THE STATE UNIVERSITY OF NEW JERSEY

RUTGERS

Physical Master Plan Phase I

NEW BRUNSWICK

CAMDEN

NEWARK

July 2001

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Physical Master Plan Phase I

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Physical Master Plan Phase I

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INTRODUCTION

Rutgers University developed a comprehensive strategic plan in 1995, which is reviewed and updated on an annual basis. This strategic plan emphasizes excellence in teaching, scholarship, and public service. Rutgers desires to become one of the top public research universities by 2010. In order for Rutgers to achieve their goals, they must be able to attract and retain outstanding students, faculty, and staff. Without quality facilities it will be very difficult for Rutgers to fulfill its mission.

In February 2001, the University contracted with Paulien & Associates, Inc., to conduct Phase I of the physical master plan ("PMP"). It is the strategic review of Rutgers' capital resources. This report reflects the integration of the University's mission statement, strategic plan, academic program goals, development of a financial plan, and future enrollment modeling.

There are four sections in this report. Each section analyzes the three major campuses, Camden, Newark, and New Brunswick/Piscataway, as well as the entire University. Section 1 is a normative analysis that evaluates the existing conditions of the University by reviewing its space by major category. It includes the development of a space needs model by using standard, normative guidelines which then projects space needs for the three (3) enrollment scenarios for Fall 2011: static enrollment growth; moderate enrollment growth; and market enrollment growth.

Section 2 is a comparative analysis to other leading AAU public universities. This analysis calculates the amount of space required to bring the Rutgers University • New Brunswick/Piscataway campus up to peer levels for each enrollment scenario.

Section 3 models the impact of increasing enrollments by modeling staffing requirements, space needs by major category, operating cost implications, as well as capital construction costs.

Section 4 is an outline of the next steps Rutgers should take to bridge between this Phase I and Phase II, the Physical Plan Development, of the Physical Master Plan.


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THE STATE UNIVERSITY OF NEW JERSEY

RUTGERS

Physical Master Plan Phase I

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EXECUTIVE SUMMARY

Existing Space

- The Rutgers system has 9,366,000 assignable square feet (ASF) which includes space currently under construction. Over 80% of the total space (7,726,000 ASF) is at the New Brunswick/Piscataway campus with just over 1,000,000 ASF in Newark and just under 600,000 ASF in Camden.

- On a space per student basis, the system averages 243 ASF per full time equivalent student with 151 ASF per FTE student at Camden, 164 ASF per FTE at Newark and 273 ASF per FTE student in New Brunswick/Piscataway. When Residence Life space is removed, the total becomes 160 ASF per FTE student systemwide. The campus numbers are 120 ASF per FTE for Camden, 135 ASF per FTE for Newark and 172 ASF for FTE for New Brunswick/Piscataway.

- Over 30% of the space at New Brunswick/Piscataway is 40 or more years old, while less than 20% of the space at Camden and less than 2% of the space in Newark is that old. On a systemwide basis, over 25% of the space is 40 or more years old.

Space Needs Model Summary

- For Fall 2000, applying widely utilized space need evaluation factors, the Consultant shows that for academic space, the Camden Campus has a deficit of 29,000 ASF, the Newark Campus a surplus of approximately 40,000 ASF and the New Brunswick/Piscataway Campus a deficit of over 167,000 ASF. On a percentage basis these are: 6% deficit for Camden; 5% surplus for Newark; and a 3% deficit for New Brunswick/Piscataway. The systemwide figure is almost 155,000 ASF or a 3% need.

- Rutgers University provided the Consultant with three enrollment scenarios to the year 2011. The first is static enrollment growth, the second is moderate enrollment growth, and the third is market enrollment growth. It should be noted that the market enrollment growth numbers for Camden and Newark are the same as the moderate enrollment growth numbers.

- Applying the modeling factors for the static enrollment scenario, and taking into account that there will be slight student growth, slight faculty growth, and sponsored research expenditure growth at 2% annually across the eleven years, the model produces a space need for Camden of 46,000 ASF, a space deficit for Newark of 8,000 ASF and for New Brunswick/Piscataway a space need of just over 255,000 ASF. The systemwide need total is almost 310,000 ASF. On a percentage basis the increases are 10% for Camden, 1% for Newark, 5% for New Brunswick/Piscataway and 5% systemwide.

- Assuming moderate enrollment growth, which adds over 1,000 students at Camden, 2,050 in Newark and 2,075 at New Brunswick/Piscataway with related faculty and staff growth and sponsored research expenditures growing at 4% per year, the findings are a need in Camden of approximately 104,000 ASF, a need in Newark of just under 155,000 ASF, a need in New Brunswick/Piscataway of approximately 520,000 ASF and an institutional total of just over 778,000 ASF. On a percentage basis this is 22% for Camden, 18% for Newark, 11% for New Brunswick/ Piscataway and 13% systemwide.

- The market enrollment growth scenario keeps the moderate growth numbers for Camden and Newark but increases New Brunswick/Piscataway by approximately 6,200 more students. The faculty and staff for New Brunswick/ Piscataway changes to reflect that and sponsored research expenditures are assumed to grow by 6% per year. The findings under this scenario show only small changes for Camden and Newark with a need of approximately 105,000 ASF for Camden, just under 172,000 ASF for Newark and a need for just over 999,000 ASF for New Brunswick/Piscataway. The systemwide total is approximately 1,276,000 ASF. The percentage figures for need are Camden 23%, Newark 20%, New Brunswick/Piscataway 21% and systemwide 21%.

Residence Life Needs

- The New Brunswick/Piscataway campus currently houses approximately 40% of all students enrolled at that campus. This is a relatively high number when compared to other large public flagship universities. Camden and Newark have much more modest residential programs, housing approximately 10% of their student bodies.

- Changes in student demands for housing have resulted in more space being included per student in most recent facilities. A figure widely used in higher education residence life planning is 275 ASF per bed.

- Applying this recommended guideline shows the New Brunswick/Piscataway existing residence halls with substantially less space than the guideline would generate. Rutgers needs to determine whether these facilities are satisfactory for the planning period or whether work will be done to upgrade their amenities which will result in less capacity in existing buildings if the buildings are remodeled and the need for some new facilities to maintain the current student bed numbers. If Rutgers decides to fully upgrade the current 13,800 beds, this could result a need for an additional 920,000 ASF.

- For Fall 2011, at the static enrollment growth model, no additional New Brunswick/Piscataway beds will be needed. At the moderate enrollment growth level, 775 additional beds requiring approximately 215,000 ASF will be needed and at the market enrollment growth level, 2,435 beds requiring approximately 675,000 ASF will be needed. If under either of these scenarios, the current space is fully updated, the additional 920,000 ASF will be needed.

- In Camden the existing 500 beds are much closer to the widely used and recommended planning number. There would be a difference of approximately 16,000 ASF for Camden to bring their existing beds to that number. Camden does not propose to add beds at the static enrollment growth scenario; however, it will add 500 beds if the moderate enrollment growth or market enrollment growth scenario is implemented. This would require just under 155,000 ASF of additional residence life space.

- The existing 700 beds in Newark are very close to the recommended planning figure per bed. There is a difference of only 5,000 ASF. Newark would not add beds under static enrollment growth but would under the moderate enrollment growth or market enrollment growth scenarios. They propose to increase their bed count by 700 beds. This would require just under 200,000 ASF of additional residence life space.

Rutgers University – Camden

- At the Fall 2000 level, the biggest needs identified were for physical education & recreation space. The campus has less than the norms suggest for physical plant but this may be because they purchase utilities from suppliers rather than have the full range of plant facilities. Residence Life also shows 13% less space than the norms suggest for modern suite-style facilities.

- At the Fall 2000 analysis the campus shows a fairly large surplus of research space because the current sponsored research dollar level is a relatively low one. Campus officials pointed out that the Science facilities are in poor condition and in need of renovation or replacement.

- The static enrollment findings show similar results to the Fall 2000 analysis.

- At the moderate enrollment growth level, the largest need is for housing based on the goal of doubling on-campus housing. The model produces a need of over 150,000 ASF. The next largest need is for offices with a close second in physical education & recreation space. Each of these categories generate approximately 25,000 ASF of need.

- Since enrollment does not change for Camden between the moderate and market enrollment growth scenarios, the findings for market enrollment growth are essentially the same.

