Server Room. Single-mode fiber can achieve 10Gb/s bandwidth up to 2000m.
  - IDF racks shall have ladder racks installed above racks that are properly grounded.

Audio-Visual

- William Patterson University is currently in the process of implementing “Instruction Technology” to typical classrooms which includes:
  - 36” x 30” podium
  - Ceiling mounted or short throw projectors.
  - Motorized or manual 4:3 controlled projection screen.
  - VCR/ DVD.
  - Document camera.
  - Media Link Controller.
  - Laptop interface with LAN, VGA w/audio HDMI and composite inputs.

- Wireless Access point (located in podium).
- 8-port switch (used due to the lack of data ports at the podium location)

WIGHTMAN GYM

Building Exterior

- The roof and gutters of this building have just been replaced and are in excellent condition.
- Numerous windows in this building have failed, and all windows need to be replaced.
- There are cracks in the brick on the northeast façade which could potentially be evidence of structural issues. A structural engineer is being engaged to investigate further to determine whether this is evidence of recent structural shifting, or past (and now stable) foundation settlement.
- Exterior stairwell doors need to be replaced throughout.

Building Interior

- Interior stairwell doors need to be replaced throughout.
- Interior conditions throughout the building are very poor. Numerous walls and ceilings exhibit water damage and inadequate maintenance.
- Concrete stairs throughout are chipped and need repair.
- The concrete stairs and bleachers in the natatorium are in terrible condition are require immediate repair.

Health, Safety & Accessibility

- Much of the building is not accessible.
- There is no elevator.

Mechanical System

- The building is provided with heating from seven Aerco gas fired boilers (2,000 MBH each) located in the ground level mechanical room. Boilers are approximately eight years old and in very good working condition. Hot water pumps seem to be in good working condition. The Building Management System (BMS) is about 15 years old and outdated.
- In the same MER there are three heating and ventilation (H&V) units and associated return fans, serving the gym, the pool and the lower level. They are the age of the building (over 50 years old) and in extremely poor shape. Units and ductwork are rusted, with missing components, ductwork insulation is disintegrating. There are holes in both supply and return ductwork. The four exhaust fans serving the gym

and the pool are not operating and are in the process of being replaced.

- The offices, classrooms and training room are supplied from three DX air cooled roof top units. They are approximately 10 years old and in good working condition. Offices are provided with constant volume (CAV) boxes with hot water reheat coils.
- Mechanical systems cannot manage the humidity of the natatorium, leading to excess condensation on the interior surface of windows.

Electrical System

- The building has an electric service rated 120/208V with a rated ampacity of 1,200A. The service originates from the switchgear in the facilities building where a meter is provided.
- From the main switchboard lineup there is distribution to branch circuit panels to serve building loads including the pool systems.
- The pool area has been provided with ground fault protection.
- The building has a fire alarm system which was installed 10 years ago and meets code.
- There is no emergency generator and egress lighting is provided via battery packs.

Storm Drainage System

- The building's storm water drainage system consists of the main roof drains and storm leaders which drain by gravity to the campus storm sewer.
- All original building storm water piping shows significant signs of aging.

Sanitary Drainage System

- The building's sanitary drainage system consists of equipment drains, lavatories, water closets, urinals, floor drains, and service sinks. The sanitary sewer drains by gravity via waste stacks. All the stacks are connected to a house sewer which exits the building and drains by gravity to the campus sanitary sewer system.
- All original building sanitary piping shows a significant amount of aging.
- The existing black steel drain circulating piping from the pool are rusted and in poor conditions.

Domestic Water Supply Systems

- The existing four-inch domestic water service was connected to a six-inch water service and installed with a strainer and a pressure-reducing valve. An existing four-inch RPZ should be installed on the domestic water service. The second existing water service in an outside pit is provided to the swimming pool only.
- An existing water-to-water heat exchanger (Heat Plate exchanger from the boilers) was installed 10 years ago. There is no hot water circulating pump in the system.
- One existing water-to-water heat exchanger (Heat Plate exchanger from the

boilers) was installed for the swimming pool.
- Asbestos insulation was provided on all the original building domestic water piping.

Plumbing fixtures
- The plumbing fixtures are from the original building. The existing showers in locker rooms are very old and in poor condition. They are not in compliance with ADA requirements.

Natural Gas System
- The building is supplied with natural gas from an outdoor meter assembly. Gas is used to serve boilers and mechanical equipment. The gas piping surveyed is in good condition with minimal rust.

Fire Protection System
- There is no fire protection system in this building. It is not required per Uniform Construction Code NJAC 5:23.”6. (Rehabilitation Subcode).

IT/Telecommunication System
- IDF Room #1—First Floor
  - The existing IDF room is located in a storage room. This room currently supports the horizontal cabling for the partial first floor, ties the second first floor IDF Room and the third first floor IDF Room over copper.
  - The IDF is connected with 62.5 multimode fiber and single-mode fiber backbone to the server room.
  - The IDF consist of a wall mounted fiber enclosure and wall mounted patch panels with the network switch placed on a file cabinet.
  - The majority of the horizontal cabling consists of Category 5 cable which does not meet today’s standard that dictates CAT6 for Gigabit Ethernet bandwidth or CAT6A for 10G Ethernet bandwidth.
  - The IDF does not have proper cabling labels.
  - The IDF does not have proper vertical or horizontal wire management.
  - The IDF does not have any cooling.
  - The IDF does not have any telecommunications grounding.
- IDF Room #2—First Floor
  - The existing IDF room is located in a classroom. This room currently supports the horizontal cabling for one classroom which is tied to IDF #1 via copper. This IDF is an extension of IDF Room #1 technically this room is not considered an IDF.
  - The IDF consist of (one) switch with patch cords to workstations.
  - Horizontal cabling exceeds distance limitations of 90 meters.

- IDF Room #3—First Floor
  - The existing IDF room is located in a classroom. This room currently supports the horizontal cabling for one classroom which is tied to IDF #1 via copper. This IDF is an extension of IDF Room #1 technically this room is not considered an IDF.
  - The IDF consist of (one) switch with patch cords to workstations.
  - Horizontal cabling exceeds distance limitations of 90 meters.
- IDF Room #4—First Floor
  - The existing IDF room is located in an office. This room currently supports the horizontal cabling for one office and the vending machines which is tied to the switch in IDF #3 via copper patch cord. This IDF is an extension of IDF Room #1 technically this room is not considered an IDF.
  - The IDF consist of (one) switch with patch cords to workstations.
  - Horizontal cabling exceeds distance limitations of 90 meters.
- IDF room standards:
  - IDF rooms shall have proper service clearance in the front and rear of rack.
  - IDF rooms shall have racks that are properly grounded.
  - IDF rooms shall have proper horizontal and vertical wire management.
  - IDF rooms shall be backed up with UPS.
  - IDF rooms shall be supplied with cooling.
  - IDF rooms shall have single mode fiber installed from the Server Room. Single-mode fiber can achieve 10Gb/s bandwidth up to 2000m.
  - IDF racks shall have ladder racks installed above racks that are properly grounded.

