

The background of the entire page is a solid red color. Overlaid on this background is a large, semi-transparent watermark of the Rutgers University seal. The seal features a sunburst on the left, a laurel wreath on the right, and the text 'RUTGERS UNIVERSITY' and '1766' around the perimeter.

RUTGERS UNIVERSITY PHYSICAL MASTER PLAN

# RUTGERS 2030

VOLUME 1: NEW BRUNSWICK

JUNE 18, 2015 - RBHS Section 4.5 Rev. March 23, 2017



# PREFACE

Rutgers University embarked on Rutgers 2030 in May 2013, the first comprehensive master plan in over a decade, and the first to incorporate Rutgers Biomedical and Health Sciences (RBHS), created from the integration of the University of Medicine and Dentistry of New Jersey (UMDNJ) with Rutgers University in July 2013. The physical master plan complements the Rutgers University Strategic Plan, prepared in conjunction with the Boston Consulting Group, and approved by the Board of Governors in February 2014, and the strategic plans of each of Rutgers' component institutions.

Rutgers 2030 envisions development at Rutgers over a 15-year time frame, 2015 to 2030, and is comprehensive in its scope; taking into account buildings, the natural and constructed landscape, transportation, and infrastructure. The report consists of three volumes:

- Volume 1: Rutgers University–New Brunswick
- Volume 2: Rutgers University–Newark
- Volume 3: Rutgers University–Camden

RBHS is considered primarily within Volume 1 although constituent elements are found across Rutgers.

The scope of input was broad, involving survey responses from approximately 8,000 members of the community, over thirty presentations and town hall meetings, and meetings with many administrators, faculty, and student groups.

This study would not have been possible without the leadership of Rutgers University President Robert L. Barchi and support of Chancellors Nancy Cantor, Richard Edwards, Phoebe Haddon, and Brian Strom. In addition, the Physical Master Plan Executive Steering Committee, Rutgers University Facilities and Capital Planning members, Deans, staff, faculty and students contributed invaluable insight to the development of the project.

The master plan consulting team included Robert A.M. Stern Architects, Sasaki Associates, VHB, Buro Happold, and Toscano Clements Taylor.



# Volume 1: New Brunswick

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The background of the slide features a large, semi-transparent watermark of the Rutgers University seal. The seal is circular and contains the text 'RUTGERS THE STATE UNIVERSITY OF NEW JERSEY' around its perimeter. The central part of the seal is partially obscured by the large '4.5' text.

# 4.5

## RBHS

4.5.1 EXECUTIVE SUMMARY

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UMDNJ  
New Jersey Medical School  
Doctors Office Center

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## 4.5 Rutgers Biomedical and Health Sciences (RBHS)

The New Jersey Medical and Health Sciences Education Restructuring Act established Rutgers Biomedical and Health Services (RBHS) in July 2013 as the health care education, research, and clinical division at Rutgers University, comprising most of the former University of Medicine and Dentistry of New Jersey (UMDNJ) and several existing Rutgers units with health-related missions. The integration resulted in eight schools, four centers and institutes and a behavioral health care network, spread across several Rutgers University locations; Rutgers University-New Brunswick, Piscataway and Newark; Rutgers Health Sciences campuses in Newark, Scotch Plains and Stratford, and at additional locations in New Jersey. RBHS physical resources in New Brunswick/Piscataway and Newark are described in this chapter. RBHS physical resources in other locations are outside the scope of this study.

RBHS includes Robert Wood Johnson Medical School (RWJMS), New Jersey Medical School (NJMS), Ernest Mario School of Pharmacy (EMSOP), Graduate School of Biomedical Sciences (GSBS), Rutgers School of Dental Medicine (RSDM), Rutgers School of Nursing (SON), School of Public Health (SPH), and the School of Health Professions (SHP), formerly known as the School of Health Related Professions (SHRP). The four primary centers and institutes are Rutgers Cancer

Institute of New Jersey (CINJ), Center for Advanced Biotechnology and Medicine (CABM), Environmental and Occupational Health Sciences Institute (EOHSI), and the Institute for Health, Health Care Policy and Aging Research (IFH). In addition the University Behavioral Healthcare Network (UBHC) operates from several locations across New Jersey. RBHS currently includes approximately 60 buildings containing 6.4 million gross square feet.

Upon completion of the Rutgers University-wide Strategic Plan, RBHS spent several months developing its own strategic plan, resulting in its release in October 2014. The RBHS Strategic Plan sets out its mission and vision for the near term future, building on the University-wide strategic plan. The RBHS mission is as follows:

**RBHS aspires to be recognized as one of the best academic health centers in the US, known for its education, research, clinical care, and commitment to improving access to healthcare and reducing healthcare disparities.**

The strategic plan is closely tied to recent changes in the delivery of health care services and by the Affordable Care Act, which has increased focus on preventive care and population health. The strategic plan identifies signature programs built upon current areas of strength, where the primary focus of research investment will occur over the next five years, in the following areas - cancer, environmental and occupational health, neuroscience, and community health and health systems.

Complementary programs, educational and clinical initiatives, and other community service activities are also identified in the strategic plan.

The physical master plan is aligned to support the emergent RBHS strategic plan, organized geographically to address RBHS space by campus. As with the Rutgers Master Plan, the RBHS plan is based on a 15 year time horizon and an end date of 2030.

*Photograph on previous page:*

*Figure 4.5.1.1: Changing of building signage as UMDNJ integrates with Rutgers University July 1, 2013.*

*Photo by Nick Romanenko, copyright Rutgers, the State University of New Jersey.*





Figure 4.5.2: Health Sciences at New Brunswick/Piscataway and at Newark. Clockwise from Left: Entry to RWJMS in Piscataway, School of Nursing (L) and IFH (R) in New Brunswick, and School of Dental Medicine in Newark.

## 4.5.1 Executive Summary

This report is prepared as an update to the Rutgers 2030 plan for RBHS, as new information is made available. The RBHS Strategic Plan released in October 2014 led to various efforts to realign departments with similar missions, to strengthen signature programs and bolster those identified as emergent programs.

This plan includes a space utilization study to assess existing space and future space needs, and builds upon a recently completed facility conditions analysis. Based on information received from RBHS and Rutgers, and through discussions with key RBHS stakeholders, Rutgers 2030 plans for anticipated growth of approximately a million square feet, to be added to the existing five million square feet of academic, research and clinical space in the next fifteen years.

The facility conditions analysis identified several buildings that should be studied further to determine the highest and best use for existing facilities. At New Brunswick and Piscataway, the Medical Education Building, Research Tower and Kessler Building are proposed to be renovated or its programs relocated; at Piscataway, the UBHC is proposed for eventual replacement; and at Newark, the Medical Science Building and Administrative Complex (ADMC) of buildings are identified for renovation and/or relocation.

Based on the findings in the space utilization study

and facility conditions analysis, the physical master plan considered the relationships of facilities with their functions and made recommendations for renovation, reconfiguration as well as for additional new development.

Across the Health Sciences locations in New Brunswick/Piscataway and at Newark, the physical master plan responds to several strategic initiatives:

**Emphasize interprofessional education** - stronger collaboration and proximity to others in similar fields increases the exchange of ideas to provide better outcomes.

**Improve research space** - research space, ranging from wet-lab to office-based research needs to be updated in order to support RBHS's mission to be known as a national research institution.

**Increase collaboration and sense of community** - shared spaces like meeting rooms and research support spaces that serve all at RBHS promote a feeling of community within RBHS and breaks down the silos previously common in legacy UMDNJ departments.

**Elevate schools** - providing adequately sized classrooms, appropriately sized and located faculty offices and locating these departments where they

can be easily located enhances their place in the healthcare education world.

**Enhance clinical delivery** - through appropriately fitted clinical and ambulatory care facilities, and in close coordination with primary clinical partners, clinical outcomes will be improved.

Key initiatives important to this study are as follows, and when implemented, have the power to transform RBHS:

- Consolidate and relocate 1st and 2nd year students for RWJMS to New Brunswick, along with associated applied and translational research space. IFH and SON are also identified to need immediate expansion.
- Provide a new basic research building in Piscataway, possibly along Hoes Lane West, once the need for additional space is reached.
- Provide a new interprofessional building in Newark, along with additional research space. New development at the ADMC site to the north of the hospital provides enhanced amenities. Some of this development hinges on the development of University Hospital, by others.

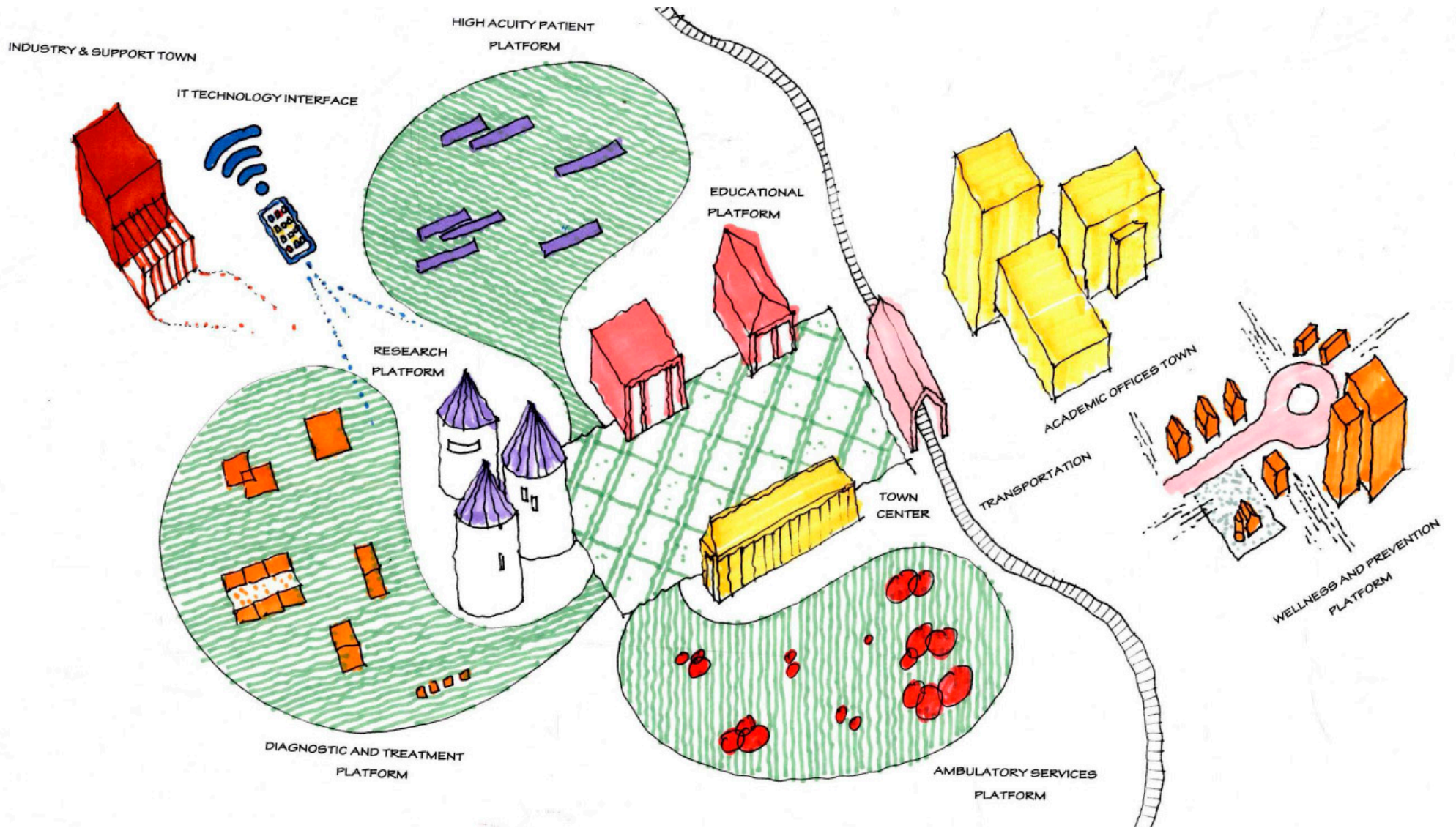


Figure 4.5.2.1: 21<sup>st</sup> century healthcare education community hub - Intersection of academic, research and clinical sectors.

## 4.5.2 VISION AND GOALS

### NEW 21ST CENTURY HEALTH CARE EDUCATION MODEL

Today's most successful health education facilities must be designed to support "always-on" learning; that is, to provide a complete spectrum of spaces for learning and teaching opportunities, whether formal, informal or from everyday life. An entire facility must be viewed as a classroom of sorts—cafes, outdoor plazas, corridors and lounges—all have the potential to support and 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 active-learning pedagogies, highlight interprofessional experiential learning, and structure an environment for continuous engagement.

Leveraging Interprofessional and Experiential Learning medical education has long relied on clinical placement and practice, but what does this mean in a clinical environment where placement is more difficult, and where delivery is shifting away from a focus on medical students and instead is encompassing interprofessional education and including all types of health professions? How can this be augmented with

simulation? Where are the opportunities? And what are the new markets? Creating a medical education and delivery platform that allows experiential knowledge to flourish requires some operational and facilities change, but those changes don't need to be onerous. Often these changes are a shift in how people think about communication, how they think about sharing, and about how facilities can adapt.

### *Health Care Delivery Changes and Challenges*

With the multitude of demands on health and social service professionals, the rethinking of delivery methods and resources is under review. As techniques and technologies become increasingly complex and specific, the availability of expertise to large and often geographically remote populations relies on telemedicine. Flexibility in lab design, shared work areas, and appropriate technology are the design elements that promote the effectiveness of the program. These same elements and technologies are transferred to the disciplines of human services, including fitness and counseling. As health and human services requires teams to treat patients and clients, the importance of collaboration areas in clinical and research

environments increases.

**Skills Training** The skills training center allows students to put classroom exercises and study to use by practicing various skills on one another. Skills training environments are designed as a bridge between purely instructional settings and simulated practical settings. They are not intended to be experientially immersive or stressful, but rather to allow for thoughtful and facilitated practice.

**Simulation Environments** The simulation center builds on the skills center by placing all types of health program students in an environment filled with other students from across the medical and health science professions. Unlike the skills center, the simulation center features real people acting as patients (known as "standardized patients"), high- and low-fidelity patient simulation mannequins, and possibly virtual reality simulation. Students are placed in simulated and immersive experiences (sometimes highly stressful), where they must deliver health care in situations that model real-life and require real-time decisions that may determine life or death. The simulation center also exposes students to the



experiences of health science and medical students in other programs, allowing for an understanding of the demands being placed on other types of health professionals, improved communication and potential cross-training.

**Connective Areas** The expectation of circulation and other “non-programmed” space has evolved; the double-loaded corridor seen in many of the University’s existing facilities allows for transit but not social interaction. Current best practice in medical 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 corridor, and that corridor should be designed to encourage conversation as opposed to yielding to an overbearing need for space efficiency. This experience continues in work/learn commons where students have the freedom to choose where, when, and how they study – providing the agency necessary to promote innovation and collaboration.

Figure 4.5.2.2: Key themes identified for study

## MASTER PLAN GOALS

The following goals for the master plan were compiled in meetings with RBHS leadership. These goals align with the RBHS Strategic Plan:

- Integrate education, research, clinical, and population health and wellness.
- Be a state-wide, integrated faculty practice.
- Attract the best providers as the foundation for a premier academic health center.
- Provide market leadership for value-based healthcare in the region.
- Augment technology to leverage cross-campus collaboration.
- Promote student-to-student and student-to-faculty interaction.
- Create a greater sense of community within RBHS through enhancement of the physical environment

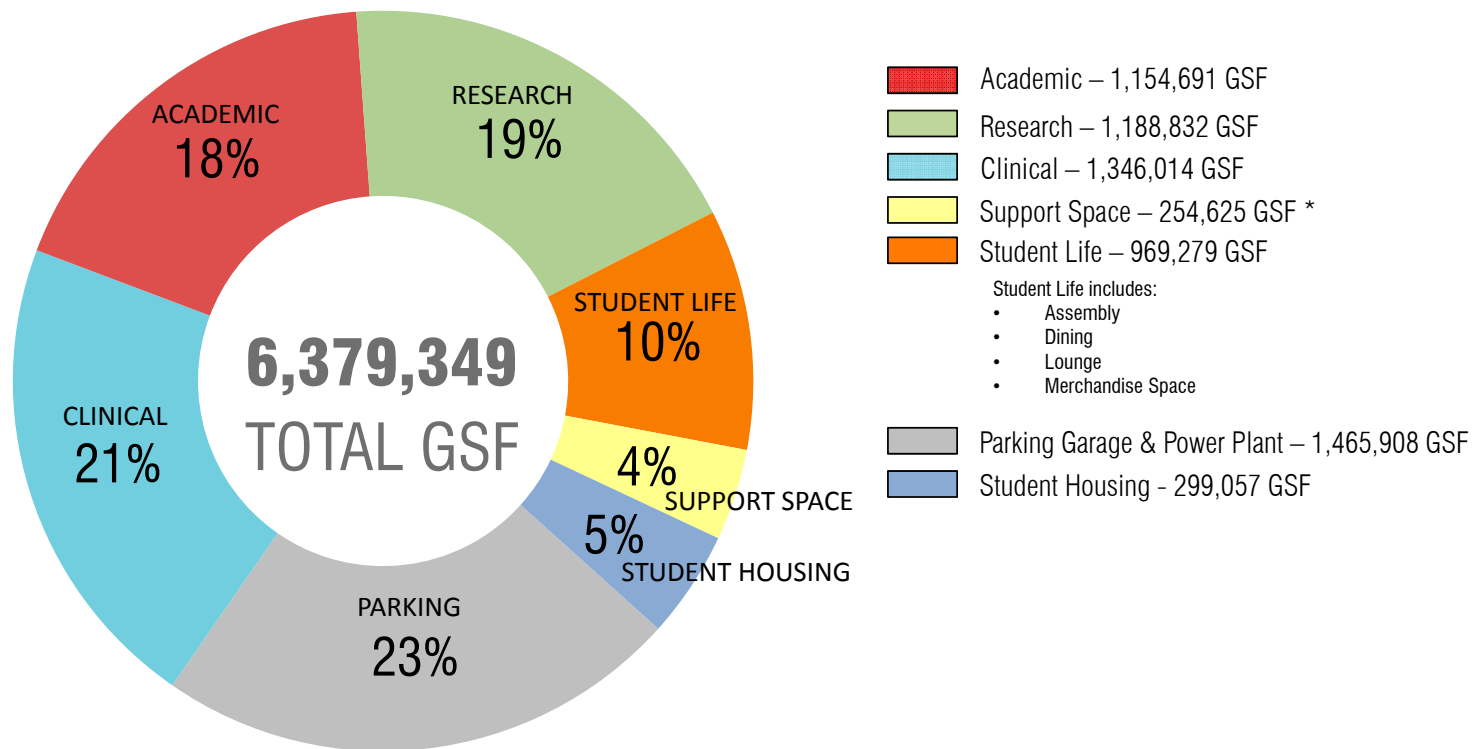
## FACILITY GOALS AND IMPLEMENTATION STRATEGIES

The RBHS Master Plan goals were then translated into a separate, related list identifying physical improvement goals and strategies for the RBHS facilities, space usage and relationships, technology and infrastructure, and rise of “Rutgers Health” as follows:

- **Improve the Physical Environments** - Align space allocations with current and future needs; renovate or replace aging or outdated facilities; and address lack of required equipment,
- **Facilitate Medical Research and Teaching** - Improve Physical Space Connections – “Proximity Fosters Collaboration”; locate common spaces within walking distance of work spaces; provide faster connections between campuses and districts; provide shared facilities and resources to eliminate academic research “silos”, and provide adequate parking,
- **Provide community hubs to promote greater interprofessional interaction** - Shared research and support spaces (animal holdings,

freezer farms); Food venues; Common spaces; Recreation spaces,

- **Improve Digital Connections** - Robust data infrastructure; Video-conferencing capability; Virtual classroom technology; Simulation spaces; Big Data collection and interpretation,
- **Incorporate “Rutgers Health” goals into master plan strategies** - Dedicate space for clinical practice work and premier multi-specialty service points and academic health centers; Space organization to support integration and standardization of clinical faculty practice plans and training across RBHS; New branding for Rutgers clinical practices/centers.