Rutgers University – Newark

- For Fall 2000 Newark showed the largest needs in physical education & recreation space, research, open laboratory space and in physical plant. Both of these relate to norms for these categories. In the Consultant's experience, urban campuses often do not have as much physical education & recreation space and may need less physical plant space because of their use of existing utility sources. In more detailed planning for Newark, these factors should be reviewed further. Other categories showing at least 20,000 ASF of need are research laboratories and physical education & recreation.

- The static enrollment growth findings show an increase in the research laboratory need and small increases in the others because of a very small increase in student and staff numbers.

- At the moderate enrollment growth level, the campus has indicated a desire to double its existing housing. This will require 200,000 ASF of space. Other categories showing a major deficit include research space (over 51,000 ASF), open laboratories and physical education & recreation (over 30,000 ASF), and student union and other departmental space (approximately 20,000 ASF).

- The Newark enrollment stays the same between the moderate and market enrollment growth scenarios. The Consultant did assume a greater growth percentage for research resulting in that category's deficit becoming almost 70,000 ASF. The other findings remain essentially the same.

Rutgers University – New Brunswick/Piscataway

- At the Fall 2000 level, the potential for the biggest need was in residence life with a deficit of over 920,000 ASF should the University and the student body choose to bring all existing residence life space up to the recommended standard. After comparing athletics to peer institutions and reviewing their proposed capital program which does not exceed the peer average for athletic space, they show a need for over 135,000 ASF in athletic space. The other category with a large deficit was student union space with an 88,000 ASF deficit. Physical education & recreation also showed a large need of over 72,000 ASF.

- For the static enrollment growth scenario with slight increases in enrollment growth and an assumed 2% per year growth in research, the largest need is, again, in residential life space. With the exception of research space, all other space categories stay approximately the same. Research shows a significant space need of 97,000 ASF.

- At the moderate enrollment growth scenario, there will need to be a sizable investment in residence life, if the percentage of students housed is to be maintained for New Brunswick/Piscataway. Depending on the extent to which efficiencies are viewed in the current space amounts, this could be as much as 1.7 million ASF. Other large categories are research laboratories at almost 173,000 ASF, athletics at just over 135,000 ASF, student union space at 107,000 ASF and physical education & recreation at just under 94,000 ASF.

- For the market enrollment growth scenario, the investment in housing will be even more significant. A figure of over 2.6 million ASF is indicated if all residential units are brought up to the optimum space amounts. Research laboratories at 250,000 ASF, student union at 145,000 ASF, physical education & recreation at approximately

140,000 ASF, athletics at 135,000 ASF, and offices at almost 123,000 ASF, are the categories with space amounts exceeding 100,000 ASF. It should also be noted that there will be needs of over 60,000 ASF for each of the following categories: classrooms, teaching laboratories, and open laboratories.

Benchmark Analysis Summary

- Because of the Rutgers University aspiration to become one of America's very best public research universities, this study compared it to six of the most highly ranked public research universities. They were the University of California at Berkeley, the University of Michigan – Ann Arbor, the University of North Carolina at Chapel Hill, the University of Virginia, the University of Washington – Seattle, and the University of Wisconsin – Madison.

- This particular comparison was done using headcount enrollments and based only on the New Brunswick/ Piscataway campus.

- The New Brunswick/Piscataway campus has 9% more students than the peer average and has 16% less classroom space and 8% less instructional laboratory space. Research space is substantially less at Rutgers than the average of the peer institutions.

- The normative analysis produced slightly larger needs for instructional laboratories. Benchmarking produced substantially larger deficits for classroom & service space and research space than the normative analysis.

Cost of Enrollment Growth

- The analysis suggests that over 2,000,000 more gross square feet (GSF) will be needed at the target enrollment to achieve all guideline levels. Only 25% is for Academic Space, the remaining 75% is for residence life space should Rutgers decide to bring existing space up to the recommended standards. The peer analysis suggests an additional 785,000 GSF for research space and an additional 50,000 GSF for classroom & service space is needed. The total additional space is approximately 2.89 million GSF which would cost just over $1,178,000,000.

- At the moderate enrollment growth scenario almost 1.72 million GSF of additional space will be needed. Adding the space need requirement at the static enrollment growth scenario, this will be a total of approximately 4.61 million GSF which will cost about $1,650,000,000 to construct.

- At the market enrollment growth scenario the space to accommodate the enrollment growth will be 3.36 million GSF. Adding the space requirements at the static enrollment growth scenario produces a total need of 6.25 million GSF which will cost approximately $2.2 billion.

Operating Cost Analysis (Educational and General Budget Only)

- The Consultants estimate that 240 additional full time faculty will be needed at the moderate enrollment growth scenario and almost 470 faculty at the market enrollment growth scenario. A total of faculty and staff growth needs would be 520 at the moderate enrollment growth level and almost 1,060 at the market enrollment growth level.

- Utilizing a 3.5% per year inflation factor, the assumption is that at the static enrollment growth level the education and general budget will be $1,099,000,000 in 2011 compared to $678,000,000 today.

- At the moderate enrollment growth scenario, an additional $93,000,000 above the static enrollment model educational and general budget finding will need to be added to the educational and general budget by 2011.

- At the market enrollment growth scenario, an additional $174,000,000 above the static enrollment model educational and general budget finding will need to be added to the educational and general budget by the year 2011.

Section 1

NORMATIVE SPACE NEEDS ANALYSIS

NORMATIVE SPACE NEEDS ANALYSIS

1.0 BACKGROUND

The facilities inventory database and course database was supplied to the consultants from the Office of University Scheduling and Space Management. The facilities inventory provides building, square footage, room use and departmental information on a room by room basis. This data provides a snapshot of the activities for the Fall 2000 semester which is used as the analysis base year.

The normative analysis is a quantitative analysis only. All existing space is counted regardless of its quality. Although the guideline square footages are determined through careful analysis, they are nonetheless approximate and may require significant changes and refining in a programming process.

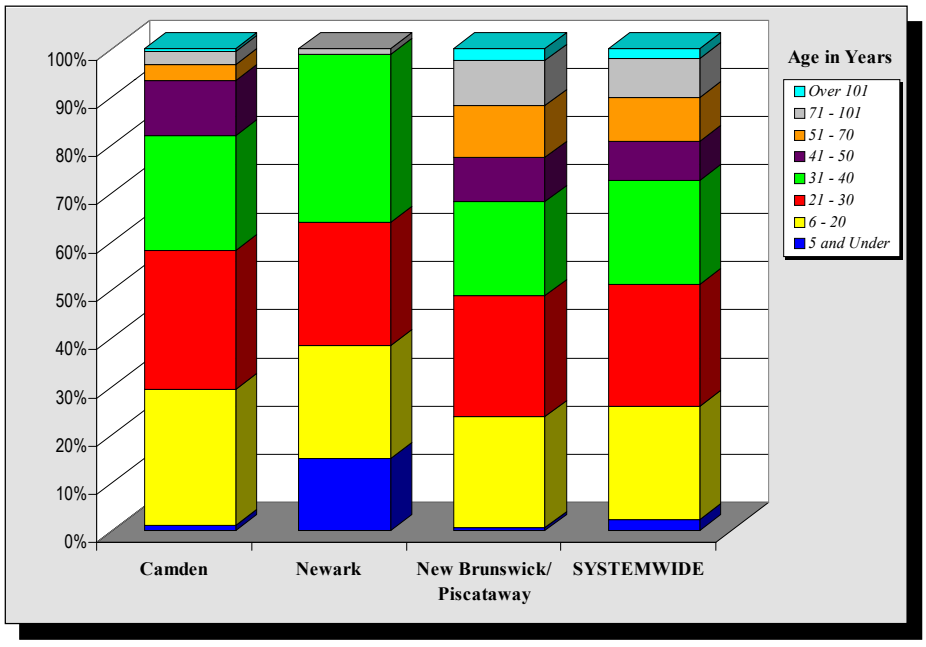
Unless otherwise noted, all findings are in assignable square feet (ASF). Assignable square footage is defined as the area measured within the interior walls of a room that can be assigned to a program. It does not include circulation, mechanical, or building service spaces.