Audio-Visual

- William Patterson University is currently in the process of implementing "Instruction Technology" to typical classrooms which includes:
  - 36" x 30" podium
  - Ceiling mounted or short throw projectors.
  - Motorized or manual 4:3 controlled projection screen.
  - VCR/ DVD.
  - Document camera.
  - Media Link Controller.
  - Laptop interface with LAN, VGA w/audio HDMI and composite inputs.
  - Wireless Access point (located in podium).
  - 8-port switch (used due to the lack of data ports at the podium location)

COST ESTIMATE A2

William Paterson University
Academic Zone Master Plan
Project Phasing & Budget Funding Plan
Date: 2012-06-18
Plan Implementation - Projected Budgets

FINAL PLAN	Area (GSF)	Unit Cost / GSF	Project Budget Types: Reno Costs	Project Budget Types: New or Addition Costs	Project Budget Types: Site Costs	Capital Budget Plan: Sub-Project Cost Totals	Capital Budget Plan: Project Cost Totals
Construction Budget Costs							
Captial Building Projects							
1 New Academic Building 1							
Acad 1 - Coach House Demolition	10,809	$ 38.78			$ 419,211	$ 419,211	
Demolition of existing Coach House to make way for new academic building.							
	Avg	$ 38.78			*Escalated Construction Costs*		$ 419,211
					Escalated Project Costs (Above X 1.35)		$ 565,935
Acad 1 - New Building	84,000	$ 504.71		$ 42,395,440		$ 42,395,440	
Construction of new academic building supporting allied health, kinesiology and general instruction. Includes some rock excavation and extensive foundations as building steps up three-story hillside. Designed to LEED Gold.							
	Avg	$ 504.71			*Escalated Construction Costs*		$ 42,395,440
					Escalated Project Costs (Above X 1.35)		$ 57,233,844
2 Hunziker Hall Wing Renovation							
Hunziker Wing - Partial Demolition	12,353	$ 44.66			$ 551,691	$ 551,691	
Partial demolition of southernmost portion of building.							
Hunziker Wing - Renovation	5,000	$ 187.74	$ 938,697			$ 938,697	
Light renovation of existing lecture hall.							
Hunziker Wing - Renovation	31,050	$ 448.26	$ 13,918,435			$ 13,918,435	
Heavy renovation of existing building, including new exterior, new glazing and all new mechanical systems.							
Hunziker Wing - New Addition	1,000	$ 364.73		$ 364,727		$ 364,727	
Construction of new fire egress stair.							
	Avg (Excluding demolition costs)	$ 410.85			*Escalated Construction Costs*		$ 15,773,550
					Escalated Project Costs (Above X 1.35)		$ 21,294,293
3 New Natatorium	n/a	$ -					
Construction of new natatorium and attendant space - not programmed and therefore not costed.						n/a	
							$ -

1/15

A2 COST ESTIMATE

William Paterson University
Academic Zone Master Plan
Project Phasing & Budget Funding Plan
Date: 2012-06-18
Plan Implementation - Projected Budgets

	FINAL PLAN	Area (GSF)	Unit Cost / GSF	Project Budget Types: Reno Costs	Project Budget Types: New or Addition Costs	Project Budget Types: Site Costs	Capital Budget Plan: Sub-Project Cost Totals	Capital Budget Plan: Project Cost Totals
Construction Budget Costs								
4	**New Academic Building 2**							
	Acad 2 - Wightman Gym Demolition	39,849	$ 46.31			$ 1,845,589	$ 1,845,589	
	Demolition of existing Coach House to make way for new academic building.							
			Avg $ 46.31				*Escalated Construction Costs*	$ 1,845,589
							Escalated Project Costs (Above X 1.35)	$ 2,491,545
	Acad 2 - New Building	124,575	$ 555.77		$ 69,235,638		$ 69,235,638	
	Construction of new academic building supporting general instruction and academic development. Includes some rock excavation and extensive foundations as building steps up three-story hillside. Designed to LEED Gold.							
			Avg $ 555.77				*Escalated Construction Costs*	$ 69,235,638
							Escalated Project Costs (Above X 1.35)	$ 93,468,111
5	**Hunziker Hall Renovation**							
	Hunziker Hall - Part. Interior Demolitio	667	$ 48.20		$ 32,151		$ 32,151	
	Partial interior demolition of center of building for new atrium.							
	Hunziker Hall - Renovation	12,392	$ 295.46		$ 3,661,347		$ 3,661,347	
	Medium renovation of interior spaces.							
	Hunziker Hall - Renovation	6,748	$ 428.46		$ 2,891,264		$ 2,891,264	
	Heavy renovation of interior spaces, as well as replacement of exterior glazing and all mechanical systems.							
			Avg $ 342.35		Excluding demolition costs		*Escalated Construction Costs*	$ 6,584,762
							Escalated Project Costs (Above X 1.35)	$ 8,889,429
6	**Raubinger Hall Renovation**							
	Raubinger Hall - Renovation	8,000	$ 196.46		$ 1,571,700		$ 1,571,700	
	Light renovation of interior spaces.							
	Raubinger Hall - Renovation	36,402	$ 315.10		$ 11,470,243		$ 11,470,243	
	Medium renovation of interior spaces, including replacement of all exterior windows.							
			Avg $ 293.72				*Escalated Construction Costs*	$ 13,041,943
							Escalated Project Costs (Above X 1.35)	$ 17,606,623

2/15

William Paterson University
Academic Zone Master Plan
Project Phasing & Budget Funding Plan
Date: 2012-06-18
Plan Implementation - Projected Budgets

	FINAL PLAN	Area (GSF)	Unit Cost / GSF	Project Budget Types: Reno Costs	Project Budget Types: New or Addition Costs	Project Budget Types: Site Costs	Capital Budget Plan: Sub-Project Cost Totals	Capital Budget Plan: Project Cost Totals
Construction Budget Costs								
7	**Shea Center Renovation**							
	Shea Center - Renovation	18,821	$ 307.51	$ 5,787,580			$ 5,787,580	
	Medium renovation of interior spaces.							
	Shea Center - Renovation	19,235	$ 442.28	$ 8,507,215			$ 8,507,215	
	Heavy renovation of interior spaces, as well as replacement of exterior glazing and all mechanical systems.							
		Avg	$ 375.63			*Escalated Construction Costs*		$ 14,294,795
						Escalated Project Costs (Above X 1.35)		$ 19,297,973
	Total Capital Building Costs						**$ 220,847,753**	
	Site Improvement Projects							
1	**Speert Garden**	70,000	$ 46.51			$ 3,255,393	$ 3,255,393	
	Reconstruction of existing open space featuring a large central lawn and adjacent amphitheater. 40% hardscape.							
		Avg	$ 46.51			*Escalated Construction Costs*		$ 3,255,393
						Escalated Project Costs (Above X 1.35)		$ 4,394,781
2	**East Entry Court**	37,500	$ 55.05			$ 2,064,280	$ 2,064,280	
	New entry court with adjacent cul-de-sac for vehicular pick-up/drop-off. 50% hardscape.							
		Avg	$ 55.05			*Escalated Construction Costs*		$ 2,064,280
						Escalated Project Costs (Above X 1.35)		$ 2,786,778
3	**Raubinger Quad**	45,000	$ 40.81			$ 1,836,497	$ 1,836,497	
	Expansion of existing open space featuring large central lawn. 30% hardscape.							
		Avg	$ 40.81			*Escalated Construction Costs*		$ 1,836,497
						Escalated Project Costs (Above X 1.35)		$ 2,479,271
4	**Pompton Greenway Connector**	100,000	$ 37.96			$ 3,796,377	$ 3,796,377	
	New open space that replaces former parking area. Includes pick-off and drop-off drive for Shea Center. 20% hardscape.							
		Avg	$ 37.96			*Escalated Construction Costs*		$ 3,796,377
						Escalated Project Costs (Above X 1.35)		$ 5,125,108
	Total Capital Site Improvement Costs						**$ 14,785,938**	
	Total Projected Budget Costs						**$ 235,633,691**	