54 Buildings are included in the study. Study excludes; RBHS Liberty Plaza, RBHS Busch Lab Center, RBHS Children Creative Learning Center Daycare Lease, RBHS 1 World's Fair Drive, RBHS SHRP-Allied Health Technologies Building Lease, RBHS – Scotch Plains, RBHS – Somerset, RBHS – Stratford.

\*Support space includes spaces identified as Central Administration/Central Services for example, administrative offices not related to Schools (HR, IST, Facilities offices, campus security) and building support spaces (loading docks, mechanical rooms).

Figure 4.5.3.1: RBHS Space distribution by function

## 4.5.3 Planning Methodology

The physical master plan effort for Rutgers BioMedical and Health Sciences (RBHS) at Rutgers University began with a comprehensive assessment of existing space at RBHS through a Space Utilization Study and a Facility Conditions Analysis, in order to understand existing and future space needs. The methodology for assessing space and facilities condition is discussed here.

For this phase of work, the master plan team toured RBHS campuses and key facilities, met with key stakeholders in a series of meetings from October 2015 through June 2016, and reviewed drawings, photographs, reports and other documentation provided by Rutgers to understand the key considerations for this study. Based on findings in the Space Utilization Study and Facility Conditions Analysis, program growth assumptions and recommendations to support growth needs were developed in close collaboration with RBHS and tested with various scenarios.

### Space Utilization Study

The Space Utilization Study used data provided by Rutgers University for the RBHS programs located on the Rutgers—New Brunswick and Rutgers Health Sciences—Newark campuses. The master plan team worked with Rutgers Facilities and Capital Planning to refine the data provided. The data was then used to create programmatic space models.

RBHS New Brunswick and Newark consist of 54 buildings: 9 located on or near the College Avenue campus, 14 located on or near Busch in Piscataway, and 31 located on the Newark campus. Materials used for analysis included:

1. Building floor plans and sections as of October 2015 (*Provided by University Facilities and Capital Planning*)
2. RBHS space inventory lists as of October 2015 (*Provided by University Facilities and Capital Planning*)
3. Fall 2015 Student Enrollment, Faculty, and Staff Counts for the 8 RBHS schools, 4 primary Center and Institutes, and Behavioral Health Care Network as of December 2015 (*Provided by Planning, Development and Design, and the RBHS Office of the Chancellor*)

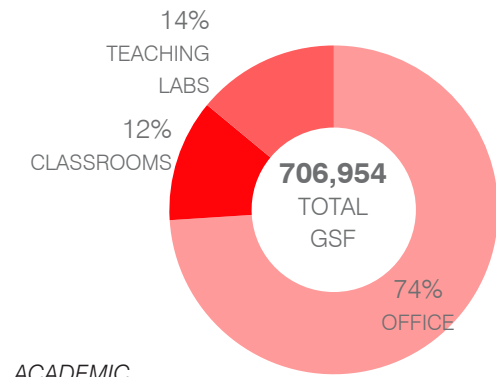
From the documents provided, data was separated into two broad categories for further study: academic/research space and clinical space. Within these categories, data was further broken down for evaluation as follows. Academic and research space data for this study is from Fall 2015, while clinical services information is based on data no later than June 1, 2016.

1. Academic spaces (*classrooms, teaching labs, faculty offices, and direct support spaces for the academic activities of the RBHS Schools, Centers, and Institutes*)
2. Research spaces (*non-class research laboratories and support spaces*)
3. Clinical spaces (*all RBHS-designated*)



**RBHS IN RUTGERS—NEW BRUNSWICK**

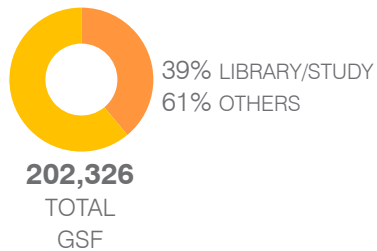
**RBHS IN HEALTH SCIENCES—NEWARK**



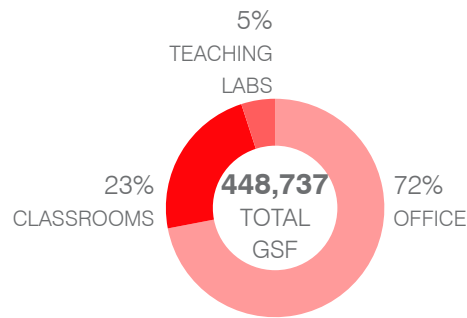
ACADEMIC



RESEARCH

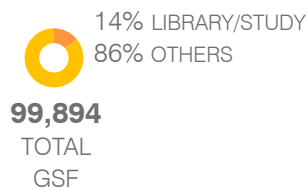


CAMPUS LIFE



*clinical suites and direct support spaces – ambulatory care, signature program areas, behavioral health care hospital UBHC, and subacute care areas)*

4. Campus life (assembly, dining, lounge, shops, gym and recreation, library and study areas)
5. Support spaces (Central Administration/ Central Services, administrative offices not related to specific RBHS Schools, and building support)
6. RBHS student housing
7. Parking garage and power plant



The accompanying pie charts show the amount of space dedicated to three of the primary categories, at the two locations of RBHS.

Figure 4.5.3.2: RBHS Space distribution by campus, based on data from Fall 2015.

## SPACE NEEDS ASSUMPTIONS

The master plan team, together with the RBHS Planning Committee, met with Deans and Directors of Schools, Centers and Institutes, and UBHC to determine space needs for RBHS. Information collected from these meetings and conversations were combined with drawings and data previously provided by RBHS. For Schools, Centers and Institutes, the master plan team developed a matrix to quantify space needs, both for the immediate future (current space needs) and a future need projected up to year 2030 (anticipated space needs). Discussions related to clinical needs describe current volumes, anticipated growth and new program and distribution on the various campuses.

Considerations to assess space needs include but are not limited to: types of space, current use, best location of current and future space, and provisions for new or renovated space in order to increase utilization and identify opportunities for growth.

Current space needs consider present deficiencies in existing space relative to the RBHS strategic plan.

Projections range from no growth (0% increase) indicating that current space is sufficient for existing purposes, to a major increase (20% increase). In some cases, existing programs may reflect negative growth (-10%), indicating that the program is either being consolidated with another program, or the spaces are inefficiently planned at present. Where information specific to certain types of spaces were discussed, for example a 110-person classroom, specific square footages assignable to these spaces were assumed.

Together with RBHS, the master plan team developed

total space needs based on a percentage of increase in existing space in order to meet anticipated growth over the 15 year time frame of the master plan.

Anticipated space needs assumes growth in areas identified by RHBS, and ranges from no growth (0% increase) to major growth (30% increase).

An example of space needs assumptions made for the Robert Wood Johnson Medical School in Rutgers—New Brunswick is shown as Figure 4.5.3.4.

		CURRENT SPACE NEEDS			
		-10% Consolidate	0% None	10% Minor	20% Major
ANTICIPATED SPACE NEEDS	0% None	-10%	0%	10%	20%
	10% Minor	-1%	10%	21%	32%
	20% Intermediate	8%	20%	32%	44%
	30% Major	17%	30%	43%	56%

Figure 4.5.3.3: RBHS Space needs matrix

# RWJMS

Call with Dean –  
November 24, 2015

**Growth anticipation? YES**

**If so, how much?**

Increase class size from 160 to 190 over 4 years

**Space Assumption Calculations:**

- (A) Net Existing Space: 689,061 GSF
- (B) Net Current Space Needs: 689,061(A) x 0% = 0 GSF
- (C) Proposed Additional Space: 689,061(A+B) x 10% = 68,906 GSF
- (D) Net Proposed Total Space: 689,061(A) + 0(B) + 68,906(C) = 757,967 GSF
- (E) Net Proposed Renovated Space: GSF

		CURRENT SPACE NEEDS			
		-10% Consolidate	0% None	10% Minor	20% Major
ANTICIPATED SPACE NEEDS	0% None	-10%	0%	10%	20%
	10% Minor	-1%	10%	21%	32%
	20% Intermediate	8%	20%	32%	44%
	30%				
	Major	17%	30%	43%	56%

**Piscataway**

Existing Academic Space:	134,429 NSF
Existing Research Space:	215,373 NSF
-----	
Total Space:	349,802 NSF

- Biggest concern is the state of current space: Research Tower, Kessler
- Kessler should be updated to meet the new ways of teaching
  - Space that allows studying in groups/pods
  - Wired desks
  - Video conferencing
- Currently, it's difficult to provide clinical experience to students

**New Brunswick**

Existing Academic Space:	56,351 NSF
Existing Research Space:	24,510 NSF
-----	
Total Space:	80,861 NSF

- Biggest concern is the state of current space: MEB, CAB
- Expand community health off-campus (i.e. Eric Chandler Health Center)
- Need for clinical expansion office based research

**Collaborative Needs Requested:**

- Common space
- Simulation center

Figure 4.5.3.4: Example of Space Needs Assumptions Chart

## BENCHMARKING

RBHS office, student and shared spaces were benchmarked against Rutgers standards across the three campuses. Some RBHS office space at Health Sciences—Newark and at New Brunswick were above the standards provided at Rutgers—New Brunswick and Rutgers—Newark. The relative size differences may be attributed to the fact that these spaces were once part of UMDNJ spaces.

RBHS student and shared spaces, for example dining services, meeting and lounge spaces, were compared with similar spaces at Rutgers.

The approach for the development of clinical areas on all campuses was derived from metrics and benchmarks at academic medical centers across the nation. The master plan team engaged the Advisory Board, which is an organization that specifically provides research and information and data for national benchmarking and strategic and operational considerations for Academic Medical Centers, Community Hospital, networks and systems

across the nation, in confirmation of space needs by functional area within a hospital setting to establish the current state needs, growth and future development of program space.

The benchmarking approach was also developed with an eye toward marketplace expectations, how medical staff truly work now and in the future with teams, and the incorporation of standards derived from the hospitality industry in the creation of more pleasant settings. This means that the amenities for patient, family and staff have a nuanced pragmatic approach that addresses features for respite, business centers, nutrition, and engagement within the facility for social, quiet, and discovery experiences that create a wholistic “medical village”.

This concept supports a translational approach where researchers, educators and medical staff come together in scheduled and impromptu settings that encourage discoveries outside the lab.



*Figure 4.5.3.6:*

*At left: The Kessler Teaching Laboratories Building in Piscataway houses classrooms, assembly and dining services for RBHS and serves as a hub for the RBHS community. At right: The plaza at the Health Sciences - Newark campus with Medical Science Building pictured. Photo by Nick Romanenko, copyright Rutgers, the State University of New Jersey.*

## TOTAL SPACE NEEDS

Based on projections for the eight Schools, five Centers and Institutes, RBHS is projected to need an additional 824,000 gross square feet of growth space, including classrooms, research labs and office space in the next 15 years. This represents an increase in area of 15%. In addition to new space, approximately 24% of existing space or 1,499,911 gross square feet of space will be replaced with new or renovated construction due to aging facilities.

Some signature and complementary programs highlighted in the RBHS Strategic Plan were not always associated with a particular RBHS School or Center, but rather spanned multiple units within RBHS. In particular, Neuroscience and the Brain Health Institute is categorized as a virtual institute spread across 7 Schools and 33 Departments at Rutgers. Therefore, current space and future growth needs of this particular signature program were not addressed in this study.

As part of this study, RBHS addressed the possibility of relocating the first and second year academic and clinical programs of the Robert Wood Johnson Medical School (RWJMS) from its current location

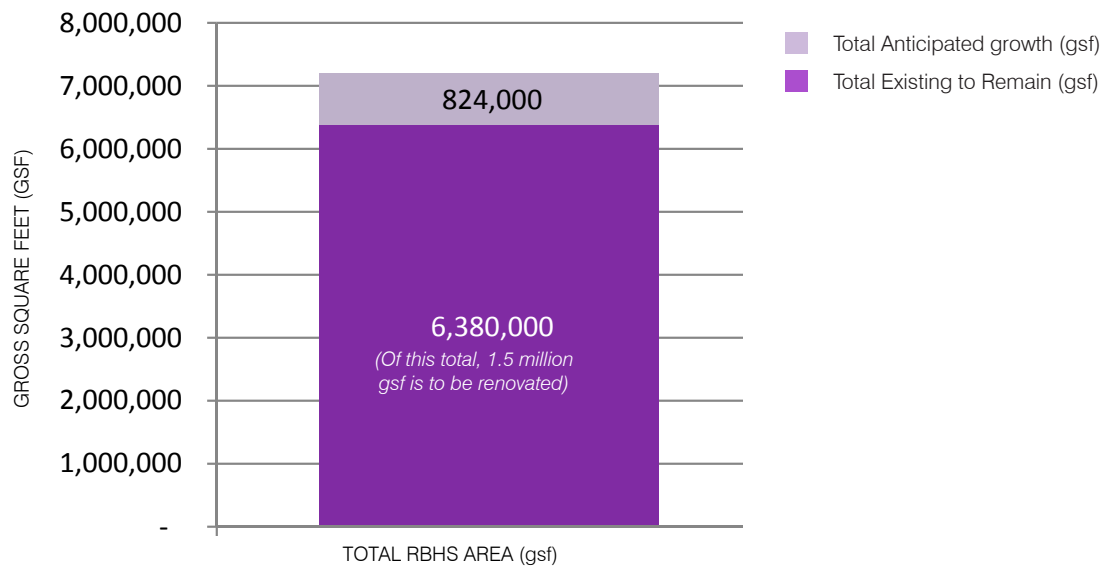


Figure 4.5.3.5: RBHS Total Space and Anticipated Space Needs

in Piscataway to downtown New Brunswick, in order to be closer to the Robert Wood Johnson University Hospital.

Space needs for ambulatory care were estimated based on RBHS projections but need to be confirmed with Rutgers Health, and with the respective hospitals partners. Ambulatory care space needs are not included in the total space needs assumptions but

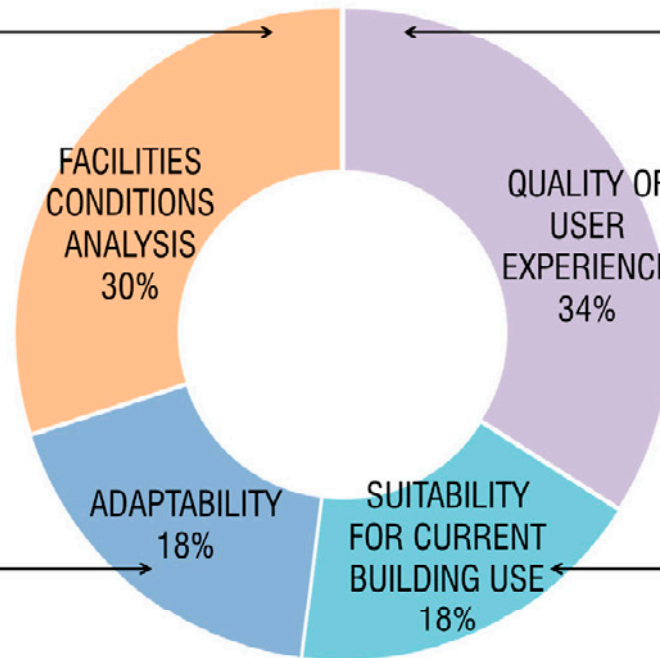
were studied and considered as part of the master planning phase.

At the time of this study, significant planning was underway for healthcare in the greater Newark region, and two major health provider networks were forming a partnership and discussing significant initiatives with Rutgers.

**FACILITIES CONDITION ANALYSIS**

Based on individual facilities conditions assessment FCNI values. FCNI values address the following systems:

- Accessibility
- Exterior
- Interior
- Plumbing
- HVAC
- Fire/Life Safety
- Electrical
- Site
- Conveying
- Equipment



**QUALITY OF USER EXPERIENCE**

- Site Convenience; Close to adequate parking, transport, easily located and safe to walk to
- Site Convenience – Building Adjacencies; Close to related programs, peers and collaborators, administrative support/common core spaces, library/study spaces, and amenities related to student life
- Interior Environment Quality; Adequate lighting, Access to daylight/views, Inviting finishes and furnishings, Adequate acoustic performance, Thermal comfort/control & Ventilation control/good indoor air quality

**ADAPTABILITY OF SPACE**

- Min. 14' Floor-to-floor heights
- Adequate Fire-stairs
- Adequate Restrooms
- Adequate elevator capacity
- Large and evenly spaced structural bays
- Space for future building expansion
- Easily sub-divided to house more than 1 school, center, or institute
- Floor plate sizes that can support change of space function
- Longevity of original construction

**SUITABILITY OF CURRENT USE**

- Adequate sizes of spaces
- Proper configuration of spaces/adjacencies of programs
- Primary spaces and secondary support spaces are in close proximity
- Spaces to support Interdisciplinary Collaboration exist currently
- Proper Technology: data, AV, video-conferencing/telepresence and broadcast

Figure 4.5.3.7: Facilities conditions analysis assessment - Criteria

## **FACILITY CONDITIONS ANALYSIS:**

The Space Utilization Study was complemented by a parallel effort to assess existing facility conditions. The facility conditions analysis is informed by the recently completed study by ISES Corporation for Rutgers University. ISES assessed facility conditions University-wide, including at RBHS facilities. Results from this assessment were detailed in a Facility Condition Assessment (FCA) reports for each building, which include assessments of the building exterior, and structural, mechanical, electrical, plumbing, fire protection, and vertical transportation systems. Recommendations to address deficiencies are also included, with associated costs for a period of ten years (up to 2024).

The FCAs also describe if the facility meets accessibility requirements, and if the facility can be retrofitted to be more energy-efficient or sustainable.

As with any FCA, the function and success of any particular facility is greater than its ability to withstand the standard wear-and-tear within its lifetime. A comprehensive assessment of facilities would build upon the basic infrastructure requirements (like those

assessed in the FCAs), and overlay additional criteria to assess if a facility is adaptable and well-suited for the next generation of use.

The master plan team collected data and photo documentation of RBHS facilities and their surroundings, and received feedback on building use from stakeholders. Additional criteria were used to determine which buildings currently functioned well, which could benefit from renovation, and which were obsolete.

A 100-point matrix for comprehensive evaluation of facilities was developed, incorporating criteria from the FCAs, supplemented with other factors that were important to support RBHS academic, research and clinical functions. The 100-point matrix included the following categories and associated weighting system. A detailed list of considerations important to each category is illustrated in Figure 4.5.3.7.

- **Building Condition - 30 points**

Within the 100-point matrix, the physical condition of each facility and its infrastructure was assigned 30 points and relies on the Facility Condition Needs

Index (FCNI) provided in the FCA reports, which is a comparison of costs to renew existing facility components against costs to replace the facility. For example, if a facility is identified as having a renewal cost of 20% of the replacement cost, the resulting  $(1 - 0.2) * 30$  is applied to this category to yield 24 points.

- **Suitability of Current Use - 18 points**

This category to evaluate the suitability of a facility's current use considers if the facility is currently serving its intended purpose well, and assesses if the existing spaces are sized appropriately, are located in proximity to support spaces which are adequately sized, and if additional infrastructure such as audio visual or instructional technology and equipment is provided if such systems are necessary to support the work or mission of the program or department.