2.0 EXISTING SPACE ANALYSIS

Adequacy of Existing Space

Many of Rutgers' existing facilities are outdated and inadequate to support existing programs and new programs. Below is a table Systemwide, the largest percent (25%) of facilities are 21 to 30 years old. The same holds true for the Camden and New Brunswick/Piscataway campuses. The largest percent (35%) of facilities are 31 to 40 years old on the Newark campus. Overall, 75% of the existing facilities are over 20 years old. In Phase II of the master planning process, space quality should be a factor in determining renovation vs. new construction. The age of the facilities will have a major impact on capital plans that are developed in Phase II of the master plan.

AGE DISTRIBUTION OF EXISTING SQUARE FOOTAGE



AGE DISTRIBUTION OF EXISTING SQUARE FOOTAGE *(CONT'D)*

		Camden		Newark		New Brunswick/ Piscataway		SYSTEMWIDE	
Year of Construction	Age in Years	ASF	Percent of Total	ASF	Percent of Total	ASF*	Percent of Total	ASF	Percent of Total
1996 - 2001	5 and Under	6,279	1.1%	153,275	15.0%	57,395	0.8%	216,949	2.4%
1981 - 1995	6 - 20	165,519	28.2%	239,667	23.4%	1,720,567	22.9%	2,125,753	23.3%
1971 - 1980	21 - 30	169,519	28.9%	261,339	25.5%	1,885,175	25.1%	2,316,033	25.4%
1961 - 1970	31 - 40	139,850	23.8%	354,491	34.6%	1,459,536	19.5%	1,953,877	21.4%
1951 - 1960	41 - 50	66,503	11.3%		0.0%	670,283	8.9%	736,786	8.1%
1931 - 1950	51 - 70	18,823	3.2%		0.0%	808,771	10.8%	827,594	9.1%
1900 - 1930	71 - 101	16,228	2.8%	14,363	1.4%	707,689	9.4%	738,280	8.1%
Before 1900	Over 101	4,270	0.7%		0.0%	190,729	2.5%	194,999	2.1%
	TOTAL	**586,991**	**100.0%**	**1,023,135**	**100.0%**	**7,500,145**	**100.0%**	**9,110,271**	**100.0%**

ASF = Assignable Square Feet

** New Brunswick has 6,415 asf without a known construction date.*

Existing Academic Space per Student FTE

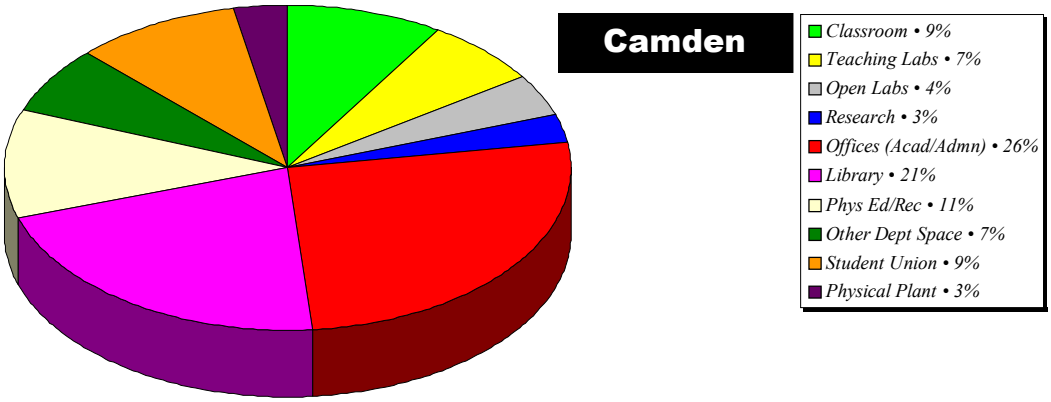
One of the ways to look at space is to calculate assignable square footage per student full-time equivalent. The table below shows the square footage per Student FTE by campus and then systemwide. While Camden and Newark are fairly comparable, the New Brunswick/Piscataway campus has approximately 25% more square footage per student. The three reasons New Brunswick/Piscataway has more square footage per student are because the campus conducts more research, it houses systemwide offices and support spaces, and has dedicated athletic space. Removing these three factors from the New Brunswick/Piscataway campus would show all three campuses having comparable space. The existing square footage excludes uncoded space, inactive space, or outside agency space.

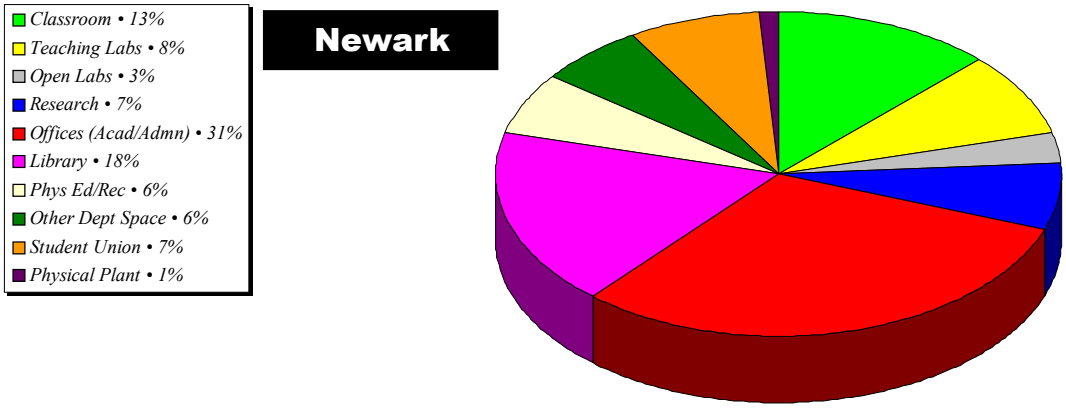
EXISTING SQUARE FOOTAGE BY SPACE TYPE	Camden		Newark		New Brunswick/ Piscataway		SYSTEMWIDE	
Student FTE	*3,884*		*6,420*		*28,317*		***38,621***	
	Existing ASF	ASF/FTE	Existing ASF	ASF/FTE	Existing ASF	ASF/FTE	Existing ASF	ASF/FTE
SPACE CATEGORY								
Classroom & Service	40,945		108,308		273,041		422,294	
Teaching Laboratories & Service	32,106		70,912		237,998		341,016	
Open Laboratories & Service	19,129		27,299		153,589		200,017	
Research Laboratories & Service	12,317		57,391		777,431		847,139	
Offices & Service *(Acad/Admn)*	121,892		267,108		1,347,673		1,736,673	
Library	99,565		154,868		440,974		695,407	
Physical Education & Recreation	50,414		52,497		248,252		351,163	
Athletics *(dedicated space only)*	0		0		264,908		264,908	
Other Departmental Space	31,041		54,022		613,760		698,823	
Student Union	43,467		63,120		195,134		301,721	
Physical Plant	14,584		10,422		314,072		339,078	
TOTAL ACADEMIC SPACE	**465,460**	**120**	**865,947**	**135**	**4,866,832**	**172**	**6,198,239**	**160**