3/15

A2 COST ESTIMATE

William Paterson University
Academic Zone Master Plan
Project Phasing & Budget Funding Plan
Date: 2012-06-18
Projected Budgets & Unit Pricing

Project Number		1			1	
Project Name - Sub-Project Name		**Acad 1 - Coach House Demolition**			**Acad 1 - New Building**	
Original GSF		n/a			n/a	
Year of Pricing for Escalation (mid-point of construction)		**2015**			**2015**	
Construction Magnitude		**DEMOLITION**			**NEW CONSTRUCTION**	
		Amount $	Rate $/GSF		Amount $	Rate $/GSF
Divisions						
New/Calculated GSF		**10,809**			**84,000**	
Demolition		$ 205,371	$ 19.00		$ -	$ -
Hazmat Abatement		$ 75,663	$ 7.00		$ -	$ -
Sitework - Site Prep & Earthwork		$ -	$ -		$ 588,000	$ 7.00
Sitework - Utilities		$ -	$ -		$ 189,000	$ 2.25
Sitework - Pavements		$ -	$ -		$ 588,000	$ 7.00
Sitework - Landscape & Misc.		$ -	$ -		$ 386,400	$ 4.60
Foundations/Substructure		$ -	$ -		$ 1,680,000	$ 20.00
Superstructure		$ -	$ -		$ 2,520,000	$ 30.00
Roofing and Waterproofing		$ -	$ -		$ 1,008,000	$ 12.00
Exterior Enclosure		$ -	$ -		$ 3,360,000	$ 40.00
Interior Development - Partitions		$ -	$ -		$ 1,596,000	$ 19.00
Interior Development - Finishes		$ -	$ -		$ 2,184,000	$ 26.00
Interior Development - Specialties		$ -	$ -		$ 420,000	$ 5.00
Interior Dev - Equip & Fixed Furnishings/Millwork		$ -	$ -		$ 1,512,000	$ 18.00
Special Construction, Systems, Process, etc (incl elevator)		$ -	$ -		$ 1,344,000	$ 16.00
Fire Protection		$ -	$ -		$ 714,000	$ 8.50
Plumbing		$ -	$ -		$ 1,680,000	$ 20.00
HVAC		$ -	$ -		$ 5,208,000	$ 62.00
Electrical - Power		$ -	$ -		$ 1,260,000	$ 15.00
Electrical - Lighting		$ -	$ -		$ 1,260,000	$ 15.00
Electrical - Systems		$ -	$ -		$ 504,000	$ 6.00
Electrical - Telecom/Data/Security		$ -	$ -		$ 420,000	$ 5.00
Miscellaneous (Specify)- Pool- 6 lanes- No Equipment		$ -	$ -		$ -	$ -
Direct Construction Cost Unit		**$ 281,034**	**$ 26.00**		**$ 28,421,400**	**$ 338.35**
General Conditions (incl Bonds and Insurance)	7.50%	$ 21,078	$ 1.95		$ 2,131,605	$ 25.38
Design & Estimating Contingency	10.00%	$ 30,211	$ 2.80		$ 3,055,301	$ 36.37
Construction Contingency	7.00%	$ 23,263	$ 2.15		$ 2,352,581	$ 28.01
Contractor Overhead and Profit	6.00%	$ 21,335	$ 1.97		$ 2,157,653	$ 25.69
Construction Cost Unit		**$ 376,920**	**$ 34.87**		**$ 38,118,540**	**$ 453.79**
Escalation 3.5% per Annum	3.50%	$ 42,290	$ 3.91		$ 4,276,900	$ 50.92
Construction Cost Unit with Escalation		**$ 419,211**	**$ 38.78**		**$ 42,395,440**	**$ 504.71**
Project Description		Demolition of existing Coach House to make way for new academic building.			Construction of new academic building supporting allied health, kinesiology and general instruction. Includes some rock excavation and extensive foundations as building steps up three-story hillside. Designed to LEED Gold.	

William Paterson University
Academic Zone Master Plan
Project Phasing & Budget Funding Plan
Date: 2012-06-18
Projected Budgets & Unit Pricing

Project Number		**2**		**2**		
Project Name - Sub-Project Name		**Hunziker Wing - Partial Demolition**		**Hunziker Wing - Renovation**		
Original GSF		**49,403**		**49,403**		
Year of Pricing for Escalation (mid-point of construction)		**2018**		**2018**		
Construction Magnitude		**DEMOLITION**		**LOW INTENSITY RENOVATION**		
Divisions		Amount $	Rate $/GSF	Amount $	Rate $/GSF	
New/Calculated GSF		**12,353**		**5,000**		
Demolition		$ 247,060	$ 20.00	$ 25,000	$ 5.00	
Hazmat Abatement		$ 86,471	$ 7.00	$ 27,500	$ 5.50	
Sitework - Site Prep & Earthwork		$ -	$ -	$ -	$ -	
Sitework - Utilities		$ -	$ -	$ -	$ -	
Sitework - Pavements		$ -	$ -	$ -	$ -	
Sitework - Landscape & Misc.		$ -	$ -	$ -	$ -	
Foundations/Substructure		$ -	$ -	$ -	$ -	
Superstructure		$ -	$ -	$ -	$ -	
Roofing and Waterproofing		$ -	$ -	$ 15,000	$ 3.00	
Exterior Enclosure		$ -	$ -	$ 25,000	$ 5.00	
Interior Development - Partitions		$ -	$ -	$ 70,000	$ 14.00	
Interior Development - Finishes		$ -	$ -	$ 85,000	$ 17.00	
Interior Development - Specialties		$ -	$ -	$ 10,000	$ 2.00	
Interior Dev - Equip & Fixed Furnishings/Millwork		$ -	$ -	$ 40,000	$ 8.00	
Special Construction, Systems, Process, etc (incl elevator)		$ -	$ -	$ -	$ -	
Fire Protection		$ -	$ -	$ 20,000	$ 4.00	
Plumbing		$ -	$ -	$ 20,000	$ 4.00	
HVAC		$ -	$ -	$ 115,000	$ 23.00	
Electrical - Power		$ -	$ -	$ 40,000	$ 8.00	
Electrical - Lighting		$ -	$ -	$ 35,000	$ 7.00	
Electrical - Systems		$ -	$ -	$ 20,000	$ 4.00	
Electrical - Telecom/Data/Security		$ -	$ -	$ 20,000	$ 4.00	
Miscellaneous (Specify)- Pool- 6 lanes- No Equipment		$ -	$ -	$ -	$ -	
Direct Construction Cost Unit		**$ 333,531**	**$ 27.00**	**$ 567,500**	**$ 113.50**	
General Conditions (incl Bonds and Insurance)	7.50%	$ 25,015	$ 2.03	$ 42,563	$ 8.51	
Design & Estimating Contingency	10.00%	$ 35,855	$ 2.90	$ 61,006	$ 12.20	
Construction Contingency	7.00%	$ 27,608	$ 2.23	$ 46,975	$ 9.39	
Contractor Overhead and Profit	6.00%	$ 25,321	$ 2.05	$ 43,083	$ 8.62	
Construction Cost Unit		**$ 447,329**	**$ 36.21**	**$ 761,126**	**$ 152.23**	
Escalation 3.5% per Annum	3.50%	$ 104,362	$ 8.45	$ 177,571	$ 35.51	
Construction Cost Unit with Escalation		**$ 551,691**	**$ 44.66**	**$ 938,697**	**$ 187.74**	
Project Description		Partial demolition of southernmost portion of building.		Light renovation of existing lecture hall.		