- **Quality of User Experience - 34 points**

In addition to a facility's physical condition, the master plan team recommended additional qualitative categories be considered to determine if a facility is successful. Under the category of Quality of User Experience, a facility's location and ease of access,





EXPERIENCE (34 PTS)								TOTAL POINTS	OVERALL BUILDING ASSESSMENT RATING
Interior Environment Quality									
4b.v	4b.vi	4c.i	4.c.ii	4.c.iii	4c.iv	4c.v	4c.vi		
Close to dining/food	Close to recreation spaces	Adequate lighting for use of spaces	Access to daylight/views	Inviting finishes and furnishings	Adequate acoustics	Thermal comfort/control	Good indoor air quality/ventilation control		
1	1	4	4	4	4	4	4	100	
0	0	4	4	4	4	4	4	83	
0	0	4	4	4	4	4	4	84.7	
1	0	4	0	0	4	4	4	69.7	
0	0	0	0	0	4	4	4	47.2	
0	0	4	4	4	4	4	4	81.4	
0	0	4	4	4	4	4	4	84.1	
0	0	4	0	0	4	4	4	67	
0	0	4	0	0	4	0	4	54.8	
0	0	4	0	4	4	4	4	73.9	
1	0	4	0	0	0	0	0	44.5	
0	0	4	4	4	4	4	4	85.8	
0	0	0	0	0	4	0	4	53.5	
0	0	4	4	4	4	4	4	81.1	
1	0	0	0	0	0	0	0	50.9	
1	1	0	4	4	4	4	4	71.3	
0	0	4	4	0	0	0	0	54.8	
0	0	4	0	0	4	4	4	76.8	
0	0	4	4	4	4	0	0	57.5	
0	0	4	4	4	4	4	4	81.1	
0	0	4	0	0	4	4	4	66	
0	0	4	4	4	4	4	4	86.2	
1	0	4	0	4	4	4	4	74.1	
1	0	0	0	0	0	0	0	43.3	
1	0	4	4	0	4	0	0	54	
0	0	4	0	0	0	0	0	48.8	
0	0	4	4	4	4	0	0	61.5	
0	0	4	4	0	4	4	4	70.8	
0	0	4	0	0	4	4	4	72.1	
0	0	4	4	4	4	4	4	88.9	
0	0	0	0	0	4	0	0	47.9	
0	1	4	0	4	4	4	4	79.9	
0	0	4	0	4	4	4	4	83.2	

adjacencies to other departments, and interior environment are assessed and assigned up to a total of 34 points.

▪ **Adaptability of Space - 18 points**

The fourth and final category to assess the adaptability of the facility considers if the facility is able to be renovated for an alternate use, if required upgrades for services can be accommodate and if the relative age of the facility will support a renewed use for the building.

Based on the above four categories, facilities were assigned a score as illustrated in Figure 4.5.3.8. A high total score indicates that a facility is in good condition, is successful in supporting the mission of the department, is pleasant to be in, and is suitable for renovation for other purposes if required. Most facilities constructed in the last ten years fall into this category.

Conversely, a low total score indicates that a facility is in poor condition and is no longer effectively supporting the mission of the department. Generally,

facilities constructed more than forty years ago and without recent renovations or upgrades fell into this category.

Once facilities were evaluated in these four categories, facilities were assigned a “Good”, “Fair”, or “Poor” rating based on the total number of points. These ratings were color-coded green, yellow and red respectively.

This analysis identifies which facilities are able to remain as they are, and which facilities should be further evaluated to determine if they should be re-purposed or demolished to make way for replacement or additional construction. The findings from this analysis are discussed in greater detail in the following sections.



BUSCH

LIVINGSTON

PISCATAWAY

RARITAN RIVER

COLLEGE AVENUE

NEW BRUNSWICK

DOWNTOWN NEW BRUNSWICK

SCALE: 1" = 2000'  
0 500' 1000' 2000'



## 4.5.4 Rutgers Health Sciences at New Brunswick/Piscataway

Aligned with Rutgers University—New Brunswick, RBHS collaborates with units across the university and with many other academic, research and clinical units throughout the region. The RBHS programs and entities in the Rutgers University—New Brunswick campus, which comprises an area south of the College Avenue district in downtown New Brunswick and a second area at Busch district, in Piscataway township are two geographically separate but programmatically linked areas.

Rutgers 2030 studied the RBHS programs and entities in the Rutgers University—New Brunswick campus, giving special consideration to how RBHS is organized on this campus, and how it is poised to adapt to the evolving state of healthcare education, which integrates clinical practice into the medical education beginning at the first year of study. Medical education is also becoming much more integrated across health related professions with an increased focus in inter-disciplinary collaboration, necessitating greater proximity and ease of access.

RBHS in New Brunswick is currently housed in approximately 2.1 million gross square feet (gsf) of space, not including the Robert Wood Johnson University Hospital (RWJUH). Six of the eight RBHS

schools are located at RBHS New Brunswick, along with four primary centers and institutes, and the University Behavioral Healthcare Center (UBHC).

The Busch district in Piscataway is home to the 1st and 2nd year Robert Wood Johnson Medical School (RWJMS) program and a majority of the RWJMS research labs and offices, the School of Public Health (SPH), School of Health Professions (SHP), Graduate School of Biomedical Sciences (GSBS), Ernest Mario School of Pharmacy (EMSOP), Center for Advanced Biotechnology and Medicine (CABM), Environmental and Occupational Health Sciences Institute (EOHSI), and in-patient and out-patient centers for the UBHC. Many of these RBHS programs and research initiatives collaborate closely with the basic sciences in the Rutgers University Faculty of Arts and Sciences co-located at Busch. RBHS students take classes at Busch and other districts, and frequently travel across the Raritan River to New Brunswick to the RWJUH complex of medical and academic facilities.

In New Brunswick, RBHS facilities are concentrated along Somerset Street, in a collection of buildings clustered around the RWJUH, the adjoining Bristol-Myers Squibb Children's Hospital and PSE&G Children's Specialized Hospital. RBHS space in New

Brunswick consists of clinical offices and research labs for RWJMS and the Cancer Institute of New Jersey (CINJ). South of the RWJUH complex, the School of Nursing (SON) and the Institute for Health, Health Care Policy, and Aging Research (IFH) form an intimate academic and research cluster in the midst of the large scale RWJUH environment. Third and fourth year RWJMS students spend the majority of their time in New Brunswick or at other clinical locations. RBHS, Rutgers University—New Brunswick, RWJUH and Johnson & Johnson make up four of the largest stakeholders in the city of New Brunswick.

The Health Sciences in New Brunswick and Piscataway are connected programmatically and as such, Rutgers 2030 plans for a flexible and complementary framework for the two locations as if they are one entity, with the understanding that what is planned for one location affects the other. Strategies for addressing space needs for each of these locations differ, since New Brunswick is space constrained and involves many stakeholders, as compared with Piscataway, where land is plentiful and solely owned by Rutgers.

*On previous page:*

*Figure 4.5.4.1: Rutgers Health Sciences at New Brunswick / Piscataway : Location Plan*

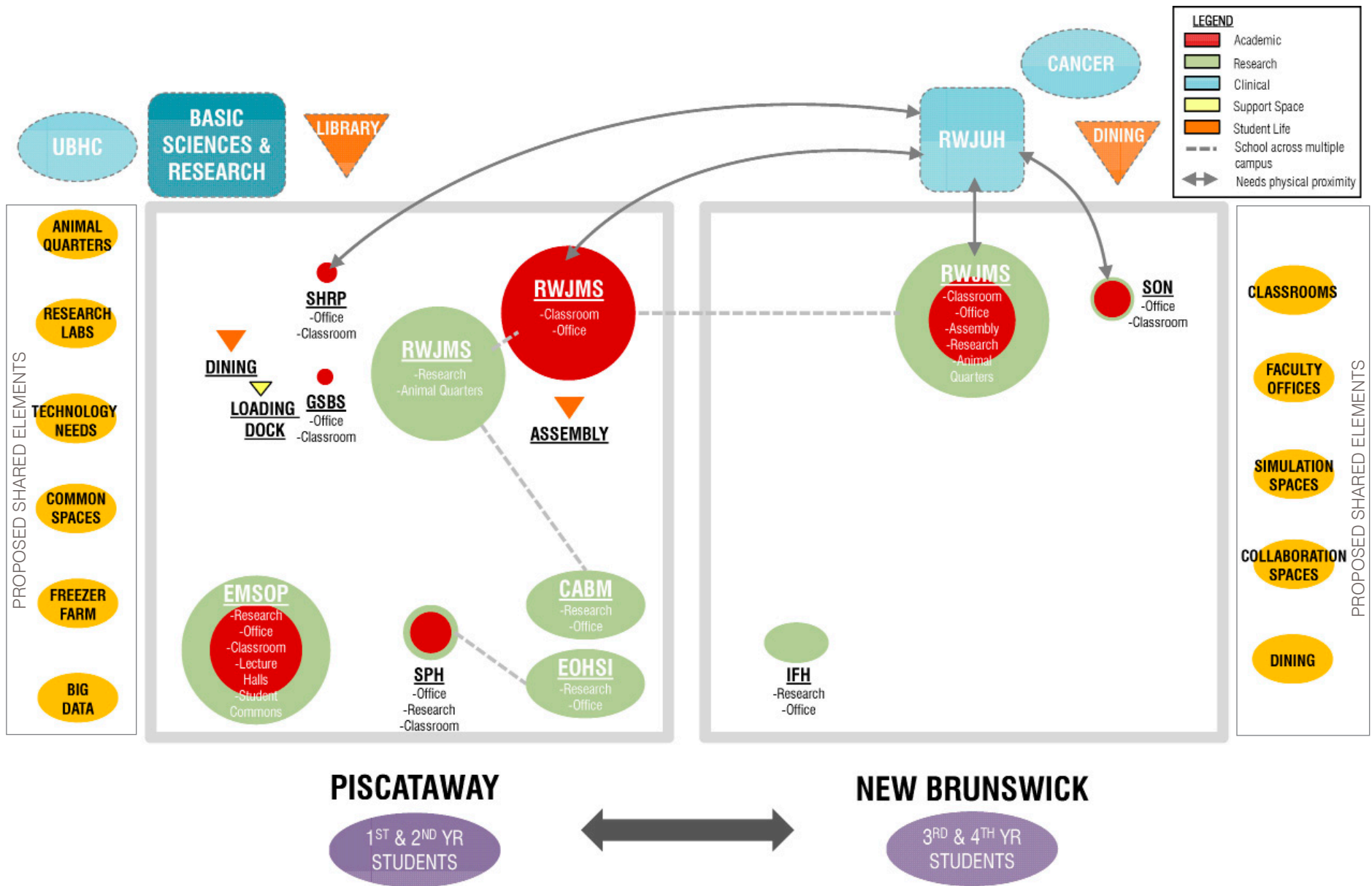


Figure 4.5.4.2: Current organizational diagram for Health Sciences in New Brunswick / Piscataway

## EXISTING SPACE USAGE AND ANTICIPATED PROGRAM GROWTH

The Space Utilization Study described in Section 4.5.3 analyzed existing RBHS space usage and made recommendations for anticipated program growth up to 2030. Recommendations related to space needs and program growth for RBHS schools, centers and institutes, and UBHC in New Brunswick and Piscataway are described in detail in this section. It is anticipated that translational research space be developed in New Brunswick, as well as office-based research for the Institute for Health, Health Care Policy and Aging Research.

### RBHS Schools

#### 1. Robert Wood Johnson Medical School Academic and Research

Robert Wood Johnson Medical School (RWJMS) was originally formed in the 1960's as a 2-year medical program named the Rutgers Medical School in Piscataway. In the decades that followed, the school merged with other medical schools, was renamed, developed a 4-year medical school degree and other

post-graduate degree programs, formed a partnership with what is now the Robert Wood Johnson University Hospital in New Brunswick as its primary teaching hospital, and steadily grew its academic, research and clinical programs and facilities in both Piscataway and New Brunswick. RWJMS is currently the largest school in the Central New Jersey division of RBHS.

Currently, RWJMS has approximately 495,438 gsf of academic and research space at Busch—172,228 gsf comprising classrooms, seminar rooms, assembly and office space located in the Kessler Teaching Labs Building, with research and additional office space spread among three additional buildings—213,155 GSF in the RWJMS Research Tower, 90,000 GSF in the RWJMS Research Building, and 20,055 GSF in the RWJMS Staged Research Building.

In New Brunswick, RWJMS has classrooms and clinical research space within the 136,700 gsf Medical Education Building (MEB) adjacent to Robert Wood Johnson University Hospital (RWJUH), and doctor's offices and labs in the 214,215 gsf Clinical Academic Building (CAB).

The program space at the MEB building is projected to grow by 25% over the next 15 years; a growth of 34,175 gsf. However, as new buildings in New Brunswick are planned, MEB growth may be better accommodated in these new buildings.

The question of whether to co-locate the 1st and 2nd year medical school program in Piscataway with the 3rd and 4th years in New Brunswick was central to the development of the physical master plan and was carefully considered: Is it better to keep incoming medical students closer to core sciences and research, or is it more effective to emphasize immersion of incoming students with clinical practice during their first two years of study? These considerations were weighed alongside other factors including the cost of expansion and investment in renewal of aging facilities and infrastructure on each campus, relocation of faculty, staff and other shared resources, and the ability to adapt to the evolving nature of medical education.

The master plan team studied two scenarios: first, to maintain 1st and 2nd Year students in Piscataway and provide associated growth for the program there, and a second option to relocate the 1st and 2nd year

SCENARIO 1 - New Brunswick		AREA (GSF)
1st & 2nd Years Stay in Pisc.		
1	MEB RENOVATION	136,635
2	CAB EXPANSION	68,000
3	CAB RENOVATION	214,216
SCENARIO 1 - Piscataway		AREA (GSF)
1st & 2nd Years Stay in Pisc.		
1	<b>NEW RESEARCH BLDG</b>	<b>210,960</b>
	Research Tower Replacement*	123,000
	Research Space Growth	20,000
	Staged Research Replacement	20,530
	Research Support	19,190
	GSBS Replacement & Growth	13,740
	Collaboration Spaces	12,000
	3T	2,500
2	<b>NEW ACADEMIC &amp; STUDENT COMMONS BLDG</b>	<b>194,890</b>
	Classrooms	51,790
	RWJMS Offices	69,375
	SHP Offices	13,180
	Assembly	29,760
	Meeting Rooms	9,985
	Dining	16,000
	Lounge	4,800

SCENARIO 2 - New Brunswick		AREA (GSF)
1st & 2nd Years Move To N.B.		
1	MEB RENOVATION	136,635
2	CAB EXPANSION	68,000
3	CAB RENOVATION	214,216
4	<b>INTERPROFESSIONAL BLDG (to accommodate RWJMS Relocation) **</b>	<b>220,000</b>
	Classrooms	51,790
	RWJMS Offices	69,375
	SHP Offices	10,000
	Translational RWJMS Research and Growth	47,500
	Research Support	6,460
	Assembly	8,900
	Collaboration Space	8,000
	Meeting Rooms	9,985
	Dining	8,000

SCENARIO 2 - Piscataway		AREA (GSF)
1st & 2nd Years Move To N.B.		
1	<b>NEW RESEARCH &amp; STUDENT COMMONS BLDG</b>	<b>180,000</b>
	Basic RWJMS Research and Growth	95,000
	Staged Research Replacement	20,530
	GSBS Replacement & Growth	13,740
	Meeting Rms. Dining, Lounge	25,000
	Collaboration Spaces	8,000
	3T	2,500

\* Replacement of existing space is dependent on whether or not existing space could be reasonably repurposed. Replacement would occur if no suitable purpose can be found for these buildings.  
 \*\* Only space program currently housed in Piscataway is described here. Additional program from other locations may be housed in the Interprofessional building.

Figure 4.5.4.3: Health Sciences at New Brunswick / Piscataway - Program relocation scenarios

students and consolidate resources in downtown New Brunswick near RWJUH. Both scenarios had merits and challenges, and impacts to the physical master plan.

**Scenario 1 - RWJMS to remain in Piscataway:**

In this scenario, RWJMS anchors the west end of Busch with classrooms and teaching labs, assembly space and dining services that provide for the whole RBHS community. Many of RBHS schools are located on Busch, including the Ernest Mario School of Pharmacy, School of Health Related Professionals and the School of Public Health, increasing opportunities for interprofessional collaboration and sharing of resources. The University Behavioral Healthcare Center (UBHC) is also in close proximity to RWJMS.

RWJMS research activities, spread across three separate buildings, form a cluster of activity, with several research initiatives collaborating with basic science research being conducted on Busch. These programs benefit from being in close proximity to each other and to the Library of Science and Medicine. Additionally, incoming medical students may have

more interaction with other graduate students in the sciences and engineering programs. Amenities like the recreation center and dining services on Busch are well-equipped to support the RBHS community.

RWJMS would continue to maintain the 1st and 2nd year medical school program in its location in Piscataway. Space needs related to growth in this scenario are limited to providing approximately 198,000 gsf of new research space to replace aging research space in the RWJMS Research Tower, the Staged Research Building, shared support spaces such as freezer space for labs, and accommodating 10% future research activity growth. This could be located in a new building shared with GSBS.

Due to the antiquated state of the Kessler Teaching Lab Building, the structure could either be significantly renovated or replaced with new to accommodate 182,000 gsf of desired technologically-advanced classrooms and teaching labs and shared support spaces like meeting rooms, lounges, and new dining for the entire RBHS community. This space could be co-located in a building with SHP.

In this scenario, the RWJMS academic and research growth need in New Brunswick is only the 25% expansion of the program in the MEB building, previously mentioned, a growth of 34,175 gsf.

In order to mitigate the logistical challenges of travel between Piscataway and New Brunswick, Rutgers could explore options to expand or increase Rutgers bus service to serve the west side of Busch and downtown New Brunswick. Video conferencing and virtual meeting capabilities can also be added for the two locations, allowing for greater opportunities for collaboration. There was also discussion about the possibility of an ambulatory care facility in Piscataway, which would provide more opportunities for clinical exposure to the 1st and 2nd year students.

Figure 4.5.4.3 shows more detailed programming information for Scenario 1. Space requirements for GSBS and SHP are discussed in their specific sections in the following pages.



### ***Scenario 2 - RWJMS in New Brunswick with relocated Piscataway Programs:***

RWJMS, if relocated to New Brunswick, would consolidate the school in one location, and allow for convenient access to clinical practice for faculty and students. This relocation will result in a space need of approximately 231,000 gsf for classrooms, teaching labs and support spaces, offices for RWJMS faculty and staff, and student common spaces. Approximately a third of applied research labs and associated support spaces, and student commons spaces will also be relocated to New Brunswick in this scenario. The remaining pure research labs would remain in Piscataway.

The Physician Assistant Program from the School of Health Professions could also relocate to New Brunswick since there is a similar desire for greater clinical interaction.

With the relocation of academic, applied research, and a part of the support spaces to New Brunswick, the total RWJMS footprint in Piscataway will decrease and be comprised primarily of research labs and

their supporting spaces, amounting to approximately 86,260 gsf. There is no requirement for expansion of research space to meet immediate needs, but this sector of RWJMS is projected to grow by 2030 10%, adding 20,000 gsf. GSBS would still remain in Piscataway in this scenario in order to be in close proximity to RWJMS basic research.

See Figure 4.5.4.3 for more detailed programming information for Scenario 2.

### **2. Rutgers School of Nursing (SON)**

The integration of Rutgers with the University of Medicine and Dentistry of New Jersey (UMDNJ) brought along with it the reorganization of the Rutgers College of Nursing programs in Newark and New Brunswick, forming the new Rutgers School of Nursing (SON) in 2014. SON, ranked in the Top 20 by US News and World Report for Best Graduate Nursing Schools 2015-2016, is the largest and most comprehensive nursing education program in New Jersey and includes more than 100 fulltime faculty, 90 staff and 1,600 students. SON in New Brunswick is housed in the College of Nursing Building, which was completed

in 2009, and is approximately 30,785 gsf. The facility houses classrooms, administrative and faculty offices, and simulation labs.