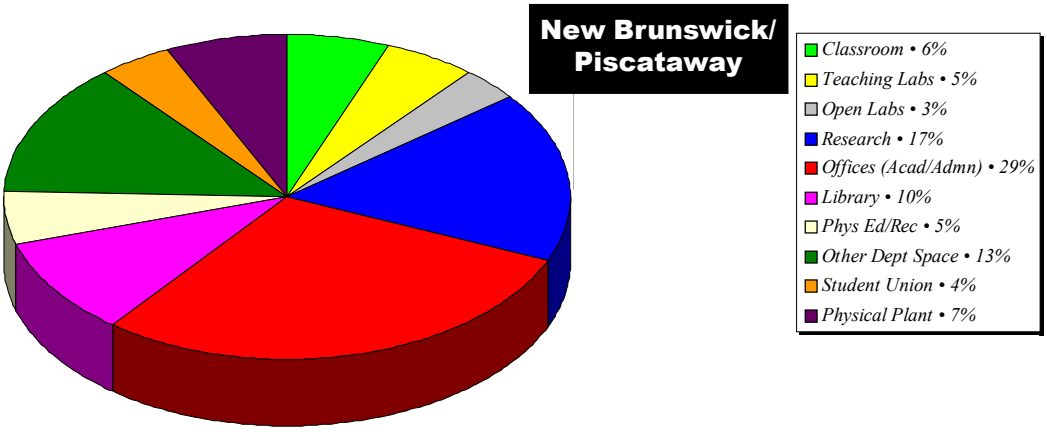
ASF = Assignable Square Feet

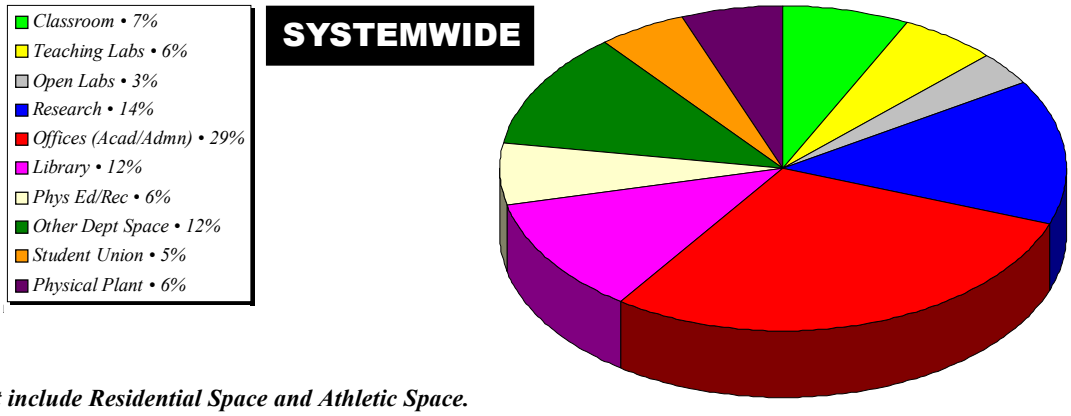
** Existing ASF does not include inactive, uncoded, or outside agency space*

Space Distribution by Space Category









NOTE: Does not include Residential Space and Athletic Space.

Space Classification

The space is calculated according to major space classification as outlined in the *National Center for Education Statistics Postsecondary Education Facilities Inventory and Classification Manual.* Some additional points of clarification are:

- Classrooms are those classrooms that are regularly scheduled.
- Teaching laboratories are those laboratories that are regularly scheduled.
- Open laboratories are labs that are irregularly scheduled. This category includes open computer labs. They may be labs used as combination teaching labs and open access labs or are labs with special equipment needs. The Open Lab category includes music practice rooms, art studios, and laboratories built for one individual or a small group.
- Library space is defined as space dedicated to the main and branch libraries and not departmental study rooms that serve as an unofficial library.
- Physical Education/Recreation space is space that is used mainly for physical education/ recreation. This space may be shared with athletics on a limited basis.
- Athletic space is defined as dedicated athletic space. Any space that is shared with physical education/recreation is listed as physical education/recreation space.
- Other Departmental Space includes: departmental libraries; building or departmental student lounges; armories; media production rooms; clinics; demonstration rooms; field buildings; animal quarters; greenhouses; assembly and exhibition spaces; meeting rooms; and central computer or telecommunications space.
- Student Union space is comprised of food facilities open to the general campus population, day care, student lounges, bookstores, recreation facilities (billiard rooms, bowling alleys, etc.), student meeting areas; and student health clinics/wellness centers.
- Physical Plant space is made up of shops, central storage, vehicle storage, central services, and hazardous materials storage.
- Residence Life includes all student housing and dining facilities used exclusively by residential students.

Existing Space Findings

The table below shows the amount of assignable square footage per unit. The unit is assumed to be Student FTE except for office space, research space, and residence life. Office space is measured in ASF/Faculty & Staff FTE, research space is measured in ASF/$100,000 of Sponsored Research Expenditures, and residence life is measured in ASF/Bed.

Newark has a average of 17 ASF per Student FTE in classroom space, which is the highest of the three campuses. This is due to the recent addition of the Law and Criminal Justice Building. Camden has more than two times the amount of research space per Sponsored Research Expenditure than the other two campuses. Of the three campuses, New Brunswick/Piscataway has the lowest amount of library space per Student FTE. New Brunswick/Piscataway has a larger amount of other departmental space per Student FTE. This is due to the large amount of animal quarters, field buildings, greenhouses, and central computing spaces. The Newark campus has the largest square footage per bed of all three campuses.

EXISTING SQUARE FOOTAGE AS ASF PER UNIT

	Camden		Newark		New Brunswick/ Piscataway		SYSTEMWIDE	
Student FTE	*3,884*		*6,420*		*28,317*		***38,621***	
Faculty & Staff FTE	*666*		*1,191*		*6,741*		**8,598**	
Sponsored Research Expenditures	*$779,242*		*$8,420,696*		*$115,876,698*		**$125,076,636**	
No. of Beds	*500*		*700*		*13,800*		***15,000***	
	Existing ASF	**ASF/ Unit***	**Existing ASF**	**ASF/ Unit***	**Existing ASF**	**ASF/ Unit***	**Existing ASF**	**ASF/ Unit***
SPACE CATEGORY								
Classroom & Service	40,945	11	108,308	17	273,041	10	422,294	11
Teaching Laboratories & Service	32,106	8	70,912	11	237,998	8	341,016	9
Open Laboratories & Service	19,129	5	27,299	4	153,589	5	200,017	5
Research Laboratories & Service	12,317	1,581	57,391	682	777,431	671	847,139	677
Offices & Service *(Acad/Admn)*	121,892	183	267,108	224	1,347,673	200	1,736,673	202
Library	99,565	26	154,868	24	440,974	16	695,407	18
Physical Education & Recreation	50,414	13	52,497	8	248,252	9	351,163	9
Athletics *(dedicated space only)* **	0	n/a	0	n/a	264,908	n/a	264,908	n/a
Other Departmental Space	31,041	8	54,022	8	613,760	22	698,823	18
Student Union	43,467	11	63,120	10	195,134	7	301,721	8
Physical Plant	14,584	4	10,422	2	314,072	11	339,078	9
Residence Life	121,531	243	187,037	267	2,859,377	207	3,167,945	211

**Unless mentioned, the ASF/Unit is ASF/Student FTE: Office space is ASF/Faculty & Staff FTE; Research space is ASF/$100,000 in Sponsored Research Expenditures; and Residence Life is ASF/Bed.*

*** Athletic space is based upon the number and types of intercollegiate athletic sports activities.*

ASF = Assignable Square Feet

Note: Existing ASF does not include inactive, uncoded or outside agency space

3.0 CLASSROOM UTILIZATION

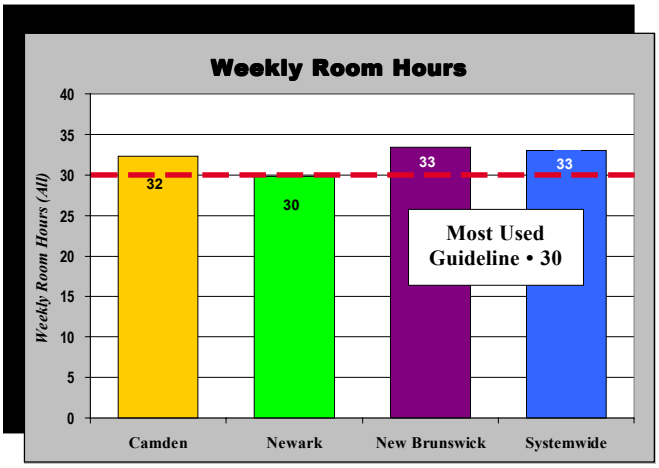
The table shown below summarizes the findings for a national survey on classroom utilization expectations that Paulien & Associates, Inc. conducted recently. The highest guidelines are from Colorado and Arizona. The Colorado Commission on Higher Education adopted 60 weekly room hours at 70% student station occupancy while the Arizona Board of Regents long term goal is 35 weekly room hours at 75% student station occupancy. The lowest and most used guideline is 30 hours per week at 60% student station occupancy. Weekly room hours are the number of hours a room is actually used with regularly scheduled courses during the semester. The student station occupancy is defined as the number of seats filled while the room is in use.

Part of this analysis included a review of the Comprehensive Classroom Study prepared by Comprehensive Facilities Planning, Inc. ("CFP") in March of 1999. Based upon CFP's findings, Rutgers' overall average is 33 hours per week at 56% student station occupancy. While classrooms are being used a good number of weekly room hours, the student station fill could be improved.