A2 COST ESTIMATE

William Paterson University
Academic Zone Master Plan
Project Phasing & Budget Funding Plan
Date: 2012-06-18
Projected Budgets & Unit Pricing

Project Number		**2**			**2**	
Project Name - Sub-Project Name		**Hunziker Wing - Renovation**			**Hunziker Wing - New Addition**	
Original GSF		**49,403**			**49,403**	
Year of Pricing for Escalation (mid-point of construction)		**2018**			**2018**	
Construction Magnitude		**HIGH INTENSITY RENOVATION**			**NEW CONSTRUCTION**	
Divisions		Amount $	Rate $/GSF		Amount $	Rate $/GSF
New/Calculated GSF		**31,050**			**1,000**	
Demolition		$ 372,600	$ 12.00		$ -	$ -
Hazmat Abatement		$ 201,825	$ 6.50		$ -	$ -
Sitework - Site Prep & Earthwork		$ -	$ -		$ 6,000	$ 6.00
Sitework - Utilities		$ -	$ -		$ 2,500	$ 2.50
Sitework - Pavements		$ -	$ -		$ 8,000	$ 8.00
Sitework - Landscape & Misc.		$ 155,250	$ 5.00		$ 5,000	$ 5.00
Foundations/Substructure		$ -	$ -		$ 15,000	$ 15.00
Superstructure		$ 372,600	$ 12.00		$ 24,000	$ 24.00
Roofing and Waterproofing		$ 372,600	$ 12.00		$ 12,000	$ 12.00
Exterior Enclosure		$ 1,117,800	$ 36.00		$ 36,000	$ 36.00
Interior Development - Partitions		$ 589,950	$ 19.00		$ 4,000	$ 4.00
Interior Development - Finishes		$ 807,300	$ 26.00		$ 10,000	$ 10.00
Interior Development - Specialties		$ 155,250	$ 5.00		$ 5,000	$ 5.00
Interior Dev - Equip & Fixed Furnishings/Millwork		$ 496,800	$ 16.00		$ 6,000	$ 6.00
Special Construction, Systems, Process, etc (incl elevator)		$ 372,600	$ 12.00		$ -	$ -
Fire Protection		$ 263,925	$ 8.50		$ 8,500	$ 8.50
Plumbing		$ 558,900	$ 18.00		$ 5,000	$ 5.00
HVAC		$ 1,552,500	$ 50.00		$ 45,000	$ 45.00
Electrical - Power		$ 341,550	$ 11.00		$ 10,000	$ 10.00
Electrical - Lighting		$ 403,650	$ 13.00		$ 12,000	$ 12.00
Electrical - Systems		$ 155,250	$ 5.00		$ 4,000	$ 4.00
Electrical - Telecom/Data/Security		$ 124,200	$ 4.00		$ 2,500	$ 2.50
Miscellaneous (Specify)- Pool- 6 lanes- No Equipment		$ -	$ -		$ -	$ -
Direct Construction Cost Unit		**$ 8,414,550**	**$ 271.00**		**$ 220,500**	**$ 220.50**
General Conditions (incl Bonds and Insurance)	7.50%	$ 631,091	$ 20.33		$ 16,538	$ 16.54
Design & Estimating Contingency	10.00%	$ 904,564	$ 29.13		$ 23,704	$ 23.70
Construction Contingency	7.00%	$ 696,514	$ 22.43		$ 18,252	$ 18.25
Contractor Overhead and Profit	6.00%	$ 638,803	$ 20.57		$ 16,740	$ 16.74
Construction Cost Unit		**$ 11,285,523**	**$ 363.46**		**$ 295,733**	**$ 295.73**
Escalation 3.5% per Annum	3.50%	$ 2,632,913	$ 84.80		$ 68,994	$ 68.99
Construction Cost Unit with Escalation		**$ 13,918,435**	**$ 448.26**		**$ 364,727**	**$ 364.73**
Project Description		Heavy renovation of existing building, including new exterior, new glazing and all new mechanical systems.			Construction of new fire egress stair.	

COST ESTIMATE A2

William Paterson University
Academic Zone Master Plan
Project Phasing & Budget Funding Plan
Date: 2012-06-18
Projected Budgets & Unit Pricing

Project Number	3	
Project Name - Sub-Project Name	**New Natatorium**	
Original GSF	n/a	
Year of Pricing for Escalation (mid-point of construction)	**2015**	
Construction Magnitude	**NEW CONSTRUCTION**	
Divisions	Amount $	Rate $/GSF
New/Calculated GSF	**0**	
Demolition	$ -	$ -
Hazmat Abatement	$ -	$ -
Sitework - Site Prep & Earthwork	$ -	$ -
Sitework - Utilities	$ -	$ -
Sitework - Pavements	$ -	$ -
Sitework - Landscape & Misc.	$ -	$ -
Foundations/Substructure	$ -	$ -
Superstructure	$ -	$ -
Roofing and Waterproofing	$ -	$ -
Exterior Enclosure	$ -	$ -
Interior Development - Partitions	$ -	$ -
Interior Development - Finishes	$ -	$ -
Interior Development - Specialties	$ -	$ -
Interior Dev - Equip & Fixed Furnishings/Millwork	$ -	$ -
Special Construction, Systems, Process, etc (incl elevator)	$ -	$ -
Fire Protection	$ -	$ -
Plumbing	$ -	$ -
HVAC	$ -	$ -
Electrical - Power	$ -	$ -
Electrical - Lighting	$ -	$ -
Electrical - Systems	$ -	$ -
Electrical - Telecom/Data/Security	$ -	$ -
Miscellaneous (Specify)- Pool- 6 lanes- No Equipment	$ -	$ -
Direct Construction Cost Unit	**$ -**	**$ -**
General Conditions (incl Bonds and Insurance) 7.50%	$ -	$ -
Design & Estimating Contingency 10.00%	$ -	$ -
Construction Contingency 7.00%	$ -	$ -
Contractor Overhead and Profit 6.00%	$ -	$ -
Construction Cost Unit	**$ -**	**$ -**
Escalation 3.5% per Annum 3.50%	$ -	$ -
Construction Cost Unit with Escalation	**$ -**	**$ -**
Project Description	Construction of new natatorium and attendant space - not programmed and therefore not costed.	