SON also currently leases office space in nearby buildings and is limited in class size to the number of students that can be accommodated in the existing classrooms. There is an immediate need for additional large classrooms to accommodate the rapidly growing nursing program and SON is projected to double in size, resulting in an immediate growth need of an additional 30,000 gsf.

### **3. School of Health Professions (SHP)**

The Central New Jersey home of the School of Health Professions (SHP) is located in Piscataway, in the Robert Wood Johnson Medical School Research Tower building. The program is primarily made up of the 3-year Master of Science Physician Assistant (PA) Program. The current space utilized by this school is approximately 10,892 gsf. There is an immediate growth need of 10%, and future growth projection of and additional 10%, for a total of 21% growth over the by 2030; equaling 2,288 additional gsf.

Students in the PA Program study many of the same basic sciences courses as the students in the RWJMS program and complete a clinical phase of study which includes rotations in nine areas and tenth in a medical sub-specialty. For this reason, the School faces the same considerations as RWJMS in that its location in Piscataway is removed from clinical exposure. If SHP were to relocate to New Brunswick along with RWJMS, a total of approximately 13,180 gsf would be needed to house the program. (See Figure 4.5.4.3)

#### **4. Graduate School of Biomedical Sciences (GSBS)**

The Graduate School of Biomedical Sciences (GSBS) in New Brunswick/Piscataway provides graduate, and doctorate-level training in the biomedical sciences. It is currently well-positioned in Piscataway to foster collaboration with associated departments such as the molecular biosciences program and the School of Public Health. It also has a presence in New Brunswick through collaborations with the Rutgers Graduate School- New Brunswick.

GSBS has dedicated office space but has historically

shared classroom and research space with others. There is a need for additional office space for faculty and dedicated classroom space for additional daytime courses in the coming years. GSBS currently utilizes 2,744 gsf of space in the RWJMS Research Tower, composed primarily of faculty and administrative office space. An additional 10,000 gsf of dedicated classroom space is anticipated in Piscataway, and 1,000 gsf of projected growth for office, administrative, and support spaces. (See Figure 4.5.4.3)

GSBS would benefit from having a more prominent location for its offices, which may be located either in Piscataway or New Brunswick.

#### **5. Ernest Mario School of Pharmacy (EMSOP)**

The Ernest Mario School of Pharmacy is located in Piscataway and at other locations in the surrounding community. The EMSOP buildings in this study include academic and research space in the 84,504 gsf William Levine Hall, the 39,652 gsf Susan L. Cullman Lab for Cancer Research, and 51,702 gsf at the Gordon Road Office Building. At the time of this master plan,

a 60,766 gsf addition with additional classrooms and student commons space is under construction at William Levine Hall. Levine Hall is scheduled to be renovated upon completion of the construction of the addition.

With the new addition, the total space allotment of classrooms, faculty offices, teaching labs, simulation spaces, and common areas for EMSOP will be 236,624 gsf. Renovation to Levine Hall will complete the qualitative upgrades to EMSOP and will satisfy all space and growth needs for EMSOP for the foreseeable future.

#### **6. School of Public Health (SPH)**

The School of Public Health (SPH) was founded in New Brunswick in 1983 as an accredited graduate program in public health by UMDNJ and Rutgers. The School officially became the Rutgers School of Public Health in 2013 with a mission to improve population health and disease prevention in New Jersey and around the world.

Currently, 65% of the School of Public Health's

- Anticipated Future Space Needs (gsf)
- Current Space Needs (gsf)
- Existing Space (gsf)

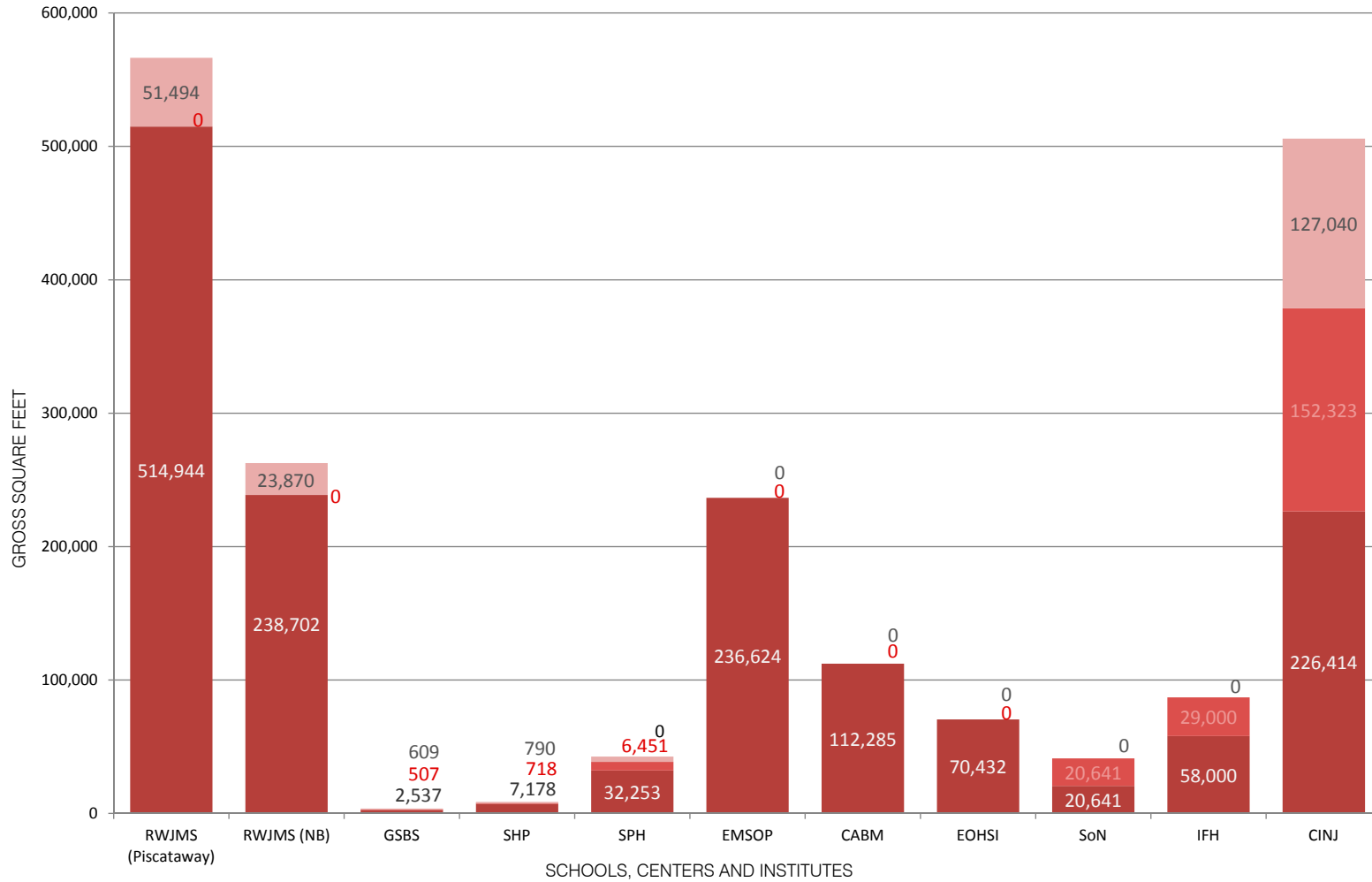


Figure 4.5.4.4: Health Sciences at New Brunswick/ Piscataway space needs - by Schools, Centers and Institutes  
 Area calculations include all academic, research and department support spaces unless otherwise noted.

programs reside on the Piscataway campus. SPH has 26,445 gsf of classroom, research, and office space in a joint building occupied by the RWJMS Research and School for Public Health, completed in 2003.

SPH is currently growing and hiring new faculty and has an immediate space need to accommodate 30% growth, equal to 7,935 gsf. SPH will also be offering their graduate program as a full-time program, so more instructional space for daytime classes is needed. A projected future growth of 20% will require an additional 6,875 gsf to be constructed.

## RBHS Centers and Institutes

### **Institute for Health, Health Care Policy, and Aging Research (IFH)**

The Institute for Health, Health Care Policy and Aging Research space is comprised principally of offices and meeting spaces and resides in a dedicated 58,000 gsf building in New Brunswick completed in 2009. The mission of this institute focusses on conducting research and developing future scholars through education and training programs and mentoring postdoctoral, graduate, and undergraduate students. The work of the Institute is heavily funded by public

and private grants.

IFH is projected to grow by 50%, approximately 29,000 gsf in the coming years to accommodate significant growth in office-based research, as there is expected to be significant funding available for this type of research.

### **Center for Advanced Biotechnology and Medicine (CABM)**

The Center for Advanced Biotechnology and Medicine, (CABM) located in Piscataway, was founded in 1985 and designated as a New Jersey Advanced Technology Center. Its mission is to make fundamental discoveries in biomedical research, develop new technologies, and translate these to improve human health.

CABM currently has 133,750 gsf of research, teaching labs, and office space within its own dedicated building which was completed in 1990. The current facilities function well for CABM's needs and no new growth is anticipated.

### **Environmental and Occupational Health Sciences Institute (EOHSI)**

The Environmental and Occupational Health Sciences Institute (EOHSI), also located in Piscataway, was established in 1986 in response to environmental and occupational issues facing residents in New Jersey and the nation. The effects of these objectives include studying environmental and occupational chemical exposure on human health, treating patients that have been affected by chemical exposure, developing educational tools, and assisting with public policy development.

EOHSI currently has research labs, offices, and a clinic in its own dedicated 83,100 gsf building, which was constructed in 1991. No new growth of space or program is projected for EOHSI but the building requires technology updates to keep up with current research and interprofessional collaboration methods.

## RBHS Administration

Rutgers Health Group, RBHS' core administration group, has a need for approximately ten offices and currently occupies space in the Child Health Institute (CHI) building. Rutgers 2030 proposes to relocate this group in a future New Brunswick development housing other RBHS groups.

Figure 4.5.4.5 - Health Sciences at New Brunswick/Piscataway: Ambulatory Care organizational diagram

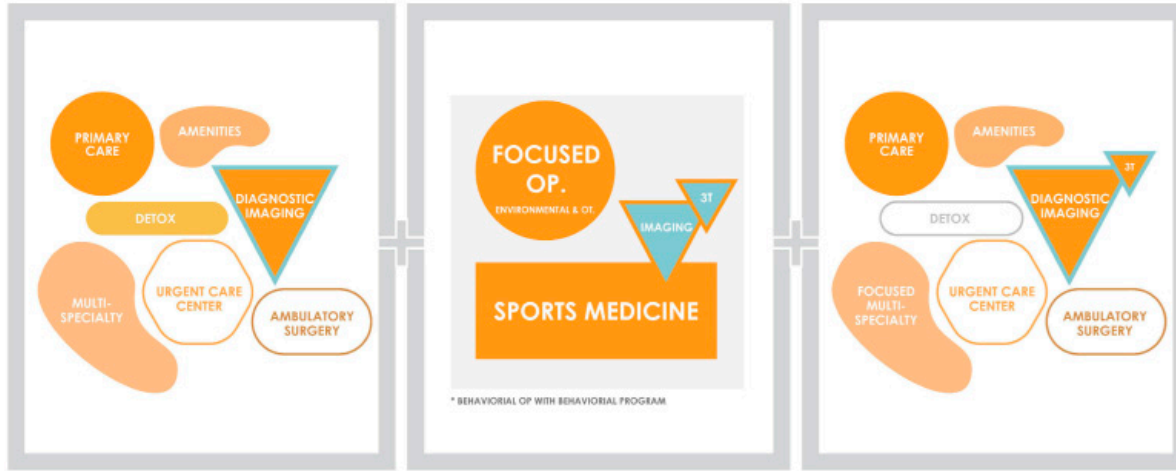
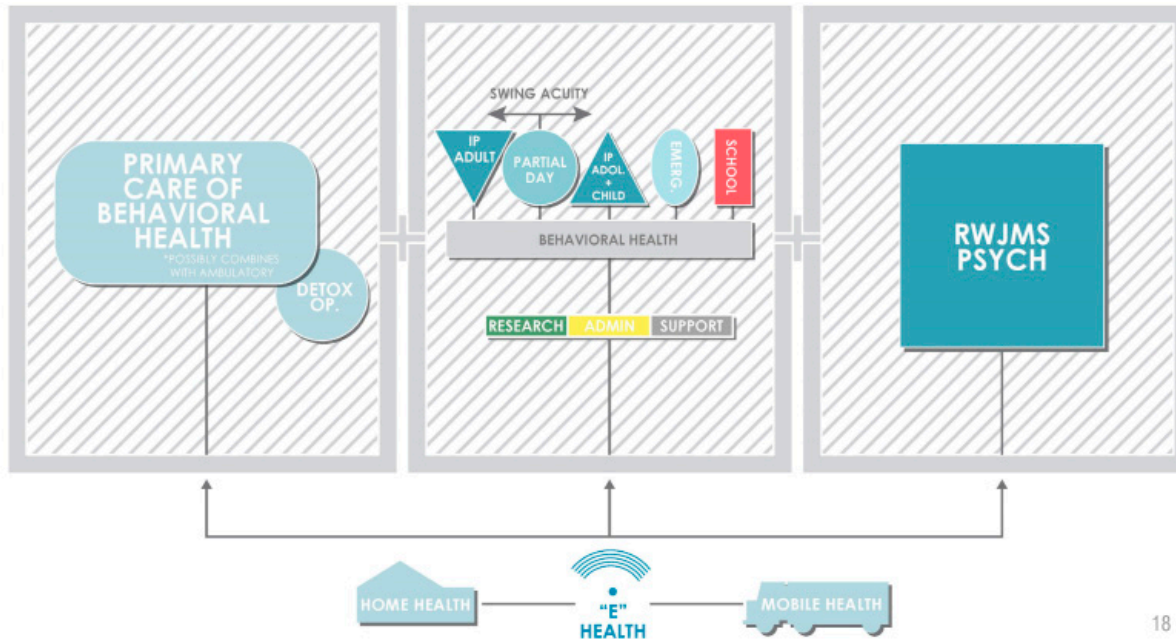


Figure 4.5.4.6 - Health Sciences at New Brunswick/Piscataway: Behavioral healthcare network organizational diagram



## RBHS Clinical

### Cancer Institute of New Jersey (CINJ)

The Rutgers Cancer Institute of New Jersey (CINJ) serves the entire state of New Jersey, and is the only National Cancer Institute (NCI)-designated comprehensive cancer center in the State. Initiatives to expand the Cancer program include enhanced research and patient care, specifically to both expand facilities in New Brunswick and centralize administration of the program statewide. CINJ currently has 328,240 existing gsf and is projected to grow by 152,326 gsf by 2019, and an additional 127,040 gsf in New Brunswick by 2025 (*per the Cancer Institute of NJ Vision Document, 2015*).

### Ambulatory Services

In New Brunswick, clinical ambulatory services anticipate a growth of approximately seventy five physicians to be accommodated in multi-specialty clinical space totalling approximately 114,000 sf. Additionally, there is a need for ambulatory surgery facilities on this campus for eight to ten operating

rooms.

A limited ambulatory clinical presence will remain in Piscataway. The ambulatory services on Piscataway will primarily provide care for Environmental Health Services (EOHSI) and Behavioral Health (UBHC).

### Shared Space

In addition to space needs assessment conducted for each school, center, institute, and UBHC described above, the RBHS community described a need for the following shared spaces and infrastructure:

- Simulation Space
- Collaboration Space
- Dining facilities
- Freezer farm
- Animal quarters
- Improved video conferencing capabilities

Rutgers 2030 incorporates these space needs and locates them strategically. Shared spaces are integrated into both renovated and proposed buildings, giving priority to needs which are currently

absent or will be required in the immediate future. The total square footage assigned to these elements are estimates based on initial discussions with RBHS. Their sizes should be reassessed and refined in a separate, more in-depth study.

**KEY**

- Building in good condition
- Building in fair condition
- Building in poor condition
- N/A

**BUILDINGS**

	1. Cancer Institute of New Jersey (CINJ)
	2. RWJMS Medical Education Building (MEB)
	3. Robert Wood Johnson University Hospital (RWJUH)
	4. RWJMS Clinical Research Center (CRC)
	5. Bristol-Myers Squibb Children's Hospital RWJUH
	6. Child Health Institute of New Jersey (CHINJ)
	7. Clinical Academic Building (CAB)
	8. School of Nursing (SON)
	9. Institute for Health, Healthcare Policy and Aging Research (IFHHPAR)

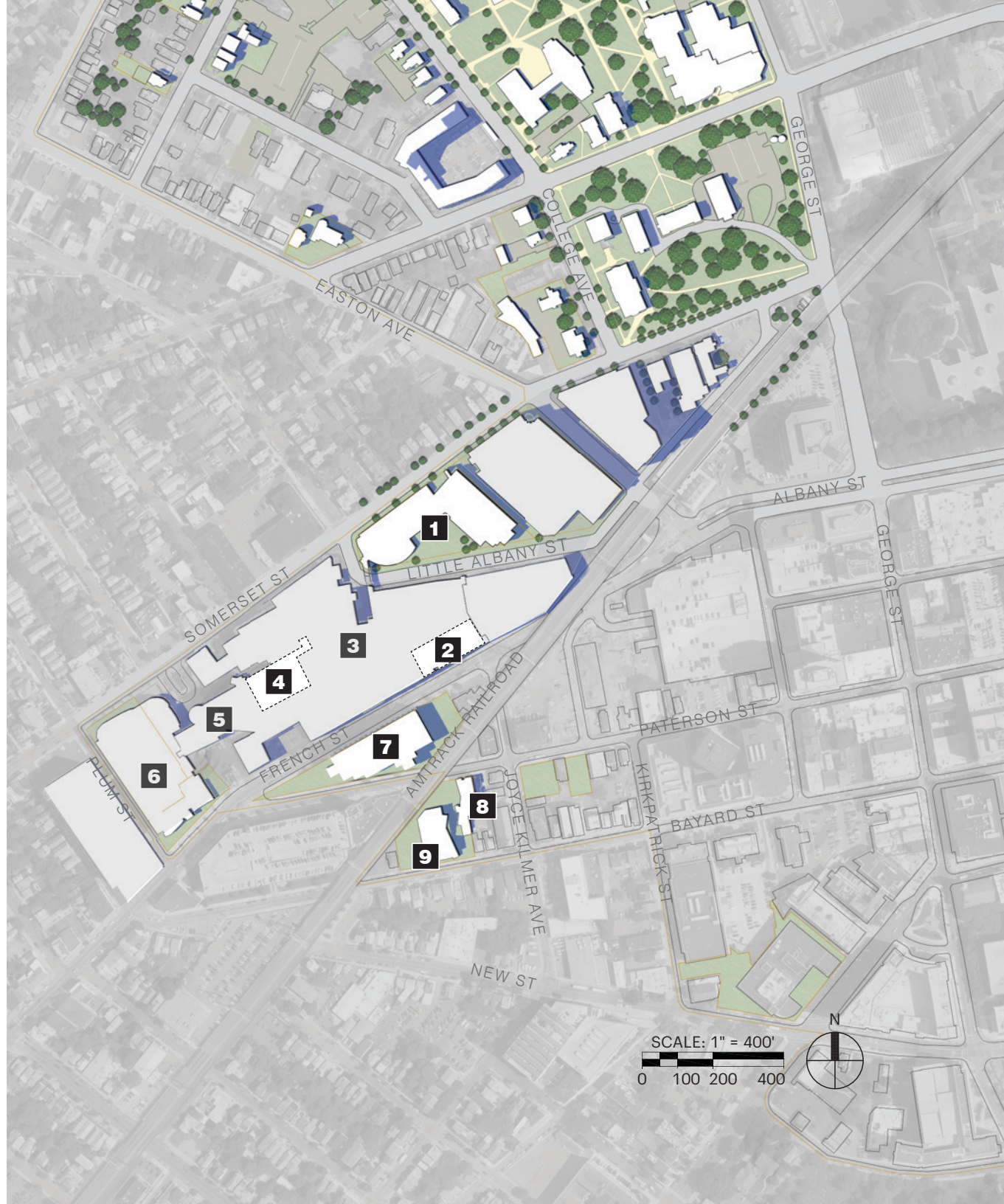


Figure 4.5.4.7 - Health Sciences at New Brunswick: Facility conditions assessment plan

## EXISTING FACILITY CONDITION ASSESSMENT

### NEW BRUNSWICK

The Robert Wood Johnson University Hospital (RWJUH) and RBHS facilities anchor Somerset Street, starting at the east end at Easton Avenue with the Cancer Institute of New Jersey (CINJ) and ending with the Bristol-Myers Squibb Children's Hospital at the west end on Plum Street. Somerset Street is the primary vehicular access to the RWJUH complex, with patient drop-off, visitor access and emergency and ambulance drop-off occurring on this street.