NATIONAL CLASSROOM UTILIZATION EXPECTATION FINDINGS VS. RUTGERS ACTUAL FINDINGS

	Weekly Room Hours	Student Station Occupancy Percentage
Average of Guidelines	35	64%
Most Used Guideline	30	60%
Rutgers' Average Use* *All Hours*	**33**	**56%**
Day Hours	*27*	*57%*
Evening Hours	*6*	*54%*

** All preliminary averages are unweighted.*

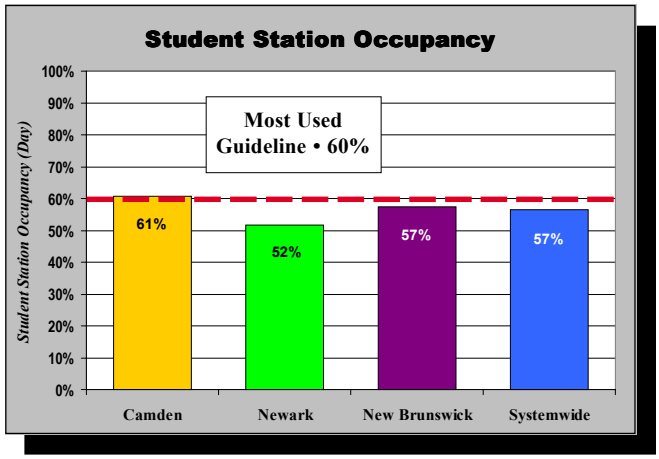


After reviewing CFP's analysis, the consultants would suggest that Rutgers update this analysis at current enrollment levels before building new classroom space. This update should help determine the number and size of classrooms needed on each campus.

The graphs illustrate CFP's weekly room hour findings and student station occupancy percentages as they relate to the average utilization expectations.

4.0 Space Modeling Factors

Space modeling factors for each space category were determined based upon standard planning practices as well as the consultant's experience. The table below outlines the modeling factors used in this analysis and shows the source of each factor. In some cases different factors were use for Camden and Newark because the nature of these two campuses differ from that of the New Brunswick/ Piscataway campus. Only the New Brunswick/ Piscataway campus had the dedicated athletic space recommendation applied. In Phase II of the PMP, each campus and program should be reevaluated based upon location and mission.



Space Modeling Factors		Source
Classrooms	*10 ASF/Student FTE*	Kentucky, Minnesota State Colleges and Universities
Teaching Laboratories	*9 ASF/Student FTE*	Kentucky
Open Laboratories	*7 ASF/Student FTE*	Minnesota State Colleges and Universities
Research Laboratories	*900 ASF/$100,000 for the first $50M in Sponsored Research Expenditures; 600 ASF/$100,000 for the second $50M; and 300 ASF/$100,000 for Sponsored Research Expenditures over $100M*	Kentucky
Office Suites (Acad/Admn)	*195 ASF/Staff FTE*	California, Kentucky
Library	*Uses volumes, readers, and staff and service space factors*	Council of Educational Facilities Planners, International
Physical Education & Recreation	*12.1 ASF for 100% Undergraduate FTE, 25% of Graduate FTE, and 15% of Staffing FTE (75,000 ASF minimum)*	University of Illinois
Athletics (dedicated space only)	*Peer Comparison*	Peers
Other Departmental Space	*18 ASF/Student FTE at New Brunswick;*	Kentucky
	9 ASF/Student FTE at Camden and Newark	Paulien & Associates, Inc.
Student Union	*10 ASF/Student FTE*	Association of College Unions International
Physical Plant	*8 ASF/Student FTE at New Brunswick;*	Kentucky
	4 ASF/Student FTE at Camden and Newark	Kentucky
Residence Life	*275 ASF/Bed*	Paulien & Associates, Inc.

A bit of background regarding space modeling factors. Over half the states have no space planning guidelines in place. Of the remaining states, there are three approaches that are used: square feet per student; space guidelines by individual program; and program plan development guidelines.

The square feet per student approach is typically used on a campuswide basis and is presently in use in approximately a half dozen states. Paulien & Associates has been the consultant for three of those states. The space guideline by individual program approach is used in New York and for the Connecticut State University System. To apply these guidelines, one must have more detailed information than was available in Phase I of this PMP. The program plan development guideline approach also requires substantially more detailed information than was available for this Phase I.

Paulien & Associates compared the factors utilized by all the states that use the square feet per student approach and determined the most appropriate guideline factors for Rutgers using our experience and the available information from those states.

The Library analysis is based upon several factors: size of collection; the amount of study stations based upon Student FTE and Faculty FTE and what percentage of the study stations are electronic; and then a factor is applied to the overall result for staff and service space. A detailed print out of the Library guideline application is attached as Appendix A to this report.

The Athletic modeling factor used on the New Brunswick/Piscataway campus only is based upon a comparative analysis of athletic peers. The details of the athletic comparative analysis can be found in Appendix B to this report.

5.0 Normative Analysis: Fall 2000

Fall 2000 Planning Assumptions

Student, Faculty and Staffing FTE data was supplied by the Office of Institutional Studies and Assessment. Sponsored Research Expenditures for Fall 2000 came from the Office of the University Controller, Division of Grant and Contract Accounting. The number of beds for student housing was supplied by the Provosts of the Newark and Camden campuses. These numbers were converted to a percent of the Student FTE. The Associate Vice President for Auxiliary Services at supplied a percent of students housed on the New Brunswick/Piscataway campus.

FALL 2000 • CURRENT ENROLLMENT	Camden	Newark	New Brunswick/ Piscataway
Student FTE	3,884	6,420	28,317
Undergraduate FTE	*2,725*	*4,298*	*24,515*
Graduate FTE	*1,159*	*2,122*	*3,802*
Faculty & Staff FTE	666	1,191	6,741
Sponsored Research Expenditures	$779,242	$8,420,696	$115,876,698
No. of Beds	500	700	13,800
% Students Housed	13%	11%	40%

Fall 2000 Academic Space Needs Analysis

On the following pages is the Fall 2000 analysis by campus with a total for the Rutgers system. The bottom line Surplus/ (Deficit) has been converted to gross square footage using a 61% conversion factor. As can be seen, university-wide there are space deficits. The Camden campus has the largest need in proportion to its existing space. The New Brunswick/Piscataway campus shows a deficit in every space category except for offices and service, other departmental space, and physical plant space. The Newark campus has the largest deficits in physical education and recreation, research space, and open laboratories; however, campuswide Newark has a surplus of space.

FALL 2000 ACADEMIC SPACE NEEDS ANALYSIS

CAMDEN

	FALL 2000 • CURRENT ENROLLMENT
Student FTE	*3,884*
Faculty & Staff FTE	*666*
Sponsored Research Expenditures	*$779,242*

SPACE CATEGORY	Existing ASF	Guideline ASF	Surplus/ (Deficit)	Percent Surplus/ (Deficit)
Instructional Space				
Classroom & Service	40,945	38,840	2,105	5%
Teaching Laboratories & Service	32,106	34,956	(2,850)	(9%)
Open Laboratories & Service	19,129	27,188	(8,059)	(42%)
Offices & Service	121,892	129,870	(7,978)	(7%)
Library	99,565	91,892	7,673	8%
Subtotal	***313,637***	***322,746***	***(9,109)***	***(3%)***
Research Space	***12,317***	***7,013***	***5,304***	***43%***
Student Space				
Physical Education & Recreation	50,414	75,000	(24,586)	(49%)
Student Union	43,467	38,840	4,627	11%
Subtotal	***93,881***	***113,840***	***(19,959)***	***(21%)***
Other Space				
Other Departmental Space	31,041	34,956	(3,915)	(13%)
Athletics (dedicated space only)	0	0	0	n/a
Physical Plant	14,584	15,536	(952)	(7%)
Subtotal	***45,625***	***50,492***	***(4,867)***	***(11%)***
TOTAL ACADEMIC SPACE	**465,460**	**494,091**	**(28,631)**	**(6%)**

NEWARK

	FALL 2000 • CURRENT ENROLLMENT
Student FTE	*6,420*
Faculty & Staff FTE	*1,191*
Sponsored Research Expenditures	*$8,420,696*