A2 COST ESTIMATE

William Paterson University
Academic Zone Master Plan
Project Phasing & Budget Funding Plan
Date: 2012-06-18
Projected Budgets & Unit Pricing

Project Number		**4**			**4**	
Project Name - Sub-Project Name		**Acad 2 - Wightman Gym Demolition**			**Acad 2 - New Building**	
Original GSF		**n/a**			**n/a**	
Year of Pricing for Escalation (mid-point of construction)		**2018**			**2018**	
Construction Magnitude		**DEMOLITION**			**NEW CONSTRUCTION**	
Divisions		Amount $	Rate $/GSF		Amount $	Rate $/GSF
New/Calculated GSF		**39,849**			**124,575**	
Demolition		$ 876,678	$ 22.00		$ -	$ -
Hazmat Abatement		$ 239,094	$ 6.00		$ -	$ -
Sitework - Site Prep & Earthwork		$ -	$ -		$ 872,025	$ 7.00
Sitework - Utilities		$ -	$ -		$ 311,438	$ 2.50
Sitework - Pavements		$ -	$ -		$ 872,025	$ 7.00
Sitework - Landscape & Misc.		$ -	$ -		$ 622,875	$ 5.00
Foundations/Substructure		$ -	$ -		$ 2,491,500	$ 20.00
Superstructure		$ -	$ -		$ 3,737,250	$ 30.00
Roofing and Waterproofing		$ -	$ -		$ 1,744,050	$ 14.00
Exterior Enclosure		$ -	$ -		$ 5,232,150	$ 42.00
Interior Development - Partitions		$ -	$ -		$ 2,242,350	$ 18.00
Interior Development - Finishes		$ -	$ -		$ 3,238,950	$ 26.00
Interior Development - Specialties		$ -	$ -		$ 622,875	$ 5.00
Interior Dev - Equip & Fixed Furnishings/Millwork		$ -	$ -		$ 1,993,200	$ 16.00
Special Construction, Systems, Process, etc (incl elevator)		$ -	$ -		$ 1,993,200	$ 16.00
Fire Protection		$ -	$ -		$ 1,058,888	$ 8.50
Plumbing		$ -	$ -		$ 2,366,925	$ 19.00
HVAC		$ -	$ -		$ 7,474,500	$ 60.00
Electrical - Power		$ -	$ -		$ 1,744,050	$ 14.00
Electrical - Lighting		$ -	$ -		$ 1,868,625	$ 15.00
Electrical - Systems		$ -	$ -		$ 747,450	$ 6.00
Electrical - Telecom/Data/Security		$ -	$ -		$ 622,875	$ 5.00
Miscellaneous (Specify)- Pool- 6 lanes- No Equipment		$ -	$ -		$ -	$ -
Direct Construction Cost Unit		**$ 1,115,772**	**$ 28.00**		**$ 41,857,200**	**$ 336.00**
General Conditions (incl Bonds and Insurance)	7.50%	$ 83,683	$ 2.10		$ 3,139,290	$ 25.20
Design & Estimating Contingency	10.00%	$ 119,945	$ 3.01		$ 4,499,649	$ 36.12
Construction Contingency	7.00%	$ 92,358	$ 2.32		$ 3,464,730	$ 27.81
Contractor Overhead and Profit	6.00%	$ 84,706	$ 2.13		$ 3,177,652	$ 25.51
Construction Cost Unit		**$ 1,496,464**	**$ 37.55**		**$ 56,138,521**	**$ 450.64**
Escalation 3.5% per Annum	3.50%	$ 349,125	$ 8.76		$ 13,097,117	$ 105.13
Construction Cost Unit with Escalation		**$ 1,845,589**	**$ 46.31**		**$ 69,235,638**	**$ 555.77**
Project Description		Demolition of existing Coach House to make way for new academic building.			Construction of new academic building supporting general instruction and academic development. Includes some rock excavation and extensive foundations as building steps up three-story hillside. Designed to LEED Gold.	

William Paterson University
Academic Zone Master Plan
Project Phasing & Budget Funding Plan
Date: 2012-06-18
Projected Budgets & Unit Pricing

Project Number		5			5	
Project Name - Sub-Project Name		**Hunziker Hall - Part. Interior Demolition**			**Hunziker Hall - Renovation**	
Original GSF		**25,667**			**25,667**	
Year of Pricing for Escalation (mid-point of construction)		**2020**			**2020**	
Construction Magnitude		**DEMOLITION**			**MEDIUM INTENSITY RENOVATION**	
Divisions		Amount $	Rate $/GSF		Amount $	Rate $/GSF
New/Calculated GSF		**667**			**12,392**	
Demolition		$ 13,340	$ 20.00		$ 74,352	$ 6.00
Hazmat Abatement		$ 4,669	$ 7.00		$ 55,764	$ 4.50
Sitework - Site Prep & Earthwork		$ -	$ -		$ -	$ -
Sitework - Utilities		$ -	$ -		$ -	$ -
Sitework - Pavements		$ -	$ -		$ -	$ -
Sitework - Landscape & Misc.		$ -	$ -		$ -	$ -
Foundations/Substructure		$ -	$ -		$ -	$ -
Superstructure		$ -	$ -		$ 61,960	$ 5.00
Roofing and Waterproofing		$ -	$ -		$ 148,704	$ 12.00
Exterior Enclosure		$ -	$ -		$ 285,016	$ 23.00
Interior Development - Partitions		$ -	$ -		$ 161,096	$ 13.00
Interior Development - Finishes		$ -	$ -		$ 235,448	$ 19.00
Interior Development - Specialties		$ -	$ -		$ 24,784	$ 2.00
Interior Dev - Equip & Fixed Furnishings/Millwork		$ -	$ -		$ 123,920	$ 10.00
Special Construction, Systems, Process, etc (incl elevator)		$ -	$ -		$ 61,960	$ 5.00
Fire Protection		$ -	$ -		$ 49,568	$ 4.00
Plumbing		$ -	$ -		$ 123,920	$ 10.00
HVAC		$ -	$ -		$ 371,760	$ 30.00
Electrical - Power		$ -	$ -		$ 86,744	$ 7.00
Electrical - Lighting		$ -	$ -		$ 99,136	$ 8.00
Electrical - Systems		$ -	$ -		$ 49,568	$ 4.00
Electrical - Telecom/Data/Security		$ -	$ -		$ 37,176	$ 3.00
Miscellaneous (Specify)- Pool- 6 lanes- No Equipment		$ -	$ -		$ -	$ -
Direct Construction Cost Unit		**$ 18,009**	**$ 27.00**		**$ 2,050,876**	**$ 165.50**
General Conditions (incl Bonds and Insurance)	7.50%	$ 1,351	$ 2.03		$ 153,816	$ 12.41
Design & Estimating Contingency	10.00%	$ 1,936	$ 2.90		$ 220,469	$ 17.79
Construction Contingency	7.00%	$ 1,491	$ 2.23		$ 169,761	$ 13.70
Contractor Overhead and Profit	6.00%	$ 1,367	$ 2.05		$ 155,695	$ 12.56
Construction Cost Unit		**$ 24,154**	**$ 36.21**		**$ 2,750,617**	**$ 221.97**
Escalation 3.5% per Annum	3.50%	$ 7,997	$ 11.99		$ 910,729	$ 73.49
Construction Cost Unit with Escalation		**$ 32,151**	**$ 48.20**		**$ 3,661,347**	**$ 295.46**
Project Description		Partial interior demolition of center of building for new atrium.			Medium renovation of interior spaces.	