A second important thoroughfare is French Street, one block south of Somerset Street. The Child Health Institute of New Jersey (CHINJ) and the Clinical Academic Building (CAB) have entrances along this street. At the time of this study, RWJUH was in the process of adding an entrance to the hospital along this street.

The RBHS-RWJUH complex is easily accessible from the New Brunswick train station along the NJ Transit

Northeast Corridor and Amtrak train lines.

Three RBHS facilities are directly connected to RWJUH and are accessed through RWJUH space. These are the Medical Education Building (MEB), the Clinical Trials Unit (CTU) and the Clinical Research Center (CRC). RWJUH is an independent entity which collaborates closely with Rutgers and RBHS and is discussed in relation to how to maximize utility for both the hospital and RBHS.

To the south of the RBHS-RWJUH complex and the Northeast Corridor tracks, two buildings front Paterson Street: the Institute for Health Sciences (IFH) which is home to the IHHCPAR program, and the College of Nursing building (SON). These two buildings were completed in 2009.

The nine RBHS facilities in New Brunswick vary greatly in age, building condition, function, quality of user experience, and future adaptability.

- Good Condition: CINJ, CHINJ, SON, and the IFH buildings are in good condition and function well. However, these buildings are landlocked and cannot easily accommodate future program

growth needs.

- Fair Condition: To keep up with current medical practice trends and to attract top-tier practitioners, the CAB and CRC should be renovated.
- Poor Condition: The MEB has outdated interior finish, layout, technology and lighting, and has become inefficient and ineffective. It occupies an area directly connected to the hospital that may be repurposed for other functions. The CTU is to be removed from its current location and has been temporarily located in the northeast corner of RWJUH. Rutgers 2030 recommends relocating the CTU to a permanent, better quality, and accessible location.

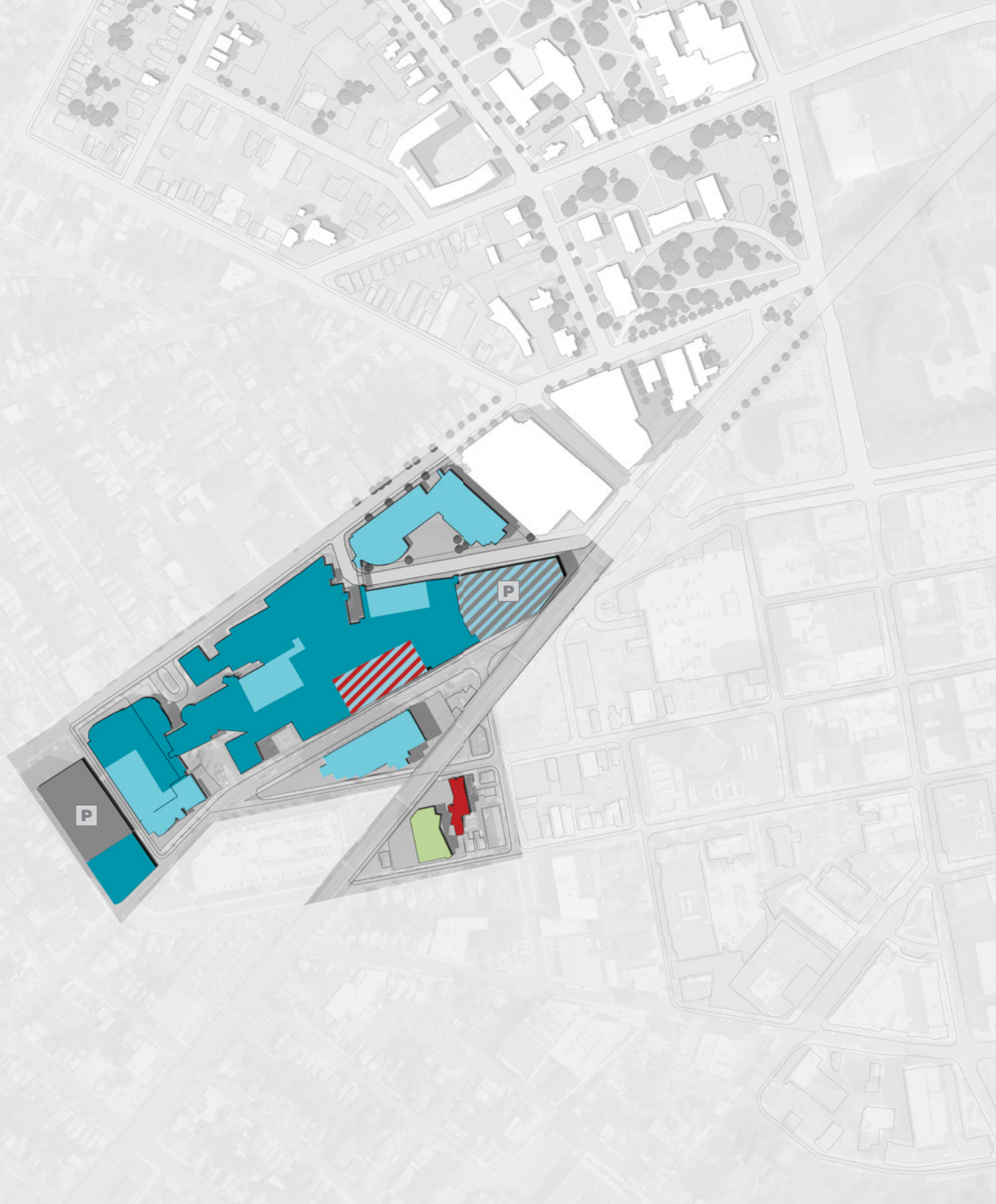
RBHS and RWJMS jointly own and operate a federally qualified health center, the Chandler Health Center (CHC), located on the Northeast corner of George Street and Morris Street. At the time of this master plan, the CHC is undergoing a renovation project and is not included in this study.

RBHS does not own or operate their own parking garages on the New Brunswick campus therefore, none were included in this study.



**BUILDING USE**

- Academic
- Administrative
- RBHS Clinical
- RWJUH Clinical
- Research
- Parking



*Figure 4.5.4.8 - Health Sciences at New Brunswick:  
Facility use diagram*

# MASTER PLAN FOR HEALTH SCIENCES NEW BRUNSWICK

## NEW BRUNSWICK

Since 1977, Rutgers University, through the Robert Wood Johnson Medical School (RWJMS) and (other RBHS schools) has collaborated with Robert Wood Johnson University Hospital as its teaching hospital. RWJUH and RBHS facilities nestle in a dense urban setting in downtown New Brunswick, a five-minute walk from the Rutgers—New Brunswick College Avenue district and easily accessible through NJTransit, Amtrak in Central New Jersey. The RBHS-RWJUH medical complex is surrounded by a mix of single-family houses, community buildings, storefronts and mixed-use high-rise residential buildings.

The adjacency of RWJUH to the RBHS schools, centers, and programs in New Brunswick provide opportunities for collaboration between students, faculty, researchers, and clinical practitioners, to realize the 21st Century model of medical education described earlier in this section “proximity fosters collaboration”. RBHS and RWJUH have fostered a

successful partnership over many years, sharing spaces for programs, and leasing available space to the other party as space becomes available.

In 2009, Rutgers expanded its footprint in New Brunswick to the south side of the Northeast Corridor tracks closer to the central business district, to build the then-named College of Nursing and the Institute for Health, Health Care Policy and Aging Research. The track separates RWJUH, RWJMS Medical Education Building and other RBHS programs.

Several land-use and development studies have previously been made for the area south of the tracks, both by the City of New Brunswick and by private development entities. These studies informed our physical planning effort. Some key proposals incorporated within the studies include:

- Creation of research, medical, commercial office and retail districts on land south of the tracks in a 2002 Core Vision Plan study by the City of New Brunswick.
- The area south of the railroad tracks was further

developed into a Health Care Redevelopment Zone in a 2012 zoning study also conducted by the City of New Brunswick.

- Realignment of New Street and improved access from Route 18.
- RWJUH improvements at French Street - plans to add a patient entrance to the south side of the hospital along French Street will add to the vitality of the street in an area that was previously primarily service and loading for the hospital.
- Ferren Mall redevelopment - Commercial or research-related development on the Ferren Mall site would increase activity in the neighborhood
- Extension of the Amtrak/New Jersey Transit northbound platform - The proposed extension would shorten the distance from SON, IFH, and future development to the New Brunswick train station.

- Existing Building
- Buildings to be renovated
- Proposed Buildings

**PROPOSED PROJECTS**

- 1** MEB Renovation: 136,635 GSF
- 2** CAB Expansion: 40,000 GSF
- 3** CAB Renovation: 214,216 GSF
- 4** New SON Building (Relocation and Expansion): 60,000 GSF
- 5** IFH Expansion into SON Building: 30,785 GSF

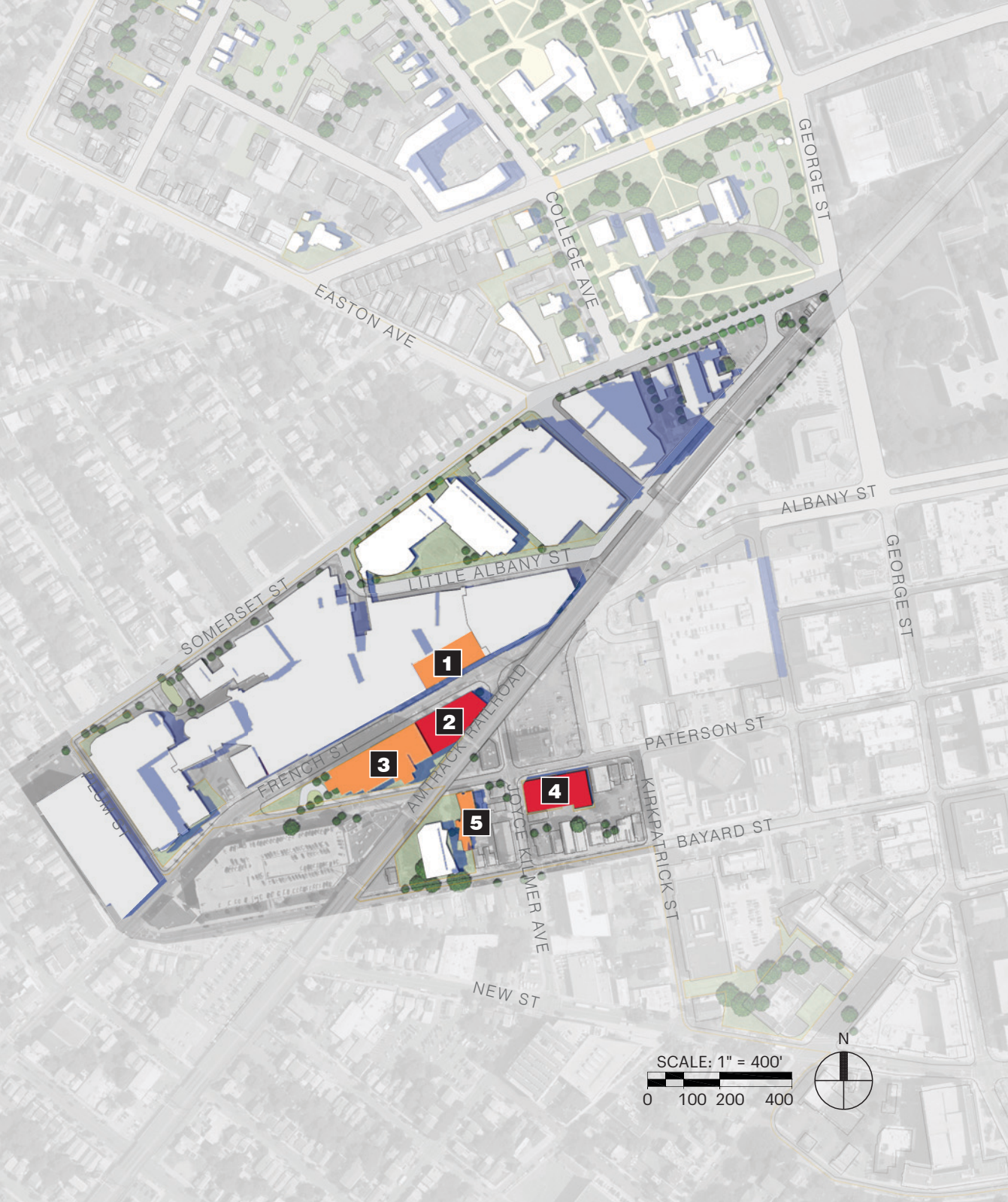
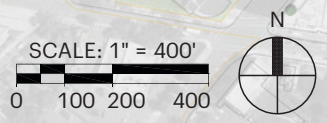


Figure 4.5.4.9 - Health Sciences at New Brunswick: Proposed framework plan



Based on findings from the Space Utilization Study and the Facility Conditions Analysis, the following are key elements of physical master plan for RBHS in New Brunswick:

**Renovate the Medical Education Building (MEB)**

- To allow greater flexibility of use and provide up-to-date classroom and research space technology. Since swing space is limited, renovation of the MEB will need to take place in phases.

**Expand the Rutgers School of Nursing (SON)** - To provide adequate classroom and instructional areas and to accommodate immediate and future program growth. The SON is projected to grow significantly to accommodate increases in class size and attendant program elements. The school is anticipated to double in area from 30,000 gsf to 60,000 gsf. This growth is not able to be accommodated in situ but is possible in an adjacent site at the southeast corner of Paterson and Joyce Kilmer Avenue, east of their current location, or the expansion could be accommodated in a new Interprofessional Education Building in New Brunswick.

**Expand the IFH** - To accommodate the increased research programs and funding, additions to the IFH building are recommended. Depending on the urgency of this space need, this space need is ideally accommodated by expanding into the adjacent School of Nursing building, once the School of Nursing can be moved into a new facility at Paterson and Joyce Kilmer Avenue. The existing School of Nursing building may then undergo minor renovations to modify interior layouts to support the needs of IFH.

**Expand and renovate the CAB building** - An ideal scenario would be to expand vertically above the existing loading dock of CAB, at the east end. This expansion would allow for new floor area on all floors of the CAB for ambulatory services, with direct connection to the MEB and RWJUH. There is no defined functional program for the expansion at this time. This expansion can directly tie into the existing elevator core within the existing CAB floor plate. The adjacent one-story RWJUH Wound Center occupying a small portion of the eastern end of the site would be relocated or incorporated into the expanded CAB building in order to maximize the buildable floor area of this site.

**Expand CINJ** - CINJ is in need of additional space in the near future. However, CINJ in its current location is land-locked and does not have many options for expanding directly adjacent to it. At the time of this study, RBHS is considering locations for a possible expansion.

## ADDITIONAL CONSIDERATIONS

**Relocate 1st and 2nd Year RWJMS Academic Program from Piscataway to New Brunswick** -

A relocated and consolidated RWJMS will bring to New Brunswick additional students, faculty and staff and add to the vitality of the healthcare complex, and contribute to a critical mass that is necessary to revitalizing downtown New Brunswick. Such a move represents a significant strategic decision by RBHS, and will have major impacts. Further planning and discussions with the City of New Brunswick and other stakeholders will be required to determine how best to proceed.

Consolidating the Robert Wood Johnson Medical School (RWJMS) in New Brunswick has several advantages. It allows 1st and 2nd year medical

students to be significantly closer to clinical facilities. It puts the school at the nexus of a regional transportation network. It also allows support and social facilities for the school to be concentrated at a single location which will increase school spirit and cohesiveness.

### **Relocate RWJMS Translational/Clinical Research Programs and Support Spaces from Piscataway to New Brunswick**

- In addition to the relocation of the academic components of RWJMS to New Brunswick, a portion of the applied research (approximately 1/3 of total research) currently located in Piscataway would benefit from relocation to New Brunswick to be closer to the hospital. Clinical research space will need to increase by 10% to support this relocation.

### **Relocate SHP Program from Piscataway to New Brunswick**

- SHP's Physician Assistant program benefits from being co-located with RWJMS since there are many overlaps in the two programs. Should RWJMS be consolidated in New Brunswick, SHP would also be relocated to New Brunswick to maintain the interprofessional interaction between the two schools and to be closer to clinical practice areas and RWJUH.

**Medical library** - A modern medical library in New Brunswick would provide space for meeting, research and study, and play an important role if RWJMS and other departments are relocated and expanded in New Brunswick. A library system master plan is currently underway and will provide additional details on the relocation or expansion of the medical library in New Brunswick.

**Simulation center** - Both the RBHS Strategic Plan and program directors identify the need for additional simulation facilities in New Brunswick. For the purposes of the master plan, the New Brunswick simulation center is proposed to be 80,000 gsf in size and is envisioned to be a facility shared by all RBHS clinical and academic programs, and with RWJUH.

The Medical Education Building (MEB) is a good potential location for a simulation center, with its central location and ease of access. If this is pursued, existing program in the MEB will need to be relocated elsewhere.

**Translational hubs** - Translational hubs are collaborative spaces for working and meeting, and

commons for gathering, breaks or informal meetings. They foster increased interaction and exchange of ideas and represent current best practice in health care facility design.

New student commons space was considered within the two new academic buildings located on the block between Bayard Street, New Street, and Joyce Kilmer Avenue to support more interprofessional interaction and translational collaboration between students, faculty, and clinical health providers from different schools and departments. The proposed program includes dining, assembly spaces, meeting rooms, a fitness center, and student lounges and study spaces.

**New ambulatory care space** - The programmatic need for ambulatory care at New Brunswick has been defined for multi-specialty physician practices for a growth of 75 physicians. In addition, there is a need for an ambulatory surgery center. Due to lack of space owned by RBHS, a site for a new ambulatory care and surgery center must be further studied. The new ambulatory care and surgery center may be developed and owned by others, and staffed with RBHS doctors and faculty. Planning of such a facility is intended to

be in close cooperation with primary clinical partners of Rutgers.

**Parking** - There is currently a shortage of parking in the vicinity of RWJUH, and this shortage will be exacerbated by any growth in RBHS. Increased demand for parking in New Brunswick can, in the short term, be mitigated by parking at Busch and Livingston, with increased bus shuttle service to New Brunswick. However, additional parking in central New Brunswick will also be required to support new development. A transportation master plan currently underway will provide additional details for parking services in New Brunswick.

**Hotel and Medical Conference Center** - To support the future growth of the medical campus and continued revitalization of downtown New Brunswick, a new hotel and medical conference center could be developed in close proximity to RWJUH. The proposed conference center would include assembly, meeting, and banquet space for continuing education and staff development programs for health care professionals, patient health care education meetings or support groups, and public education meetings related to issues of public

health.

An adjoining hotel accommodating 150 guest rooms will serve the conference center and provide temporary housing for family members of patients at RWJUH.