SPACE CATEGORY	Existing ASF	Guideline ASF	Surplus/ (Deficit)	Percent Surplus/ (Deficit)
Instructional Space				
Classroom & Service	108,308	64,200	44,108	41%
Teaching Laboratories & Service	70,912	57,780	13,132	19%
Open Laboratories & Service	27,299	44,940	(17,641)	(65%)
Offices & Service	267,108	232,245	34,863	13%
Library	154,868	127,937	26,931	17%
Subtotal	***628,495***	***527,102***	***101,393***	***16%***
Research Space	***57,391***	***75,786***	***(18,395)***	***(32%)***
Student Space				
Physical Education & Recreation	52,497	75,000	(22,503)	(43%)
Student Union	63,120	64,200	(1,080)	(2%)
Subtotal	***115,617***	***139,200***	***(23,583)***	***(20%)***
Other Space				
Other Departmental Space	54,022	57,780	(3,758)	(7%)
Athletics (dedicated space only)	0	0	0	n/a
Physical Plant	10,422	25,680	(15,258)	(146%)
Subtotal	***64,444***	***83,460***	***(19,016)***	***(30%)***
TOTAL ACADEMIC SPACE	**865,947**	**825,548**	**40,399**	**5%**

FALL 2000 ACADEMIC SPACE NEEDS ANALYSIS *(CONT'D)*

NEW BRUNSWICK/ PISCATAWAY

	FALL 2000 • CURRENT ENROLLMENT
Student FTE	*28,317*
Faculty & Staff FTE	*6,741*
Sponsored Research Expenditures	*$115,876,698*

SPACE CATEGORY	Existing ASF	Guideline ASF	Surplus/ (Deficit)	Percent Surplus/ (Deficit)
Instructional Space				
Classroom & Service	273,041	283,170	(10,129)	(4%)
Teaching Laboratories & Service	237,998	254,853	(16,855)	(7%)
Open Laboratories & Service	153,589	198,219	(44,630)	(29%)
Offices & Service	1,347,673	1,314,495	33,178	2%
Library	440,974	445,787	(4,813)	(1%)
Subtotal	***2,453,275***	***2,496,524***	***(43,249)***	***(2%)***
Research Space	***777,431***	***797,630***	***(20,199)***	***(3%)***
Student Space				
Physical Education & Recreation	248,252	320,367	(72,115)	(29%)
Student Union	195,134	283,170	(88,036)	(45%)
Subtotal	***443,386***	***603,537***	***(160,151)***	***(36%)***
Other Space				
Other Departmental Space	613,760	509,706	104,054	17%
Athletics (dedicated space only)	264,908	400,000	(135,092)	(51%)
Physical Plant	314,072	226,536	87,536	28%
Subtotal	***1,192,740***	***1,136,242***	***56,498***	***5%***
TOTAL ACADEMIC SPACE	**4,866,832**	**5,033,933**	**(167,101)**	**(3%)**

SYSTEMWIDE

	FALL 2000 • CURRENT ENROLLMENT
Student FTE	*38,621*
Faculty & Staff FTE	*8,598*
Sponsored Research Expenditures	*$125,076,636*

SPACE CATEGORY	Existing ASF	Guideline ASF	Surplus/ (Deficit)	Percent Surplus/ (Deficit)
Instructional Space				
Classroom & Service	422,294	386,210	36,084	9%
Teaching Laboratories & Service	341,016	347,589	(6,573)	(2%)
Open Laboratories & Service	200,017	270,347	(70,330)	(35%)
Offices & Service	1,736,673	1,676,610	60,063	3%
Library	695,407	665,616	29,791	4%
Subtotal	***3,395,407***	***3,346,372***	***49,035***	***1%***
Research Space	***847,139***	***880,430***	***(33,291)***	***(4%)***
Student Space				
Physical Education & Recreation	351,163	470,367	(119,204)	(34%)
Student Union	301,721	386,210	(84,489)	(28%)
Subtotal	***652,884***	***856,577***	***(203,693)***	***(31%)***
Other Space				
Other Departmental Space	698,823	602,442	96,381	14%
Athletics (dedicated space only)	264,908	400,000	(135,092)	(51%)
Physical Plant	339,078	267,752	71,326	21%
Subtotal	***1,302,809***	***1,270,194***	***32,615***	***3%***
TOTAL ACADEMIC SPACE	**6,198,239**	**6,353,573**	**(155,334)**	**(3%)**

6.0 ENROLLMENT MODELING

It is anticipated that the high school graduating class will increase by 21% over the next decade. In addition, New Jersey has a high rate of college attendance (80%). These two projections will create extreme enrollment pressures on Rutgers. Academic growth is expected and is occurring in computer science, engineering and the sciences. Rutgers' Strategic Plan supports growth in twelve key academic areas with a strong high tech emphasis. Examples include: Information Sciences and Technology, Engineering, and Life Sciences. It hopes to add several new programs such as: cell biology and neuroscience, genetics and microbiology, marine sciences, biomedical engineering, information technology and informatics, human-computer interaction, and computational biology. *(Source: The Rutgers 2010 Report.)*

	Fall 2000 • Current Enrollment	Fall 2011 • Static Enrollment Growth	Fall 2011 • Moderate Enrollment Growth	Fall 2011 • Market Enrollment Growth
Camden	3,884	3,931	4,659	4,659
Newark	6,420	6,615	8,234	8,234
New Brunswick/ Piscataway	28,317	28,448	30,186	33,958
TOTAL FTE	**38,621**	**38,994**	**43,079**	**46,851**

Static Enrollment Growth

	Student Headcount			Faculty & Staff FTE		
	Fall 2000 Total	Fall 2011 Total	Percent Increase/ (Decrease)	Fall 2000	Fall 2011	Percent Increase/ (Decrease)
Camden	5,059	5,125	1.30%	666	672	0.90%
Newark	8,868	9,100	2.62%	1,191	1,214	1.91%
New Brunswick/ Piscataway	34,363	34,400	0.11%	6,741	6,746	0.07%
Total	**48,290**	**48,625**	**0.69%**	**8,598**	**8,632**	**0.39%**

Moderate Enrollment Growth

	Student Headcount			Faculty & Staff FTE		
	Fall 2000 Total	Fall 2011 Total	Percent Increase/ (Decrease)	Fall 2000	Fall 2011	Percent Increase/ (Decrease)
Camden	5,059	6,066	19.91%	666	758	13.78%
Newark	8,868	10,925	23.20%	1,191	1,393	16.95%
New Brunswick/ Piscataway	34,363	36,438	6.04%	6,741	7,007	3.95%
Total	**48,290**	**53,429**	**10.64%**	**8,598**	**9,158**	**6.51%**

Market Enrollment Growth

	Student Headcount			Faculty & Staff FTE		
	Fall 2000 Total	Fall 2011 Total	Percent Increase/ (Decrease)	Fall 2000	Fall 2011	Percent Increase/ (Decrease)
Camden	5,059	6,066	19.91%	666	758	13.78%
Newark	8,868	10,925	23.20%	1,191	1,393	16.95%
New Brunswick/ Piscataway	34,363	40,587	18.11%	6,741	7,540	11.85%
Total	**48,290**	**57,578**	**19.23%**	**8,598**	**9,690**	**12.70%**

In order to meet these demands, Rutgers developed three enrollment scenarios. These scenario projections came from the Vice President for University Budgeting. The enrollment models were developed using student headcount and student FTE. The consultants were instructed to project faculty and staff FTE using straight line projections from the enrollment modeling. The tables to the left show the percentages used to grow faculty and staff FTE modeling.

A description of the three enrollment scenarios are as follows:

Static Enrollment Growth:
University enrollment would be capped at current levels. A decreased percentage of New Jersey high school graduates would be accepted to the University.

Moderate Enrollment Growth:
The New Brunswick/Piscataway Campus enrollments increase slightly, but significant enrollment growth would occur at the Camden and Newark Campuses.

Market Enrollment Growth:
The University would continue to accept the current percentage of New Jersey high school graduates (7-8%).

7.0 NORMATIVE ANALYSIS: FALL 2011

Fall 2011 Planning Assumptions

In the tables below, the planning assumptions used for each of the three enrollment scenarios (static enrollment growth, moderate enrollment growth, and market enrollment growth) is shown. Again, the faculty and staff FTE numbers are calculated based upon the percent change shown in the projection tables on the prior page. Sponsored Research Expenditures were calculated as follows: static enrollment growth - 2% increase per year; moderate enrollment growth - 4% increase per year; and market enrollment growth - 6% increase per year.

The number of beds for the Camden and Newark campuses do not change at the static enrollment scenario. However, at the moderate and market enrollment growth models the number of beds double based upon the goals of the campuses. The New Brunswick/Piscataway campus maintains a 40% bed ratio for its student enrollment.