A2 COST ESTIMATE

William Paterson University
Academic Zone Master Plan
Project Phasing & Budget Funding Plan
Date: 2012-06-18
Projected Budgets & Unit Pricing

Project Number		**5**	
Project Name - Sub-Project Name		**Hunziker Hall - Renovation**	
Original GSF		**25,667**	
Year of Pricing for Escalation (mid-point of construction)		**2020**	
Construction Magnitude		**HIGH INTENSITY RENOVATION**	
Divisions		Amount $	Rate $/GSF
New/Calculated GSF		**6,748**	
Demolition		$ 67,480	$ 10.00
Hazmat Abatement		$ 43,862	$ 6.50
Sitework - Site Prep & Earthwork		$ -	$ -
Sitework - Utilities		$ -	$ -
Sitework - Pavements		$ -	$ -
Sitework - Landscape & Misc.		$ -	$ -
Foundations/Substructure		$ -	$ -
Superstructure		$ 67,480	$ 10.00
Roofing and Waterproofing		$ 94,472	$ 14.00
Exterior Enclosure		$ 168,700	$ 25.00
Interior Development - Partitions		$ 101,220	$ 15.00
Interior Development - Finishes		$ 141,708	$ 21.00
Interior Development - Specialties		$ 26,992	$ 4.00
Interior Dev - Equip & Fixed Furnishings/Millwork		$ 114,716	$ 17.00
Special Construction, Systems, Process, etc (incl elevator)		$ 101,220	$ 15.00
Fire Protection		$ 37,114	$ 5.50
Plumbing		$ 94,472	$ 14.00
HVAC		$ 337,400	$ 50.00
Electrical - Power		$ 74,228	$ 11.00
Electrical - Lighting		$ 80,976	$ 12.00
Electrical - Systems		$ 33,740	$ 5.00
Electrical - Telecom/Data/Security		$ 33,740	$ 5.00
Miscellaneous (Specify)- Pool- 6 lanes- No Equipment		$ -	$ -
Direct Construction Cost Unit		**$ 1,619,520**	**$ 240.00**
General Conditions (incl Bonds and Insurance)	7.50%	$ 121,464	$ 18.00
Design & Estimating Contingency	10.00%	$ 174,098	$ 25.80
Construction Contingency	7.00%	$ 134,056	$ 19.87
Contractor Overhead and Profit	6.00%	$ 122,948	$ 18.22
Construction Cost Unit		**$ 2,172,086**	**$ 321.89**
Escalation 3.5% per Annum	3.50%	$ 719,178	$ 106.58
Construction Cost Unit with Escalation		**$ 2,891,264**	**$ 428.46**
Project Description		Heavy renovation of interior spaces, as well as replacement of exterior glazing and all mechanical systems.	

William Paterson University
Academic Zone Master Plan
Project Phasing & Budget Funding Plan
Date: 2012-06-18
Projected Budgets & Unit Pricing

Project Number		6		6		
Project Name - Sub-Project Name		**Raubinger Hall - Renovation**		**Raubinger Hall - Renovation**		
Original GSF		**44,402**		**44,402**		
Year of Pricing for Escalation (mid-point of construction)		**2022**		**2022**		
Construction Magnitude		**LOW INTENSITY RENOVATION**		**MEDIUM INTENSITY RENOVATION**		
Divisions		Amount $	Rate $/GSF	Amount $	Rate $/GSF	
New/Calculated GSF		**8,000**		**36,402**		
Demolition		$ 48,000	$ 6.00	$ 254,814	$ 7.00	
Hazmat Abatement		$ 36,000	$ 4.50	$ 163,809	$ 4.50	
Sitework - Site Prep & Earthwork		$ -	$ -	$ -	$ -	
Sitework - Utilities		$ -	$ -	$ -	$ -	
Sitework - Pavements		$ -	$ -	$ -	$ -	
Sitework - Landscape & Misc.		$ -	$ -	$ -	$ -	
Foundations/Substructure		$ -	$ -	$ -	$ -	
Superstructure		$ -	$ -	$ 109,206	$ 3.00	
Roofing and Waterproofing		$ 16,000	$ 2.00	$ 527,829	$ 14.50	
Exterior Enclosure		$ 40,000	$ 5.00	$ 837,246	$ 23.00	
Interior Development - Partitions		$ 96,000	$ 12.00	$ 473,226	$ 13.00	
Interior Development - Finishes		$ 120,000	$ 15.00	$ 691,638	$ 19.00	
Interior Development - Specialties		$ 16,000	$ 2.00	$ 72,804	$ 2.00	
Interior Dev - Equip & Fixed Furnishings/Millwork		$ 48,000	$ 6.00	$ 364,020	$ 10.00	
Special Construction, Systems, Process, etc (incl elevator)		$ -	$ -	$ 254,814	$ 7.00	
Fire Protection		$ 16,000	$ 2.00	$ 145,608	$ 4.00	
Plumbing		$ 56,000	$ 7.00	$ 182,010	$ 5.00	
HVAC		$ 160,000	$ 20.00	$ 1,128,462	$ 31.00	
Electrical - Power		$ 64,000	$ 8.00	$ 291,216	$ 8.00	
Electrical - Lighting		$ 72,000	$ 9.00	$ 291,216	$ 8.00	
Electrical - Systems		$ 24,000	$ 3.00	$ 145,608	$ 4.00	
Electrical - Telecom/Data/Security		$ 16,000	$ 2.00	$ 109,206	$ 3.00	
Miscellaneous (Specify)- Pool- 6 lanes- No Equipment		$ -	$ -	$ -	$ -	
Direct Construction Cost Unit		**$ 828,000**	**$ 103.50**	**$ 6,042,732**	**$ 166.00**	
General Conditions (incl Bonds and Insurance)	7.50%	$ 62,100	$ 7.76	$ 453,205	$ 12.45	
Design & Estimating Contingency	10.00%	$ 89,010	$ 11.13	$ 649,594	$ 17.85	
Construction Contingency	7.00%	$ 68,538	$ 8.57	$ 500,187	$ 13.74	
Contractor Overhead and Profit	6.00%	$ 62,859	$ 7.86	$ 458,743	$ 12.60	
Construction Cost Unit		**$ 1,110,507**	**$ 138.81**	**$ 8,104,461**	**$ 222.64**	
Escalation 3.5% per Annum	3.50%	$ 461,193	$ 57.65	$ 3,365,783	$ 92.46	
Construction Cost Unit with Escalation		**$ 1,571,700**	**$ 196.46**	**$ 11,470,243**	**$ 315.10**	
Project Description		Light renovation of interior spaces.		Medium renovation of interior spaces, including replacement of all exterior windows.		