**Housing** - With the potential relocation of RWJMS, a multi-unit residential complex for students and healthcare professionals located in close proximity to RWJUH and proposed medical school location would serve to keep the RBHS community in New Brunswick and within walking distance to their place of work. The proposed development may include retail and amenity spaces on the ground floor level and apartments on the upper levels.

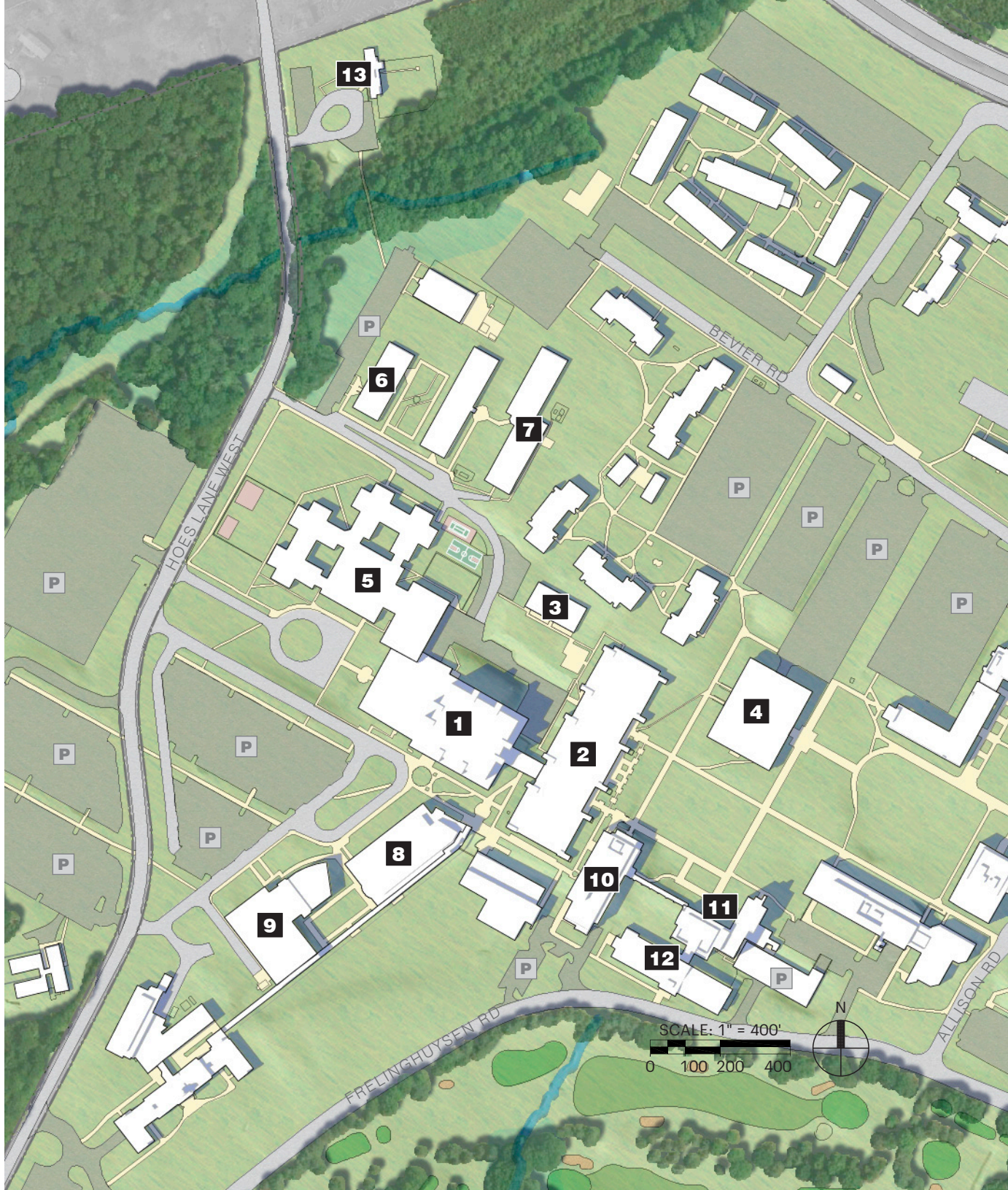
### KEY

- Building in good condition
- Building in fair condition
- Building in poor condition
- N/A

### BUILDINGS

- |  |     |  |
|--|-----|--|
|  | 1.  | RWJMS Research Tower   |
|  | 2.  | Kessler Teaching Laboratories Building                           |
|  | 3.  | SHP Physician Assistant Building                                 |
|  | 4.  | Library of Science and Medicine (LSM)                            |
|  | 5.  | University Behavioral Healthcare Center (UBHC)                   |
|  | 6.  | University Behavioral Healthcare Center - North (UBHC-N)         |
|  | 7.  | Staged Research Building   |
|  | 8.  | Center for Advanced Biotechnology and Medicine (CABM)            |
|  | 9.  | RWJMS Research Building and School of Public Health Building     |
|  | 10. | Environmental and Occupational Health Sciences Institute (EOHSI) |
|  | 11. | William Levine Hall - Ernest Mario School of Pharmacy (EMSOP)    |
|  | 12. | Susan L. Cullman Lab for Cancer Research                         |
|  | 13. | UBHC Children's Transitional Residence (CTR)                     |

Figure 4.5.4.10 - Health Sciences at Piscataway: Facility conditions assessment plan



## EXISTING FACILITY CONDITION ASSESSMENT

### PISCATAWAY

RBHS space in Piscataway is clustered at the western edge of the Busch campus, bounded by Hoes Lane West to its west, Bevier Road to its north, Allison Road at east, and Frelinghuysen Road at its south. RBHS programs at Busch work closely with nearby engineering and other science departments.

The core of the RBHS campus, including the Research Tower, Kessler Teaching Lab, and UBHC, is half a century old and dates from a very different time in medical research and education. The buildings are unloved, and in many ways, not functional. Further the environment they create is off-putting, and in our view, materially inhibits the growth and success of RBHS. The environment needs to be reconsidered over time, both to become more functional as well as to create a more welcoming overall impression which will encourage members of the RBHS community; students, faculty, and staff, to invest their time and talents to strengthen the RBHS brand.

William Levine Hall - Ernest Mario School of Pharmacy (EMSOP), and the Environmental and Occupational Health Science Institute (EOHSI) are the first RBHS buildings approached along Frelinghuysen Road as one circumnavigates the campus in a clockwise direction. The Center for Advanced Biotechnology and Medicine (CABM) and RWJMS Research and School for Public Health Building (SPH) are connected by a grade-level access corridor spine to the Waksman Institute of Microbiology between Frelinghuysen Road and Hoes Lane West. The RWJMS Research Tower and Kessler Teaching Lab buildings anchor the center of the RBHS campus, neighbored to the north by the SHP Physician Assistant Building and the RWJMS Staged Research Building. The University Behavioral Healthcare Center (UBHC), UBHC-North, (UBHC-N) and UBHC Children's Transitional Residence Treatment Center (CTR) are located northwest of the RWJMS Research Tower along Hoes Lane West.

The RBHS structures on the Piscataway/Busch campus also vary greatly in age, building condition, utility, quality of user experience, and future adaptability.

- Good Condition: The most recently constructed

buildings on the RBHS Piscataway campus are generally in good condition. CABM and the SPH buildings are in the best shape, have up-to-date technology, function well, and are well-liked by occupants. The RWJMS Staged Research Building, built in 2002, is also in good condition, but located at a slight distance from the other RWJMS research lab and common core areas, on a site that may be ideal for other purposes.

- Fair Condition: The Environmental and Occupational Health Sciences Institute (EOHSI) building, the William Levine Hall/Ernest Mario School of Pharmacy, and the Children's Transitional Residence (CTR) are in fair condition.

EOHSI is housed in an aging facility and requires technology and research space upgrades in the coming years. EMSOP's William Levine Hall is currently being expanded and will be fully renovated, so is expected to be in good condition by the end of construction. The Cullman Cancer Center labs are outdated and will require renovation in order to provide more open lab space areas desired by the school.



**BUILDING USE**

- Academic
- Administrative
- Clinical
- Research
- Campus Life



Figure 4.5.4.11 - Health Sciences at Piscataway:  
Facility use diagram

CTR, built in 1992, is an important building for the UBHC program, but is in fair condition due to heavy use and outdated technology. It will require some general maintenance work highlighted in the ISES FCA reports by 2030, but no significant renovation work is projected.

- Poor Condition: The RWJMS Research Tower, Kessler Teaching Laboratories building, and the University Behavioral Health Center (UBHC) and UHBC-North are in poor condition.

Both the Research Tower and the Kessler Building are old, have outdated technology, are inefficient, and require significant repair and renovation work to be brought up to 21st Century classroom and research space standards. Much of the original lab space in the Research Tower is currently being vacated and replaced with other functions. Most restrooms, elevators, and fire stair capacities will need to be studied and addressed if there is a change of functional use in the Tower that increases the occupant loads.

Built in 1966 and 1987, the University Behavioral

Health Center (UBHC) and UHBC-North buildings were constructed during an era when behavioral healthcare design was starkly institutional. Both buildings are antiquated, expensive to maintain, and do not meet current standards. The main UBHC building also has issues of traffic flow, co-location of adult and child patients, and a lack of space. These buildings will require significant renovation to increase occupant comfort, bring up to current health code standards, and to address use group and functional layout issues, and are good candidates for being replaced with a new hospital.

The one-story SHP Physician Assistant Building, built in 1990, was vacated in 2015. It will most likely be demolished to make room for future buildings on the Busch campus.

The Gordon Road Office Building and UBHC Centennial Avenue building, both located off of the main Busch campus, were excluded from this study.

- Existing Building
- Buildings to be renovated
- Proposed Buildings

- PROPOSED PROJECTS**
- 1 Research Building**  
180,000 gsf, 3-4 floors Phase 1
    - Basic Research 75,000 gsf
    - Staged Research Bldg 20,530 gsf
    - Research Growth 20,000 gsf
    - Meeting space, dining, lounge, 25,000 gsf
    - Animal Farm 7,500 gsf
    - Freezer Farm 5,340 gsf
    - Collaboration Space 8,000 gsf
  - 2 RWJMS Research Tower Renovation**
  - 3 Kessler Teaching Laboratories Renovation**
  - 4 SPH Growth**  
10,000 gsf, 3 floors
  - 5 LSM Renovation**  
57,000 gsf, 2 floors
  - 6 EMSOP Renovation**  
84,504 gsf, 2 floors
  - 7 UBHC**  
124,000 gsf, 3 floors
  - 8 Landscape + Road Enhancement along Hoes Lane West**
  - 9 Enhanced drop-off to RBHS**
  - 10 Loop Road**

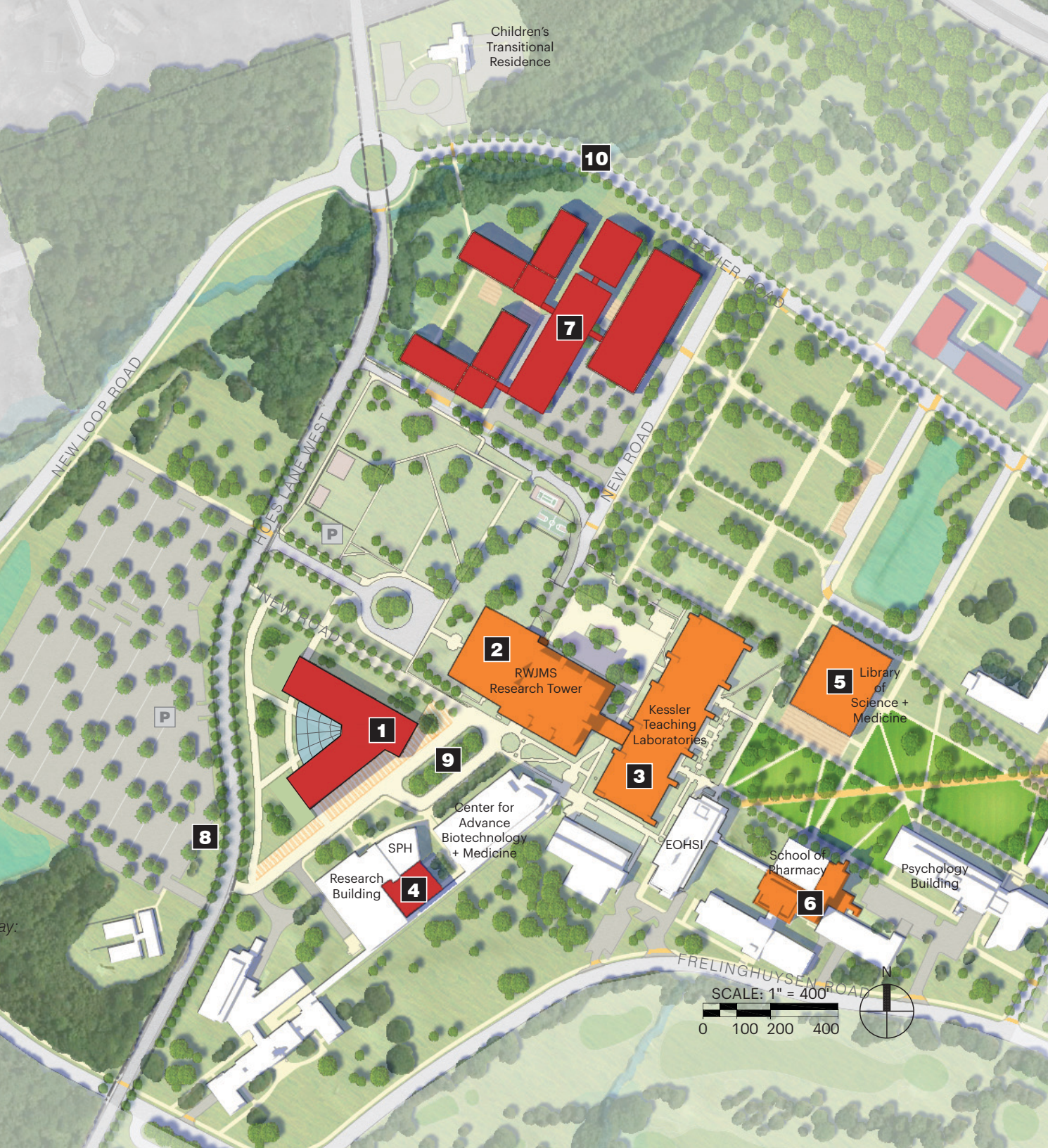


Figure 4.5.4.12 - Health Sciences at Piscataway: Proposed framework plan

## MASTER PLAN FOR HEALTH SCIENCES PISCATAWAY

Until recently, the Robert Wood Johnson Medical School (RWJMS) and related programs were institutionally distinct from Rutgers as University of Medicine and Dentistry of New Jersey (UMDNJ) entities. While there has always been significant cooperation between individuals, UMDNJ and Rutgers, as institutions, were separate; and at times, competitive. This also extends to the physical environment, where legacy UMDNJ and Rutgers buildings are not well integrated, and the outdoor spaces between them do not foster a sense of community.

Busch is largely designed as a car-oriented suburban campus and this is true of RBHS space at the western edge. Except for the Research Tower, the programs reside in primarily low-to-mid rise structures separated from the rest of Busch by large expanses of green space. Students, faculty, and researchers are spread apart with limited common spaces, creating isolated research silos and making it difficult to support interprofessional collaboration. The medical school

complex of buildings currently feels under-populated due to its sheer size and vast green spaces.

Based on findings from the Space Utilization Study and the Facility Conditions Analysis, detailed needs for the Piscataway campus are described below.

**Provide a New Research Building for RWJMS** - A new state-of-the-art research and flexible collaboration spaces is proposed to augment RWJMS space in order to attract and support top-tier faculty and student programs and to replace aging research and support spaces currently housed in the RWJMS Research Tower. This new building will also accommodate a relocation of the Staged Research Building programs, including projected growth. A 3T diagnostic imaging program and other shared spaces and amenities may also be housed here to support research and provide a community space for RBHS.

**Renovate and Re-purpose the Research Tower** - The Research Tower is an integral building for RBHS. It is centrally located and connected underground to most of the surrounding RBHS buildings by a system of tunnels. The Research Tower also has a central

loading dock that serves RBHS. Over the years, the Research Tower has undergone strategic renovations to improve conditions and function for new users, and was most recently renovated to have additional classrooms and office space for the School of Health Professions (SHP) Physician Assistant Program. While the tower might continue to be renovated and used over the near future for purposes other than research and to provide swing space for departments, the long-term future of the tower needs additional study in order to determine the best and most cost effective way to proceed.

**Replace and expand GSBS Space** - This initiative will provide dedicated classrooms and support growth needs with a 32% increase in space. This department could be located in either the new RWJMS Research Building or the renovated Research Tower.

**Expand the School of Public Health (SPH)** - An expansion to SPH will accommodate the projected growth of the School of Public Health through a 3-story, 15,000 GSF addition to the existing building.



Figure 4.5.4.13: Artist rendering of the expansion to the Ernest Mario School of Pharmacy, currently under construction.

### **Renovate Library of Science and Medicine**

- Rutgers 2030 proposes that a new graduate commons be integrated into the renovation of the existing Library of Science and Medicine (operated by University Libraries and shared with RBHS). Rutgers is conducting a separate master plan study of the libraries across all of their campuses by others which may further expand how this library could be used in the future.

### **RBHS - Rutgers quadrangle**

- A quadrangle is proposed to extend directly west from the Library of Science and Medicine (LSM). to connect RBHS with the rest of Busch in an east-west axis. Located at the western end of Busch, it links diagonal walkways from the Center for Advanced Biotechnology & Medicine, the RWJMS Research Annex and the School of Public Health, the Waksman Institute, integrating these facilities into the rest of the district in a series of outdoor spaces. An outdoor terrace or amphitheater type seating is proposed at the west terminus, to mitigate the grade change in this area.

**Replace and expand UBHC complex** - Behavioral Health is in an aging facility and does not meet the

current standards for behavioral health facilities. It is envisioned that the entire facility will be replaced for both inpatient and outpatient accommodation. The new facility would not anticipate growth but would accommodate patients in small units and outpatient areas that resemble actual community functions and spaces that mimic the world outside. There would be courtyards and active and passive exterior and interior spaces, an emergency department and day school.