The Library collections growth was determined based upon meetings held with the University librarians. The planning assumptions are the same for all three enrollment scenarios. They are: Camden - 2% growth per year; Newark - 2% growth per year; and New Brunswick/ Piscataway - no growth.

Fall 2011 Academic Space Needs Analysis

The tables on the following pages show the results of the space modeling factors when applied for all three enrollment scenarios. *With the exceptions of classroom space on the Newark campus and other departmental space and physical plant space on the New Brunswick/Piscataway campus, the campuses show deficits in every space category at the moderate and market enrollment growth scenarios.* **Without a major increase in capital construction, Rutgers will have a difficult time accommodating modest enrollment increases and research activities.**

FALL 2011 • STATIC ENROLLMENT GROWTH	Camden	Newark	New Brunswick/ Piscataway
Student FTE	3,931	6,615	28,448
Undergraduate FTE	*2,841*	*4,451*	*24,733*
Graduate FTE	*1,090*	*2,164*	*3,715*
Faculty & Staff FTE*	672	1,214	6,746
Sponsored Research Expenditures**	$950,675	$10,273,249	$141,369,572
No. of Beds***	500	700	13,800
% Students Housed	13%	11%	40%

* Projected FTE based on Headcount Growth %'s
** Expenditure growth calculated at 2% per year
*** Based upon the desires of the Provosts

FALL 2011 • MODERATE ENROLLMENT GROWTH	Camden	Newark	New Brunswick/ Piscataway
Student FTE	4,659	8,234	30,186
Undergraduate FTE	*3,569*	*6,070*	*26,233*
Graduate FTE	*1,090*	*2,164*	*3,953*
Faculty & Staff FTE*	758	1,393	7,007
Sponsored Research Expenditures**	$1,122,108	$12,125,802	$166,862,445
No. of Beds***	1,000	1,400	14,575
% Students Housed	21%	17%	40%

* Projected FTE based on Headcount Growth %'s
** Expenditure growth calculated at 4% per year
*** Based upon the desires of the Provosts

FALL 2011 • MARKET ENROLLMENT GROWTH	Camden	Newark	New Brunswick/ Piscataway
Student FTE	4,659	8,234	33,958
Undergraduate FTE	*3,569*	*6,070*	*29,944*
Graduate FTE	*1,090*	*2,164*	*4,014*
Faculty & Staff FTE*	758	1,393	7,540
Sponsored Research Expenditures**	$1,293,542	$13,978,355	$192,355,319
No. of Beds***	1,000	1,400	16,235
% Students Housed	21%	17%	40%

* Projected FTE based on Headcount Growth %'s
** Expenditure growth calculated at 6% per year
*** Based upon the desires of the Provosts

		FALL 2011 • STATIC ENROLLMENT GROWTH			FALL 2011 • MODERATE ENROLLMENT GROWTH			FALL 2011 • MARKET ENROLLMENT GROWTH		
Student FTE		*3,931*			*4,659*			*4,659*		
Faculty & Staff FTE		*672*			*758*			*758*		
Sponsored Research Expenditures		*$950,675*			*$1,122,108*			*$1,293,542*		
CAMDEN	**Fall 2011 Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
SPACE CATEGORY										
Instructional Space										
Classroom & Service	40,945	39,312	1,633	4%	46,592	(5,647)	(14%)	46,592	(5,647)	(14%)
Teaching Laboratories & Service	32,106	35,381	(3,275)	(10%)	41,933	(9,827)	(31%)	41,933	(9,827)	(31%)
Open Laboratories & Service	19,129	27,519	(8,390)	(44%)	32,615	(13,486)	(70%)	32,615	(13,486)	(70%)
Offices & Service	121,892	131,043	(9,151)	(8%)	147,764	(25,872)	(21%)	147,764	(25,872)	(21%)
Library	99,565	104,345	(4,780)	(5%)	108,052	(8,487)	(9%)	108,052	(8,487)	(9%)
Subtotal	***313,637***	***337,600***	***(23,963)***	***(8%)***	***376,956***	***(63,319)***	***(20%)***	***376,956***	***(63,319)***	***(20%)***
Research Space	***12,317***	***8,556***	***3,761***	***31%***	***10,099***	***2,218***	***18%***	***11,642***	***675***	***5%***
Student Space										
Physical Education & Recreation	50,414	75,000	(24,586)	(49%)	75,000	(24,586)	(49%)	75,000	(24,586)	(49%)
Student Union	43,467	39,312	4,155	10%	46,592	(3,125)	(7%)	46,592	(3,125)	(7%)
Subtotal	***93,881***	***114,312***	***(20,431)***	***(22%)***	***121,592***	***(27,711)***	***(30%)***	***121,592***	***(27,711)***	***(30%)***
Other Space										
Other Departmental Space	31,041	35,381	(4,340)	(14%)	41,933	(10,892)	(35%)	41,933	(10,892)	(35%)
Athletics (dedicated space only)	0	0	0	n/a	0	0	n/a	0	0	n/a
Physical Plant	14,584	15,725	(1,141)	(8%)	18,637	(4,053)	(28%)	18,637	(4,053)	(28%)
Subtotal	***45,625***	***51,106***	***(5,481)***	***(12%)***	***60,570***	***(14,945)***	***(33%)***	***60,570***	***(14,945)***	***(33%)***
TOTAL ACADEMIC SPACE	**465,460**	**511,574**	**(46,114)**	**(10%)**	**569,217**	**(103,757)**	**(22%)**	**570,760**	**(105,300)**	**(23%)**

FALL 2011 ACADEMIC SPACE NEEDS ANALYSIS (CONT'D)

NEWARK

		FALL 2011 • STATIC ENROLLMENT GROWTH			FALL 2011 • MODERATE ENROLLMENT GROWTH			FALL 2011 • MARKET ENROLLMENT GROWTH		
Student FTE		*6,615*			*8,234*			*8,234*		
Faculty & Staff FTE		*1,214*			*1,393*			*1,393*		
Sponsored Research Expenditures		*$10,273,249*			*$12,125,802*			*$13,978,355*		
SPACE CATEGORY	**Fall 2011 Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Instructional Space										
Classroom & Service	108,308	66,149	42,159	39%	82,339	25,969	24%	82,339	25,969	24%
Teaching Laboratories & Service	70,912	59,534	11,378	16%	74,105	(3,193)	(5%)	74,105	(3,193)	(5%)
Open Laboratories & Service	27,299	46,304	(19,005)	(70%)	57,637	(30,338)	(111%)	57,637	(30,338)	(111%)
Offices & Service	267,108	236,686	30,422	11%	271,619	(4,511)	(2%)	271,619	(4,511)	(2%)
Library	154,868	145,814	9,054	6%	154,083	785	1%	154,083	785	1%
Subtotal	***628,495***	***554,487***	***74,008***	***12%***	***639,783***	***(11,288)***	***(2%)***	***639,783***	***(11,288)***	***(2%)***
Research Space	***57,391***	***92,459***	***(35,068)***	***(61%)***	***109,132***	***(51,741)***	***(90%)***	***125,805***	***(68,414)***	***(119%)***
Student Space										
Physical Education & Recreation	52,497	75,000	(22,503)	(43%)	82,521	(30,024)	(57%)	82,521	(30,024)	(57%)
Student Union	63,120	66,149	(3,029)	(5%)	82,339	(19,219)	(30%)	82,339	(19,219)	(30%)
Subtotal	***115,617***	***141,149***	***(25,532)***	***(22%)***	***164,860***	***(49,243)***	***(43%)***	***164,860***	***(49,243)***	***(43%)***
Other Space										
Other Departmental Space	54,022	59,534	(5,512)	(10%)	74,105	(20,083)	(37%)	74,105	(20,083)	(37%)
Athletics (dedicated space only)	0	0	0	n/a	0	0	n/a	0	0	n/a
Physical Plant	10,422	26,460	(16,038)	(154%)	32,936	(22,514)	(216%)	32,936	(22,514)	(216%)
Subtotal	***64,444***	***85,994***	***(21,550)***	***(33%)***	***107,041***	***(42,597)***	***(66%)***	***107,041***	***(42,597)***	***(66%)***
TOTAL ACADEMIC SPACE	**865,947**	**874,090**	**(8,143)**	**(1%)**	**1,020,816**	**(154,869)**	**(18%)**	**1,037,489**	**(171,542)**	**(20%)**