A2 COST ESTIMATE

William Paterson University
Academic Zone Master Plan
Project Phasing & Budget Funding Plan
Date: 2012-06-18
Projected Budgets & Unit Pricing

Project Number		**7**			**7**	
Project Name - Sub-Project Name		**Shea Center - Renovation**			**Shea Center - Renovation**	
Original GSF		**33,437**			**44,976**	
Year of Pricing for Escalation (mid-point of construction)		**2022**			**2022**	
Construction Magnitude		**MEDIUM INTENSITY RENOVATION**			**HIGH INTENSITY RENOVATION**	
		Amount	Rate		Amount	Rate
Divisions		$	$/GSF		$	$/GSF
New/Calculated GSF		**18,821**			**19,235**	
Demolition		$ 112,926	$ 6.00		$ 192,350	$ 10.00
Hazmat Abatement		$ 84,695	$ 4.50		$ 125,028	$ 6.50
Sitework - Site Prep & Earthwork		$ -	$ -		$ -	$ -
Sitework - Utilities		$ -	$ -		$ -	$ -
Sitework - Pavements		$ -	$ -		$ -	$ -
Sitework - Landscape & Misc.		$ -	$ -		$ -	$ -
Foundations/Substructure		$ -	$ -		$ -	$ -
Superstructure		$ 56,463	$ 3.00		$ 134,645	$ 7.00
Roofing and Waterproofing		$ 291,726	$ 15.50		$ 269,290	$ 14.00
Exterior Enclosure		$ 432,883	$ 23.00		$ 442,405	$ 23.00
Interior Development - Partitions		$ 244,673	$ 13.00		$ 288,525	$ 15.00
Interior Development - Finishes		$ 357,599	$ 19.00		$ 403,935	$ 21.00
Interior Development - Specialties		$ 37,642	$ 2.00		$ 57,705	$ 3.00
Interior Dev - Equip & Fixed Furnishings/Millwork		$ 188,210	$ 10.00		$ 346,230	$ 18.00
Special Construction, Systems, Process, etc (incl elevator)		$ 94,105	$ 5.00		$ 288,525	$ 15.00
Fire Protection		$ 75,284	$ 4.00		$ 105,793	$ 5.50
Plumbing		$ 94,105	$ 5.00		$ 269,290	$ 14.00
HVAC		$ 526,988	$ 28.00		$ 961,750	$ 50.00
Electrical - Power		$ 169,389	$ 9.00		$ 211,585	$ 11.00
Electrical - Lighting		$ 150,568	$ 8.00		$ 230,820	$ 12.00
Electrical - Systems		$ 75,284	$ 4.00		$ 96,175	$ 5.00
Electrical - Telecom/Data/Security		$ 56,463	$ 3.00		$ 57,705	$ 3.00
Miscellaneous (Specify)- Pool- 6 lanes- No Equipment		$ -	$ -		$ -	$ -
Direct Construction Cost Unit		**$ 3,049,002**	**$ 162.00**		**$ 4,481,755**	**$ 233.00**
General Conditions (incl Bonds and Insurance)	7.50%	$ 228,675	$ 12.15		$ 336,132	$ 17.48
Design & Estimating Contingency	10.00%	$ 327,768	$ 17.42		$ 481,789	$ 25.05
Construction Contingency	7.00%	$ 252,381	$ 13.41		$ 370,977	$ 19.29
Contractor Overhead and Profit	6.00%	$ 231,470	$ 12.30		$ 340,239	$ 17.69
Construction Cost Unit		**$ 4,089,296**	**$ 217.27**		**$ 6,010,892**	**$ 312.50**
Escalation 3.5% per Annum	3.50%	$ 1,698,284	$ 90.23		$ 2,496,323	$ 129.78
Construction Cost Unit with Escalation		**$ 5,787,580**	**$ 307.51**		**$ 8,507,215**	**$ 442.28**
Project Description		Medium renovation of interior spaces.			Heavy renovation of interior spaces, as well as replacement of exterior glazing and all mechanical systems.	

William Paterson University
Academic Zone Master Plan
Project Phasing & Budget Funding Plan
Date: 2012-06-18
Projected Budgets & Unit Pricing

Project Number		**1**		**2**		
Project Name - Sub-Project Name		**Speert Garden**		**East Entry Court**		
Original GSF		n/a		n/a		
Year of Pricing for Escalation (mid-point of construction)		-		-		
Construction Magnitude		**OPEN SPACE**		**OPEN SPACE**		
Divisions		Amount $	Rate $/GSF	Amount $	Rate $/GSF	
New/Calculated GSF		**70,000**		**37,500**		
Demolition		$ -	$ -	$ -	$ -	
Hazmat Abatement		$ -	$ -	$ -	$ -	
Sitework - Site Prep & Earthwork		$ 140,000	$ 2.00	$ 150,000	$ 4.00	
Sitework - Utilities		$ 525,000	$ 7.50	$ 281,250	$ 7.50	
Sitework - Pavements		$ 630,000	$ 9.00	$ 412,500	$ 11.00	
Sitework - Landscape & Misc.		$ 420,000	$ 6.00	$ 243,750	$ 6.50	
Foundations/Substructure		$ -	$ -	$ -	$ -	
Superstructure		$ -	$ -	$ -	$ -	
Roofing and Waterproofing		$ -	$ -	$ -	$ -	
Exterior Enclosure		$ -	$ -	$ -	$ -	
Interior Development - Partitions		$ -	$ -	$ -	$ -	
Interior Development - Finishes		$ -	$ -	$ -	$ -	
Interior Development - Specialties		$ -	$ -	$ -	$ -	
Interior Dev - Equip & Fixed Furnishings/Millwork		$ -	$ -	$ -	$ -	
Special Construction, Systems, Process, etc (incl elevator)		$ -	$ -	$ -	$ -	
Fire Protection		$ -	$ -	$ -	$ -	
Plumbing		$ -	$ -	$ -	$ -	
HVAC		$ -	$ -	$ -	$ -	
Electrical - Power		$ -	$ -	$ -	$ -	
Electrical - Lighting		$ -	$ -	$ -	$ -	
Electrical - Systems		$ -	$ -	$ -	$ -	
Electrical - Telecom/Data/Security		$ -	$ -	$ -	$ -	
Miscellaneous (Specify)- Pool- 6 lanes- No Equipment		$ -	$ -	$ -	$ -	
Direct Construction Cost Unit		**$ 1,715,000**	**$ 24.50**	**$ 1,087,500**	**$ 29.00**	
General Conditions (incl Bonds and Insurance)	7.50%	$ 128,625	$ 1.84	$ 81,563	$ 2.18	
Design & Estimating Contingency	10.00%	$ 184,363	$ 2.63	$ 116,906	$ 3.12	
Construction Contingency	7.00%	$ 141,959	$ 2.03	$ 90,018	$ 2.40	
Contractor Overhead and Profit	6.00%	$ 130,197	$ 1.86	$ 82,559	$ 2.20	
Construction Cost Unit		**$ 2,300,143**	**$ 32.86**	**$ 1,458,546**	**$ 38.89**	
Escalation 3.5% per Annum	3.50%	$ 955,250	$ 13.65	$ 605,734	$ 16.15	
Construction Cost Unit with Escalation		**$ 3,255,393**	**$ 46.51**	**$ 2,064,280**	**$ 55.05**	
Project Description		Reconstruction of existing open space featuring a large central lawn and adjacent amphitheater. 40% hardscape.		New entry court with adjacent cul-de-sac for vehicular pick-up/drop-off. 50% hardscape.		