## **ADDITIONAL CONSIDERATIONS**

In addition to the academic and clinical needs on the RBHS-Piscataway campus, the following additional needs are addressed:

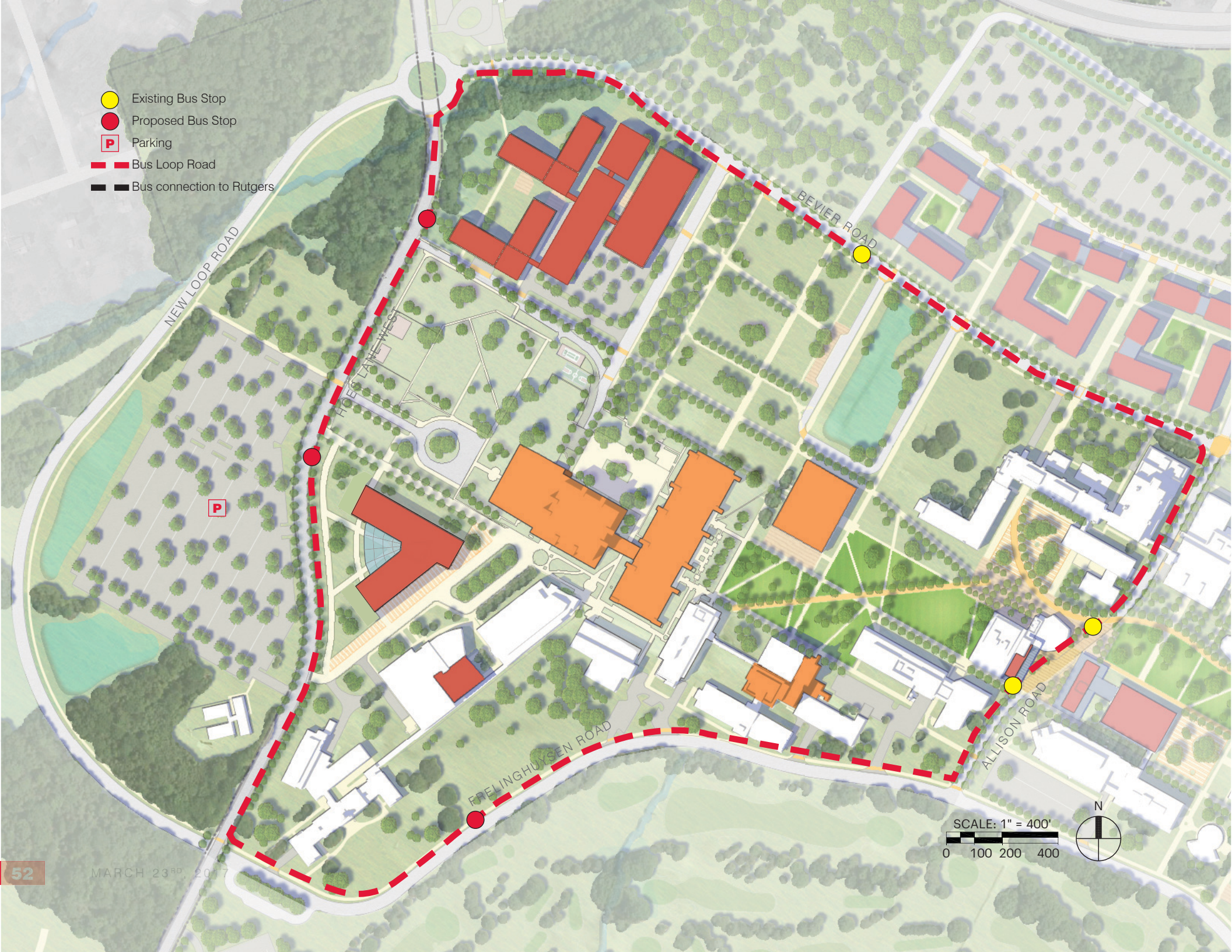
**Social Hubs** - Public gathering areas are needed in close proximity to RBHS faculty and students. Hubs, which may encompass collaborative space for working and meeting, and commons space for gathering, breaks or informal meetings, can foster increased interaction and exchange of ideas, and should be included in new buildings and renovated areas wherever possible. On the western edge of the Piscataway campus, there is a specific need for

healthier and more inviting dining options, student lounge and meeting space. This social hub may be located in renovated existing space, or in the proposed RWJMS Research Building.

**Graduate District** - A major initiative for Busch is the reorganization of housing at this district, including increasing graduate housing inventory that will accommodate RBHS students. Existing housing directly north of the RBHS district, at the Richardson Apartments, and north of Bevier Road, are outdated and are proposed to be incrementally replaced with new graduate housing over time, in a single area with easy access to the academic core of the district.

**Bus Connection to Rutgers** - A new bus stop along Hoes Lane West is required to connect the RBHS at the west end of Busch and adjacent commuter parking lots to the Busch core, proposed transit hub, and to other districts. This work is awaiting the completion of the proposed loop road around Busch that will make for an efficient bus route. In the short term, a temporary stop was discussed to be provided at the south side of EOHSI, along Frelinghuysen Road.

- Existing Bus Stop
- Proposed Bus Stop
- P Parking
- Bus Loop Road
- Bus connection to Rutgers

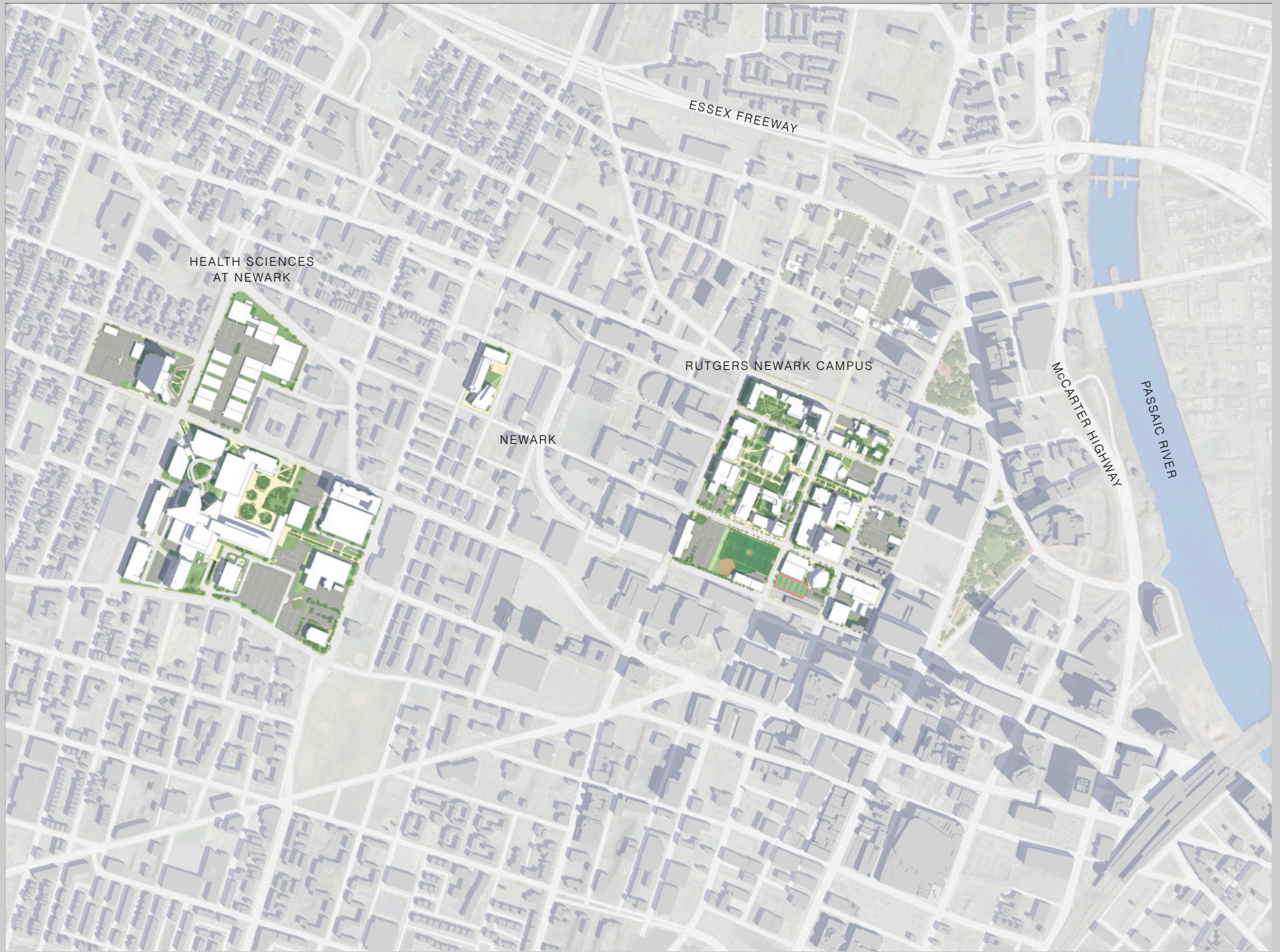


**Busch Loop Road** - Bevier Road is proposed to be extended west to tie into Hoes Lane West, creating a loop to serve this corner of campus. Several other connecting links to complete the loop road farther east are being put in place as part of ongoing construction projects.

**Parking** - As existing surface parking areas are lost to new construction, the spaces will need to be replaced. The area west of Hoes Lane West is available for additional parking needs.

*On previous page:  
Figure 4.5.4.14: Rutgers Health Sciences at Piscataway : Extended bus loop*





HEALTH SCIENCES  
AT NEWARK

RUTGERS NEWARK CAMPUS

NEWARK

ESSEX FREEWAY

McARTHUR HIGHWAY

PASSAIC RIVER

SCALE: 1" = 2000'  
0 500' 1000' 2000'



## 4.5.5 Rutgers Health Sciences at Newark

Newark is home to the New Jersey Medical School (NJMS), the Rutgers School of Dental Medicine (RSDM), in addition to large divisions of the School of Public Health (SPH), the School of Health Professions (SHP), Graduate School of Biomedical Sciences (GSBS), the Rutgers School of Nursing (SON), the University Behavioral Health Care network (UBHC), and the Institute for Infectious and Inflammatory Diseases (i3D).

The 2013 integration combined the separate schools of nursing at UMDNJ and at Rutgers, into one school with both undergraduate and graduate nursing programs. Today, undergraduate nursing education is taught on the Rutgers—Newark campus, while graduate nursing education is headquartered at Health Sciences at Newark.

RBHS Newark currently owns and operates approximately 4.3 million gross square feet (gsf) of space, consisting of academic, administrative, and clinical buildings, 1 student residence hall, 3 parking garages, and a dedicated Power Plant/Co-Gen facility that also supports the affiliated teaching hospital, University Hospital.

*On previous page:*

*Figure 4.5.5.1: Rutgers Health Sciences at Newark : Location plan*

The Newark campus provides clinical services for the community at large for the Newark area, and northern New Jersey. The campus is comprised of the University Hospital (including clinics and diagnostic imaging), the ACC for ambulatory services, the DOC for physician practice and ambulatory services, the Cancer Center and Behavioral Health.

Rutgers 2030 studied the programs and entities at RBHS Newark, with special focus on relocating programs and departments and providing better student commons spaces to promote greater inter-disciplinary collaboration, and providing recommendations for facilities that require renovation or replacement to keep up with 21st Century academic, research, and clinical healthcare models. A portion of the study included analysis of the existing clinical and ambulatory care operations and how to enhance them in parallel with an expansion of University Hospital. In addition, this study includes suggestions for future developments to revitalize the surrounding neighborhood, such as a Doctor's Residential Village, Hotel and Medical Conference Center, new retail and amenity spaces, and community green spaces.

### NEWARK EXISTING SPACE USAGE AND PROGRAM GROWTH

The Space Utilization Study described in Section 4.5.3 analyzed existing RBHS space usage and made recommendations for anticipated program growth to 2030. Recommendations related to space needs and program growth for RBHS schools, institutes, and UBHC in Newark are described in detail in this section.

#### RBHS Schools

##### 1. New Jersey Medical School (NJMS)

The New Jersey Medical School is the largest RBHS school on the Newark campus. The existing academic and research space is centered primarily in the Medical Science Building (MSB), with additional space in the basement level of the George F. Smith Library (LIB), the International Center for Public Health (ICPH), the Cancer Center, eight of the Administrative Complex buildings, and a portion of the Behavioral Health Sciences Building (BHSB). Academic and research area is approximately 785,480 gsf. NJMS projects 10% growth through 2030, an additional 78,550 gsf

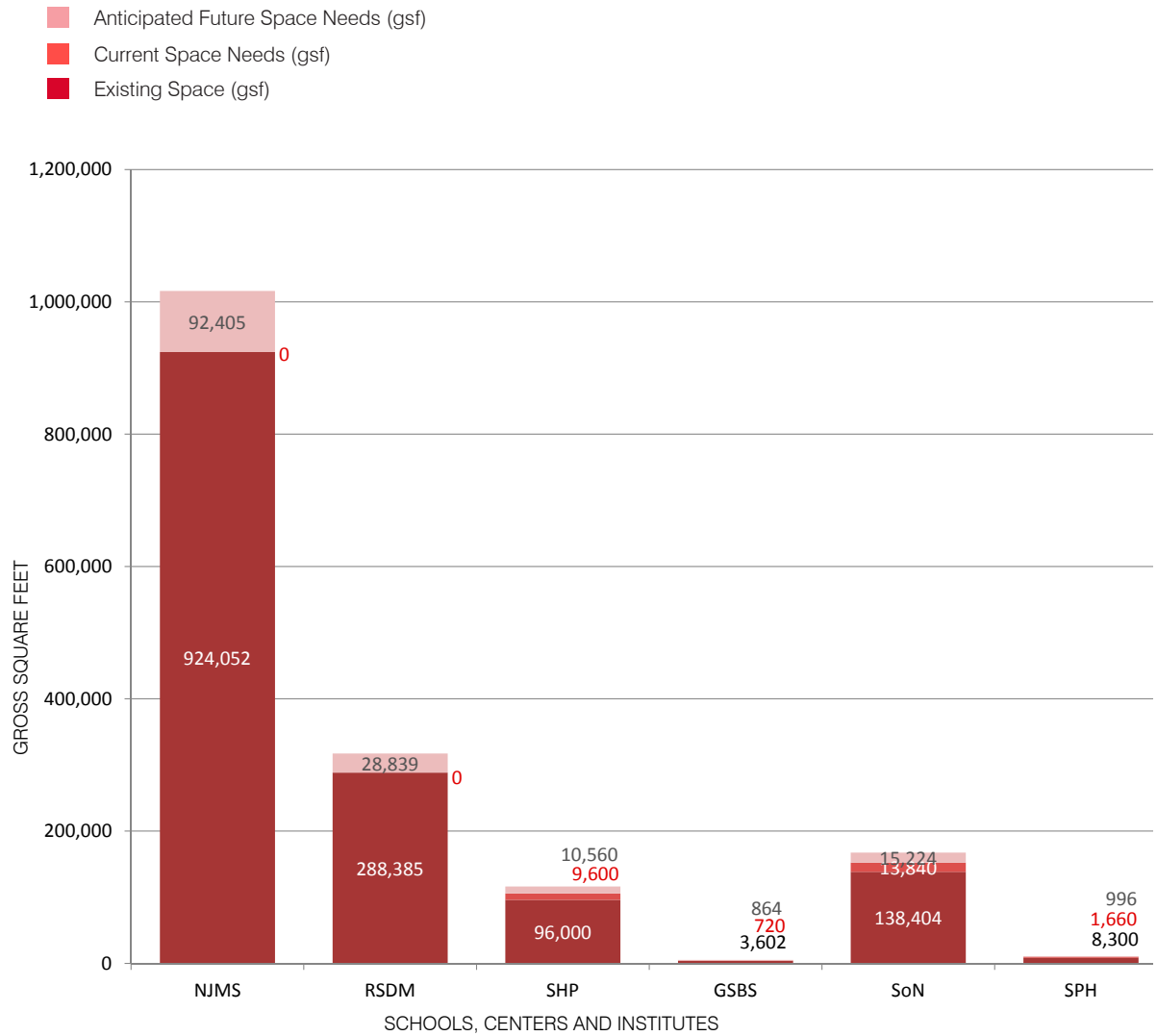


Figure 4.5.5.2: Health Sciences at Newark space needs - by Schools, Centers and Institutes  
 Area calculations include all academic, research and department support spaces unless otherwise noted.

## 2. Rutgers School of Dental Medicine (RSDM)

The Rutgers School of Dental Medicine is the second largest school at the RBHS Newark campus and the only dental school in New Jersey. The 292,000 gsf School of Dental Medicine building contains classrooms, lecture halls, office space, and clinical space and was originally constructed in 1975. A northeast wing was added in 2004. This addition was designed to accommodate two additional stories above the current configuration. These floors will be added as demand for space dictates.

## 3. School of Health Professions (SHP)

The School of Health Professions on the Newark Campus currently has approximately 96,000 gsf of classroom, teaching labs, research and office space located in the Stanley S. Bergen Jr. Building.

The School is projected to grow by 21% in the coming years, so an additional 19,957 gsf of space will be needed.

RBHS also intends to move much of the SHP program currently located in Scotch Plains to the Newark Health Sciences campus, which will require an additional 40,000 gsf.

#### **4. School of Nursing (SON)**

The Rutgers School of Nursing (SON) in Newark is split between the Rutgers—Newark campus and Health Sciences campuses. The undergraduate nursing program resides in the 68,500 gsf Ackerson Hall building on the Rutgers—Newark campus. The graduate program is located in approximately 54,800 gsf of the Bergen Building on the Health Sciences campus.

Similar to New Brunswick, the School of Nursing in Newark is in immediate need of large, modernized classrooms. With projected 50% growth of the graduate program on the Health Sciences campus of an additional 27,400 gsf is required.

Ackerson Hall is on the Rutgers University—Newark location. As this location serves first-degree undergraduate students, the program is not intended

to be removed from this location, as core basic education programs are nearby.

#### **5. School of Public Health (SPH)**

The School of Public Health (SPH) in Newark has approximately 8,300 gsf of office and classroom space in the Stanley S. Bergen Jr. Building (SBB).

SPH is currently growing and hiring new faculty on the Newark campus and has an immediate space need to accommodate 30% growth, which is approximately 2,490 gsf. In addition, SPH will be offering a new full-time undergraduate degree program in Newark, so more classrooms and a seminar room are needed for daytime classes. The school projects 20% future growth, equaling an additional 2,160 gsf.

#### **6. Graduate School of Biomedical Sciences (GSBS)**

The Graduate School of Biomedical Sciences (GSBS) in Newark has approximately 4,190 gsf dedicated office space: 2,400 gsf in the Stanley S. Bergen Jr Building (SBB) and a 1,790 gsf office suite in the

Medical Science Building (MSB).

Historically, GSBS has utilized faculty office space and classrooms in the medical school and dental school buildings, but currently has an urgent need for more dedicated classroom space to accommodate their daytime classes. An additional 10,000 gsf of classroom space has been requested in Newark and 1,340 gsf of projected growth for office, administrative, and support spaces.

### **RBHS Centers and Institutes**

#### **The Cancer Center**

The Cancer Center in Newark has approximately 271,000 gsf of research, office, and in and out-patient care spaces in the 271,081 GSF NJMS/UH Cancer Center. The building, completed in 2006 is currently not at full capacity and has space to accommodate future growth of the program.

The Cancer Center remains unchanged as there exists growth capacity within the center for additional linear accelerators and other programs like infusion or clinical floors.

**BUILDING USE**

- Academic
- Administrative
- Clinical
- Research



Figure 4.5.5.3 - Health Sciences at Newark:  
Facility use diagram

## University Behavioral Health Care Network (UBHC)

UBHC in Newark has approximately 122,000 gsf of office, meeting, and in and out-patient care spaces in the Behavioral Health Sciences Building (BHSB). Behavioral Health remains unchanged on the Newark campus and no growth is expected. Community outreach, mobile health, home health, as well as population care and wellness are part of the provision of care for this campus network.

## Institute for Infectious and Inflammatory Diseases (i3D)

The i3D is a newly developed institute formed to integrate three currently separate centers of Excellence at New Jersey Medical School who share a common interest in immunity and infectious disease. The i3D brings together a critical mass of NIH-funded basic and clinical research faculty with the goal of developing collaborative projects and multi-investigator translational research grants. A goal to house many of these faculty in one single building creates a platform for organic collaborations and resource sharing.

Rutgers 2030 plans for approximately 10,000 gsf of new space for this institute.

## Shared Space

In addition to space needs assessment conducted for each school, center, institute, and UBHC described above, the RBHS community described a need for the following shared spaces and infrastructure:

- Simulation Space
- Collaboration Space
- Big data facility
- Improved video conferencing capabilities
- Parking

Rutgers 2030 incorporates these space needs and distributes these needs in areas where they are described as needed. These shared needs are integrated into proposed buildings or renovated spaces, giving priority to needs which are currently absent or needed in the immediate future. The total square footage assigned to these needs are estimates based on initial discussions with RBHS. These square

footages will be reassessed and refined in a separate in-depth study.

## Totals for Newark

Based on the Space Utilization Study, RBHS programs in Newark are projected to grow by 12% and need approximately 172,000 gsf of new academic and research space. In addition, 821,790 gsf of existing structures are proposed to be replaced. Finally 537,500 gsf of existing facilities are proposed to be renovated across this campus.