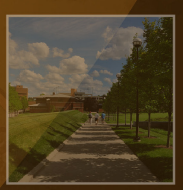
A2 COST ESTIMATE

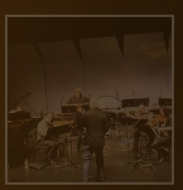
William Paterson University
Academic Zone Master Plan
Project Phasing & Budget Funding Plan
Date: 2012-06-18
Projected Budgets & Unit Pricing

Project Number		3		4		
Project Name - Sub-Project Name		**Raubinger Quad**		**Pompton Greenway Connector**		
Original GSF		n/a		n/a		
Year of Pricing for Escalation (mid-point of construction)		-		-		
Construction Magnitude		**OPEN SPACE**		**OPEN SPACE**		
Divisions		Amount $	Rate $/GSF	Amount $	Rate $/GSF	
New/Calculated GSF		**45,000**		**100,000**		
Demolition		$ -	$ -	$ -	$ -	
Hazmat Abatement		$ -	$ -	$ -	$ -	
Sitework - Site Prep & Earthwork		$ 90,000	$ 2.00	$ 200,000	$ 2.00	
Sitework - Utilities		$ 337,500	$ 7.50	$ 750,000	$ 7.50	
Sitework - Pavements		$ 315,000	$ 7.00	$ 600,000	$ 6.00	
Sitework - Landscape & Misc.		$ 225,000	$ 5.00	$ 450,000	$ 4.50	
Foundations/Substructure		$ -	$ -	$ -	$ -	
Superstructure		$ -	$ -	$ -	$ -	
Roofing and Waterproofing		$ -	$ -	$ -	$ -	
Exterior Enclosure		$ -	$ -	$ -	$ -	
Interior Development - Partitions		$ -	$ -	$ -	$ -	
Interior Development - Finishes		$ -	$ -	$ -	$ -	
Interior Development - Specialties		$ -	$ -	$ -	$ -	
Interior Dev - Equip & Fixed Furnishings/Millwork		$ -	$ -	$ -	$ -	
Special Construction, Systems, Process, etc (incl elevator)		$ -	$ -	$ -	$ -	
Fire Protection		$ -	$ -	$ -	$ -	
Plumbing		$ -	$ -	$ -	$ -	
HVAC		$ -	$ -	$ -	$ -	
Electrical - Power		$ -	$ -	$ -	$ -	
Electrical - Lighting		$ -	$ -	$ -	$ -	
Electrical - Systems		$ -	$ -	$ -	$ -	
Electrical - Telecom/Data/Security		$ -	$ -	$ -	$ -	
Miscellaneous (Specify)- Pool- 6 lanes- No Equipment		$ -	$ -	$ -	$ -	
Direct Construction Cost Unit		**$ 967,500**	**$ 21.50**	**$ 2,000,000**	**$ 20.00**	
General Conditions (incl Bonds and Insurance)	7.50%	$ 72,563	$ 1.61	$ 150,000	$ 1.50	
Design & Estimating Contingency	10.00%	$ 104,006	$ 2.31	$ 215,000	$ 2.15	
Construction Contingency	7.00%	$ 80,085	$ 1.78	$ 165,550	$ 1.66	
Contractor Overhead and Profit	6.00%	$ 73,449	$ 1.63	$ 151,833	$ 1.52	
Construction Cost Unit		**$ 1,297,603**	**$ 28.84**	**$ 2,682,383**	**$ 26.82**	
Escalation 3.5% per Annum	3.50%	$ 538,894	$ 11.98	$ 1,113,994	$ 11.14	
Construction Cost Unit with Escalation		**$ 1,836,497**	**$ 40.81**	**$ 3,796,377**	**$ 37.96**	
Project Description		Expansion of existing open space featuring large central lawn. 30% hardscape.		New open space that replaces former parking area. Includes pick-off and drop-off drive for Shea Center. 20% hardscape.		

William Paterson University
Academic Zone Master Plan
Project Phasing & Budget Funding Plan
Date: 2012-06-18
Projected Budgets & Unit Pricing

Project Number		n/a		n/a		
Project Name - Sub-Project Name		**Baseline Coach House Renovation**		**Baseline Coach House Renovation**		
Original GSF		**10,809**		**10,809**		
Year of Pricing for Escalation (mid-point of construction)		**2015**		**2015**		
Construction Magnitude		**DEMOLITION**		**HIGH INTENSITY RENOVATION**		
Divisions		Amount $	Rate $/GSF	Amount $	Rate $/GSF	
New/Calculated GSF		**7,809**		**3,000**		
Demolition		$ 148,371	$ 19.00	$ 36,000	$ 12.00	
Hazmat Abatement		$ 54,663	$ 7.00	$ 19,500	$ 6.50	
Sitework - Site Prep & Earthwork		$ -	$ -	$ 18,000	$ 6.00	
Sitework - Utilities		$ -	$ -	$ 7,500	$ 2.50	
Sitework - Pavements		$ -	$ -	$ 24,000	$ 8.00	
Sitework - Landscape & Misc.		$ -	$ -	$ 15,000	$ 5.00	
Foundations/Substructure		$ -	$ -	$ 30,000	$ 10.00	
Superstructure		$ -	$ -	$ 60,000	$ 20.00	
Roofing and Waterproofing		$ -	$ -	$ 42,000	$ 14.00	
Exterior Enclosure		$ -	$ -	$ 90,000	$ 30.00	
Interior Development - Partitions		$ -	$ -	$ 45,000	$ 15.00	
Interior Development - Finishes		$ -	$ -	$ 63,000	$ 21.00	
Interior Development - Specialties		$ -	$ -	$ 9,000	$ 3.00	
Interior Dev - Equip & Fixed Furnishings/Millwork		$ -	$ -	$ 54,000	$ 18.00	
Special Construction, Systems, Process, etc (incl elevator)		$ -	$ -	$ 15,000	$ 5.00	
Fire Protection		$ -	$ -	$ 16,500	$ 5.50	
Plumbing		$ -	$ -	$ 54,000	$ 18.00	
HVAC		$ -	$ -	$ 150,000	$ 50.00	
Electrical - Power		$ -	$ -	$ 33,000	$ 11.00	
Electrical - Lighting		$ -	$ -	$ 36,000	$ 12.00	
Electrical - Systems		$ -	$ -	$ 15,000	$ 5.00	
Electrical - Telecom/Data/Security		$ -	$ -	$ 9,000	$ 3.00	
Miscellaneous (Specify)- Pool- 6 lanes- No Equipment		$ -	$ -	$ -	$ -	
Direct Construction Cost Unit		**$ 203,034**	**$ 26.00**	**$ 841,500**	**$ 280.50**	
General Conditions (incl Bonds and Insurance)	7.50%	$ 15,228	$ 1.95	$ 63,113	$ 21.04	
Design & Estimating Contingency	10.00%	$ 21,826	$ 2.80	$ 90,461	$ 30.15	
Construction Contingency	7.00%	$ 16,806	$ 2.15	$ 69,655	$ 23.22	
Contractor Overhead and Profit	6.00%	$ 15,414	$ 1.97	$ 63,884	$ 21.29	
Construction Cost Unit		**$ 272,307**	**$ 34.87**	**$ 1,128,613**	**$ 376.20**	
Escalation 3.5% per Annum	3.50%	$ 30,553	$ 3.91	$ 126,630	$ 42.21	
Construction Cost Unit with Escalation		**$ 302,860**	**$ 38.78**	**$ 1,255,243**	**$ 418.41**	
Project Description		Partial demolition of Coach House.		Full interior demolition and reconstruction of original portion of Coach House to function as a single-level café. Envisions extensive foundation, structural and exterior envelope investments.		





Perkins Eastman