**KEY**

- Building in good condition
- Building in fair condition
- Building in poor condition
- N/A

**BUILDINGS**

1.	Emergency Medical Services
2.	Daycare Center
3.	Stanley S. Bergen Building (SBB)
4.	Administration Complex (ADMC)
5.	International Center for Public Health (ICPH)
6.	Doctors Office Center (DOC)
7.	Rutgers School of Dental Medicine (RSDM)
8.	University Housing - 180 West Market Street
9.	Ambulatory Care Center (ACC)
10.	University Hospital (UH)
11.	Medical Science Building (MSB)
12.	George F. Smith Library
13.	NJMS/UH Cancer Center
14.	Behavioral Health Sciences Building (BHBSB)
15.	Power Plant/Cogen Facility

Figure 4.5.5.6 - Health Sciences at Newark:  
Facility conditions assessment plan



## EXISTING FACILITY CONDITION ASSESSMENT

### NEWARK

A majority of the RBHS academic and clinical buildings are concentrated on a “super-block” shared with University Hospital, bounded by 12th Avenue and West Market Street to the north, Norfolk Street to the east, South Orange Avenue to the south, and Bergen Street to the west.

The Rutgers School of Dental Medicine (RSDM), NJMS Medical Science Building (MSB), and George F. Smith Library (LIB) are the core academic buildings surrounding the main campus quad, which opens onto 12th Avenue in the north-central section of the super-block. 180 West Market Street, the only RBHS university housing building, is located in the northeast corner with the power plant and parking lots and garage located directly south.

The primary teaching hospital, University Hospital (UH), is centered in the western portion of the super-block; physically connected to RSDM, MSB, and the

NJMS/UH Cancer Center, and in close proximity to the Behavioral Health Sciences Building (BHSB), the Doctor’s Office Center (DOC), and an Ambulatory Care Center (ACC) - the outpatient department of UH. Bergen Street and South Orange Avenue are the primary vehicular access routes to the University Hospital (UH) complex and clinical sides of the super-block. The clinical buildings and hospital have two nearby parking garages.

To the north and northwest of the super-block are a large administration complex (ADMC) and the Stanley S. Bergen Building, which are currently home to a majority of the smaller RBHS schools, administrative and campus support offices. The International Center of Public Health (ICPH) is located a few blocks northeast of the super-block on Warren Street between Newark and Wilsey Streets.

9 RBHS academic and clinical buildings and the 17 Administration Complex buildings were evaluated on the Newark Health Sciences campus as part of this study. The three RBHS parking decks (I, II, and III), the RBHS Power Plant/Co-Gen Facility, and the RBHS University Housing were excluded from the

assessment.

- Good Condition: The International Center for Public Health and Behavioral Health Sciences Building, both constructed in 2003, are in good condition and work well for their current functions. In addition, the NJMS/University Hospital Cancer Center, completed in 2006, is in excellent condition, functions well, and is well-sited connecting directly to University Hospital.
- Fair Condition: The Rutgers School of Dental Medicine and the George F. Smith Library are in fair condition.

RSDM houses instructional, clinical, offices, and research space. The original wing of the Rutgers School of Dental Medicine, built in 1975, is in need of renovations and upgrades to keep up with current technology, education, and practice trends. The northeast addition, completed in 2004 is in good condition.

The George F. Smith Library, built in 1974, is in fair condition for its age. Detailed analysis was excluded from this study.



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- **Poor Condition:** The Medical Science Building (MSB), Doctors Office Center (DOC), Stanley S. Bergen Building (SSB), the Administrative Complex Trailers, and Ackerson Hall are in greatest need of significant renovation or replacement to keep up with 21st Century healthcare education, research, and clinical practices.

The Medical Science Building is a massive 630,000 SF building constructed in 1976, which has outdated technology and inflexible concrete framework. Faculty offices are located too far away from ambulatory and clinical care areas resulting in inefficient use of doctors' time. Lab spaces are old and, at best, currently suited for dry-bench research only. Due to the size of the MEB, significant renovation will be costly, but likely is a better use of resources than a complete building replacement.

The DOC building, built in 1991, is also outdated, relatively small, and inhospitable for patient care. It has antiquated infrastructure, has reached a vintage where it can no longer meet the ambulatory

surgery volume and technology needed, and the physician practice is not efficient. It is also dreary and disliked by those who use it. It is recommended that this building be replaced with a new, state-of-the-art Doctor's Center.

The Administration Complex (ADMC) was built in 1969. They were designed as an inexpensive, short-term solution to address space needs and at 45 years old, have outlived their usefulness. Over the years, the function of the building has evolved to house research labs and clinical spaces in addition to campus service offices. The remote location of these departments create silos and limit interprofessional collaboration. Since the complex is located on a prime block that could be re-developed for greater support of the medical school, hospital campus, and surrounding community, this report recommends that the departments housed in these buildings be relocated and the structures be replaced.

The 420,000 GSF Stanley S. Bergen Building (SBB), constructed in 1952, is one of the most highly utilized, but least desirable buildings on the

Newark campus. The building is old and some of the interiors are in poor condition; spaces have outdated technology and lighting and poor HVAC systems and controls. There are limited student common spaces and no dining venues within the building, in addition to limited parking within close proximity. Program directors do not like working in this building and feel that it discourages students and faculty from coming to RBHS-Newark. The SSB building will require significant renovation in the coming years to improve user comfort, and is better suited to house the administrative functions currently located in the ADMC trailers, than as academic and research space.

Ackerson Hall, home to the undergraduate nursing program located on the main Rutgers-Newark campus, was built in 1968, and is in poor condition. The building is old, has antiquated technology, and does not have adequate office and classroom space to accommodate the growing nursing program.

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*Figure 4.5.5.7: Rutgers Health Sciences at Newark : Doctors' Office Center (DOC)*



## MASTER PLAN FOR HEALTH SCIENCES NEWARK

The master plan for the Health Sciences at Newark was developed with a framework to imagine a revitalized neighborhood primarily dominated by healthcare providers, related support services and parking structures. The super-block that is bounded by Bergen, 12th Avenue, Norfolk and South Orange, currently occupied by RBHS and University Hospital (UH), has historically been fortress-like, with a fence around the perimeter for a significant part of the block, and eight to thirteen story buildings lining the perimeter at the northwest, west and southwest corners. UH lies in the middle of the block, physically connected or within walking distance to many of the perimeter buildings. These buildings are accessed from within the super-block more often than not, with no entrance facing the streets.

While mostly public and hospital related functions anchor the west and south half of the super-block, along Bergen Street, RBHS schools, academic buildings and a student residence hall extend northeast

of this block. This part of the super-block is more open, with the recent construction of the 2004 Rutgers School of Dental Medicine expansion creating an inviting presence at the super-block with a street front entry and also a direct connection to the much-loved academic quadrangle in the center of the superblock. A 232-bed residence hall was constructed in 2006 at the northeast corner, along with a parking deck, and provides convenient housing for RBHS students and brings life to the super-block after hours.

A power plant serving RBHS is located mid-block along the east.

Additional RBHS space to the north of this super-block housing primarily RBHS administrative and support service functions, provide opportunities for additional development or potential reorganization of RBHS space and departments in order to improve co-location or simply to provide amenities to the RBHS and UH community.

This master plan was developed alongside a parallel effort by the State of New Jersey Department of Health to examine alternatives for an effective plan for delivery

of healthcare in the greater Newark region. Rutgers 2030 assumes an expanded and renovated University Hospital, but is subject to additional study by RBHS and its primary clinical partners. University Hospital is not owned by Rutgers or RBHS and was not assessed or planned as part of this study.

Based on Space Utilization study and Facility Conditions Analysis, the following are key elements of the physical master plan for RBHS in Newark:

**Provide an Interprofessional Building** - A priority of the RBHS strategic plan is to provide a space for interprofessional education, as part of a strategic initiative for more interdisciplinary programs and collaborations, resulting ultimately in improved health outcomes. This facility would include space for assembly and meetings, classrooms, offices, and support spaces for the Graduate School of Biological Sciences (GSBS), School of Health Professions (SHP), School of Public Health (SPH), Rutgers School of Nursing (SON), and a portion of the New Jersey Medical School (NJMS) programs, see figure 4.5.5.9. These programs are currently located in the existing Bergen Building and ADMC trailers to the north of the

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*Figure 4.5.5.8: Rutgers Health Sciences at Newark : Proposed framework plan*

<b>1</b>	<b>NEW INTERPROFESSIONAL BUILDING</b>	<b>AREA (GSF)</b>
1	GSBS (RELOCATED FROM SBB + GROWTH)	19,119
2	SPH (RELOCATED FROM SBB + 56% GROWTH)	12,934
3	SHP (RELOCATED FROM SBB + 21% GROWTH)	115,957
4	SHP (RELOCATED FROM SCOTH PLAINS)	40,000
5	SON (RELOCATED FROM SBB + 50% GROWTH)	82,190
6	NJMS (RELOCATED NON-RESEARCH SPACE FROM ADMC TRAILERS)	38,299
7	NJMS (10% GROWTH OF ALL NON-RESEARCH SPACE) SHARED SPACES	27,190
8	DINING	31,522
9	MERCHANDISING	12,022
	RECREATION	12,678
	MEETING	6,565
<b>TOTAL</b>		<b>398,476</b>

<b>1</b>	<b>NEW RBHS ADMINISTRATIVE BUILDING - FRONT OF HOUSE</b>	<b>AREA (GSF)</b>
1	RBHS-CA/CS/CAMPUS SERVICES (ADMIN OFFICES-FRONT OF HOUSE)	42,520
2	RBHS - CA/CS/ ACADEMIC AFFAIRS (ADMIN OFFICE - FRONT OF HOUSE)	31,325
<b>TOTAL</b>		<b>73,845</b>

<b>5</b>	<b>NEW RBHS ADMINISTRATIVE BUILDING - BACK OF HOUSE</b>	<b>AREA (GSF)</b>
1	RBHS - CA/CS/CAMPUS SERVICES (ADMIN OFFICES - BACK OF HOUSE)	73,986
2	RBHS - CA/CS/CAMPUS SERVICES (OFFICES/STORAGE/ SHOP - BACK OF HOUSE)	29,282
<b>TOTAL</b>		<b>103,268</b>

**N** INDICATES BUILDING NUMBER AS SHOWN ON FIGURE 4.5.5.8

super-block and will be relocated to the super-block in a proposed building that will complete the RBHS academic quadrangle at the northeast corner and allow for greater proximity and interaction among the various schools and departments. This building will also be adjacent to the George Smith Library, and may have a connection to the library and to the Medical Science Building (MSB) through an existing connector.

**Expand research space** - There is a need for office-based research at Newark, and this need may be accommodated in existing renovated space, possibly in the Medical Science Building (MSB) or if the MSB is insufficient or unsuitable, a new adjoining structure may be added to the MSB at its eastern end. Increased research activity in proximity to UH and RBHS schools will add to the vitality of the area and attract opportunities for research partnerships. The newly created i3D will also need research space and can be accommodated as part of the renovated MSB, in proximity to existing research support spaces like vivarium and lab storage spaces.

**Upgrade utility provisions** - There is currently a plan to upgrade services at the power plant service

Figure 4.5.5.9 - Health Sciences at Newark: Proposed space program elements

the MSB and other facilities in the super-block. This upgrade would also serve to support any additional development at the super-block to accommodate growth in space needs.

**Renovate Medical Science Building (MSB) -** Renovations to the Medical Science Building (MSB), especially to its laboratory floors are required as the current labs are outmoded. However, the existing MSB is very wide in its footprint and would benefit from significant intervention to bring light into the core of the building to provide a more pleasant environment for its future users. Technology and utility upgrades may also be necessary depending on its future use.

**Renovate the George Smith Library -** Rutgers 2030 proposes to renovate the George Smith Library to provide for common space for the RBHS community. The library would also serve its current function to provide space for RBHS students with a quiet and safe place for study.

**Provide a new Ambulatory Care Facility -** A new ambulatory care tower is proposed to replace the Doctor's Office Complex (DOC) and consolidate all

of the physician practices and clinics into one new ambulatory complex. This new ambulatory facility is proposed to be adjacent and connect to the existing Ambulatory Care Center (ACC).

The consolidation of ambulatory services would not increase patient volume but would provide a center in one location for this campus. The overall area for the proposed facility is approximately 215,000 gsf. Advantages for a consolidated location are as follows:

- Multi-specialty physician practices can be co-located,
- Allows for cross-talk between different medical disciplines for patient consultants and allows for maximum ebb and flow of patients on a day-to-day basis for dynamic changes within the building as program needs flex,
- Allows for high-utilization and flexible facility all under one roof that consolidates ambulatory services including ambulatory surgery,
- Allows the existing diagnostic imaging center at the ground floor of UH to be proximate and provides a patient friendly adjacency,

- Allows for sharing of outpatient imaging facility with the expanded imaging department that can also be separate circulation but shared with the inpatient population for UH,
- Creates a patient centered setting with quick and convenient access to parking,
- Maintains adjacency to UH and allows for physicians to see patients and walk to UH and the academic and research areas of campus beyond,
- Fosters translational research due to its proximate location

Phasing of the new Ambulatory Care Facility must be carefully coordinated. The new building to replace the DOC and consolidate the clinics must be completed in the first phase so that the DOC can remain operational. Another consideration is the relocation of ambulatory surgery, which is currently located in the DOC. In one scenario, the ambulatory services are either co-located in the UH or alternately the new high-acuity hospital addition is constructed and the ambulatory surgery will take over a part of the existing surgical center which resides in UH.

Once the ambulatory building is constructed and the clinics from UH are relocated, the imaging department within UH can be expanded and the clinics will then be directly adjacent to imaging on the main level.

#### **Redefine entry at 12th Avenue and Bergen Street**

- The intersection at 12th Avenue and Bergen Street is a dangerous one, involving visitors to the hospital and RBHS community traversing between the super-block and the Bergen and ADMC buildings. With renewed consideration for renovating and expanding University Hospital, the entry to the hospital and super-block at this location may be reconfigured to allow a more gracious drop off for hospital visitors and the RBHS community. The existing narrow uphill approach may be replaced by a clear view towards the interior of the super-block at this location, opening up the super-block to the street.

#### **Renovate the 1977 Rutgers School of Dental Medicine**

- A redefined entry to University Hospital at 12th and Bergen will give rise to an opportunity to create a front door for RBHS at the existing 1977 Rutgers School of Dental Medicine (RSDM), on axis with the entry drop-off. This building is due for

upgrades now that the addition has been completed and renovations may include a welcoming facade to the west. Expansion for this school can be accommodated vertically above the 2004 northeast wing addition.

#### **Provide Shared, Collaborative and Commons Spaces**

- Additional shared spaces for meeting and for commons are located in proposed buildings and renovated spaces to improve student experience and foster more interprofessional collaboration. These shared amenities may also include expanded dining options, student lounge and meeting spaces. A simulation center, identified as a need in the strategic plan to improve learning outcomes, may also be provided but needs additional discussion on best location for this function.

#### **Parking**

- Parking lots and structured parking surrounding the RBHS-UH vicinity are currently at maximum capacity and any future growth will necessitate additional parking. Additional development on existing surface lots will also displace parking and will these spaces will need to be replaced. Parking for RBHS is provided in a parking structure to the north of

the super-block, to serve both the academic quad and development to the north.

#### **Reimagine the north blocks**

- To the north of the super-block are the Bergen building and the Administrative Complex (ADMC) buildings, primarily made up of office and administrative functions. Once the Interprofessional Building at the RBHS academic quad is constructed, the Bergen building and ADMC spaces will be able to be vacated for other uses. The ADMC site is easily vacated since the structures currently housed in the ADMC buildings are temporary “butler-style” buildings and have served their purpose. This site has the potential for larger scale facilities, with a signature building at its north corner, marking the intersection of West Market and Bergen Streets.

Rutgers 2030 proposes for the ADMC block to be redeveloped as a partnership opportunity to provide additional amenities and services that will benefit the healthcare community already established at the RBHS-UH super-block. Several developments are proposed along Bergen and West Market Streets:

A hotel and conference center will serve this area of

Newark and provide accommodations for visitors to UH and RBHS would add to the vitality of this area beyond the medical related functions and hours of operation,

An office tower adjacent to the hotel and conference center will provide space for RBHS departments that do not need to be adjacent to clinical activity and directly connected to the hospital to the south. This tower will also serve provide opportunities to create additional development for office-based research for RBHS in Newark,

A residential community for doctors complete with amenities will provide convenient housing for doctors and other healthcare professionals. There have been discussions with the Newark Mayor's Office about building a new Doctor's Village or residential park in the vicinity as part of a larger initiative to revitalize the neighborhood. A new multi-unit residential complex would serve to keep more of the RBHS community in Newark and within walking distance to their place of work. The proposed development may include retail and amenity spaces, such as a daycare center and fitness center, on the ground floor level, and

apartments on the upper levels. The village would also include secure green spaces and parking garage for the convenience of residents.

A mixed-use facility with residential on the upper levels to provide additional housing opportunities for this area. This facility may also be developed as office or research space if the demand for residential development is low.

Cabinet Street is proposed to be reinstated in this block, to provide pedestrian, vehicular and service access to the proposed developments.

**Transportation and connections** - Rutgers 2030 anticipates that there will be increased collaboration between the Health Sciences at Newark with Rutgers—Newark and proposes to strengthen the physical connection between the two locations. While the distance between the two locations is not great, it is perceived as unsafe at times to walk between the two. A joint-use recreation facility was discussed between RBHS and Rutgers—Newark, to be located midway between the two locations. This will help activate the path between the two locations. In the meantime, Rutgers buses provide frequent services between the two.

## ADDITIONAL CONSIDERATIONS

Beyond the proposed initiatives identified by Rutgers and RBHS as part of this master plan, Rutgers 2030 has been informed by the following:

**Changes at University Hospital** - It is imagined that the first floor of the hospital would have some retail and dining opportunities close to the ambulatory building and potentially outside courtyard gardens for areas of respite.

University Hospital would still remain as the low tech armature and the physical building would be retained as much of the existing hospital as possible with the stated goal of 624 beds overall. The existing hospital will be renovated to accommodate approximately 384 private medical surgical beds with clinical and non-clinical support.

A new high tech building of approximately 450,000 sf and proximate to the main building is envisioned to replace the emergency department, surgical suite and approximately 240 high acuity intensive care beds. The new walk in entrance and a building entrance for





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the emergency department will be in this new structure. The new high tech building will leverage the existing University Hospital for all clinical and non-clinical services. The helistop / helipad will be relocated to the roof of the new hospital so that it would connect with a trauma elevator to the surgical suite, intensive care beds and the emergency department.

There is a significant national trend at academic medical centers to insert an Observation Unit of perhaps thirty beds. This is a twenty three hour unit that we suggest resides near the emergency department to off load some of these patients and lessen demand on inpatient units. Observation units can also be used to extend recovery from surgery overnight and support both the interventional platform and diagnostic imaging recovery of patients when they might need more time to stabilize after a procedure.

Another significant advantage of the addition of the high tech tower is that the new surgical suite can align with the “D” level of the existing hospital to take advantage of connections to the existing surgical suite in the University Hospital. This can potentially be re-purposed as the ambulatory surgery center if the

phasing and timeline work.

The existing diagnostic imaging center in the University Hospital would also be renovated and expanded to approximately 40,000 sf.

With regards to long-term development for the Health Sciences at Newark, the proposed initiatives to concentrate educational facilities in the existing super-block, with ancillary, support, and partnership office/research space in close proximity to the north will bring the RBHS community closer to each other. The Bergen Building can be repurposed for administration, opening up the ADMC site for future development for possible office, residential and hotel/conference center uses.

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*Figure 4.5.5.10: Rutgers Health Sciences at Newark : School of Dental Medicine students  
Photograph by Roy Groething, copyright Rutgers, the State University of New Jersey.*

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