NEW BRUNSWICK/ PISCATAWAY

		FALL 2011 • STATIC ENROLLMENT GROWTH			FALL 2011 • MODERATE ENROLLMENT GROWTH			FALL 2011 • MARKET ENROLLMENT GROWTH		
Student FTE		*28,448*			*30,186*			*33,958*		
Faculty & Staff FTE		*6,746*			*7,007*			*7,540*		
Sponsored Research Expenditures		*$141,369,572*			*$166,862,445*			*$192,355,319*		
	Fall 2011 Existing ASF	Guideline ASF	Surplus/ (Deficit)	Percent Surplus/ (Deficit)	Guideline ASF	Surplus/ (Deficit)	Percent Surplus/ (Deficit)	Guideline ASF	Surplus/ (Deficit)	Percent Surplus/ (Deficit)
SPACE CATEGORY										
Instructional Space										
Classroom & Service	273,041	284,483	(11,442)	(4%)	301,860	(28,819)	(11%)	339,583	(66,542)	(24%)
Teaching Laboratories & Service	237,998	256,035	(18,037)	(8%)	271,674	(33,676)	(14%)	305,625	(67,627)	(28%)
Open Laboratories & Service	153,589	199,138	(45,549)	(30%)	211,302	(57,713)	(38%)	237,708	(84,119)	(55%)
Offices & Service	1,347,673	1,315,421	32,252	2%	1,366,411	(18,738)	(1%)	1,470,218	(122,545)	(9%)
Library	440,974	446,153	(5,179)	(1%)	455,806	(14,832)	(3%)	475,229	(34,255)	(8%)
Subtotal	***2,453,275***	***2,501,230***	***(47,955)***	***(2%)***	***2,607,052***	***(153,777)***	***(6%)***	***2,828,363***	***(375,088)***	***(15%)***
Research Space	***777,431***	***874,109***	***(96,678)***	***(12%)***	***950,587***	***(173,156)***	***(22%)***	***1,027,066***	***(249,635)***	***(32%)***
Student Space										
Physical Education & Recreation	248,252	322,752	(74,500)	(30%)	342,095	(93,843)	(38%)	388,150	(139,898)	(56%)
Student Union	195,134	284,483	(89,349)	(46%)	301,860	(106,726)	(55%)	339,583	(144,449)	(74%)
Subtotal	***443,386***	***607,235***	***(163,849)***	***(37%)***	***643,955***	***(200,569)***	***(45%)***	***727,733***	***(284,347)***	***(64%)***
Other Space										
Other Departmental Space	613,760	512,070	101,690	17%	543,347	70,413	11%	611,249	2,511	0%
Athletics (dedicated space only)	264,908	400,000	(135,092)	(51%)	400,000	(135,092)	(51%)	400,000	(135,092)	(51%)
Physical Plant	314,072	227,586	86,486	28%	241,488	72,584	23%	271,666	42,406	14%
Subtotal	***1,192,740***	***1,139,656***	***53,084***	***4%***	***1,184,835***	***7,905***	***1%***	***1,282,916***	***(90,176)***	***(8%)***
TOTAL ACADEMIC SPACE	**4,866,832**	**5,122,229**	**(255,397)**	**(5%)**	**5,386,430**	**(519,598)**	**(11%)**	**5,866,078**	**(999,246)**	**(21%)**

SYSTEMWIDE	Fall 2011 Existing ASF	FALL 2011 • STATIC ENROLLMENT GROWTH Guideline ASF	Surplus/ (Deficit)	Percent Surplus/ (Deficit)	FALL 2011 • MODERATE ENROLLMENT GROWTH Guideline ASF	Surplus/ (Deficit)	Percent Surplus/ (Deficit)	FALL 2011 • MARKET ENROLLMENT GROWTH Guideline ASF	Surplus/ (Deficit)	Percent Surplus/ (Deficit)
Student FTE		*38,994*			*43,079*			*46,851*		
Faculty & Staff FTE		*8,632*			*9,158*			*9,690*		
Sponsored Research Expenditures		*$152,593,496*			*$180,110,356*			*$207,627,216*		
SPACE CATEGORY										
Instructional Space										
Classroom & Service	422,294	389,944	32,350	8%	430,791	(8,497)	(2%)	468,514	(46,220)	(11%)
Teaching Laboratories & Service	341,016	350,950	(9,934)	(3%)	387,712	(46,696)	(14%)	421,663	(80,647)	(24%)
Open Laboratories & Service	200,017	272,961	(72,944)	(36%)	301,554	(101,537)	(51%)	327,960	(127,943)	(64%)
Offices & Service	1,736,673	1,683,149	53,524	3%	1,785,794	(49,121)	(3%)	1,889,601	(152,928)	(9%)
Library	695,407	696,312	(905)	(0%)	717,941	(22,534)	(3%)	737,364	(41,957)	(6%)
Subtotal	***3,395,407***	***3,393,317***	***2,090***	***0%***	***3,623,792***	***(228,385)***	***(7%)***	***3,845,102***	***(449,695)***	***(13%)***
Research Space	***847,139***	***975,124***	***(127,985)***	***(15%)***	***1,069,819***	***(222,680)***	***(26%)***	***1,164,513***	***(317,374)***	***(37%)***
Student Space										
Physical Education & Recreation	351,163	472,752	(121,589)	(35%)	499,616	(148,453)	(42%)	545,671	(194,508)	(55%)
Student Union	301,721	389,944	(88,223)	(29%)	430,791	(129,070)	(43%)	468,514	(166,793)	(55%)
Subtotal	***652,884***	***862,696***	***(209,812)***	***(32%)***	***930,407***	***(277,523)***	***(43%)***	***1,014,185***	***(361,301)***	***(55%)***
Other Space										
Other Departmental Space	698,823	606,985	91,838	13%	659,386	39,437	6%	727,288	(28,465)	(4%)
Athletics (dedicated space only)	264,908	400,000	(135,092)	(51%)	400,000	(135,092)	(51%)	400,000	(135,092)	(51%)
Physical Plant	339,078	269,771	69,307	20%	293,060	46,018	14%	323,239	15,839	5%
Subtotal	***1,302,809***	***1,276,756***	***26,053***	***2%***	***1,352,446***	***(49,637)***	***(4%)***	***1,450,527***	***(147,718)***	***(11%)***
TOTAL ACADEMIC SPACE	**6,198,239**	**6,507,893**	**(309,654)**	**(5%)**	**6,976,463**	**(778,224)**	**(13%)**	**7,474,327**	**(1,276,088)**	**(21%)**

Residence Life

The guideline recommendation for residence life space is 275 ASF per bed. This guideline allows for residential dining as well as for today's suite-style accommodations. The existing assignable square feet per bed is as follows: Camden — 243 ASF; Newark — 267 ASF; and New Brunswick/Piscataway — 211 ASF. For both Camden and Newark, it is desired that their existing number of beds double at the moderate and market enrollment growth scenarios. Rutgers University officials requested that several options be considered for the New Brunswick/Piscataway campus.

Currently it is the policy of Rutgers to house 40% of the student enrollment for New Brunswick/Piscataway. One scenario would be to consider housing only 30% of the student enrollment. In either case, Rutgers administration wanted to see what the impact would be on facilities if:

1. the existing facilities remained at their current number and any new facilities beyond the current 13,800 beds were built at the recommended guideline standard (Option #1); and

2. the existing facilities were updated to the recommended standards as well as any new facilities constructed at the recommended guideline standards (Option #2).

CAMDEN	No. of Beds	Guideline ASF	Additional Space Requirements *(ASF)*
Guideline = 275 ASF/Bed			
Fall 2000 • Current Enrollment	500	137,500	15,969
Fall 2011 • Static Enrollment Growth	500	137,500	15,969
Fall 2011 • Moderate Enrollment Growth	1,000	275,000	153,469
Fall 2011 • Market Enrollment Growth	1,000	275,000	153,469

Existing number of beds is 500.
Existing Assignable Square Footage (ASF) is 121,531.

NEWARK	No. of Beds	Guideline ASF	Additional Space Requirements *(ASF)*
Guideline = 275 ASF/Bed			
Fall 2000 • Current Enrollment	700	192,500	5,463
Fall 2011 • Static Enrollment Growth	700	192,500	5,463
Fall 2011 • Moderate Enrollment Growth	1,400	385,000	197,963
Fall 2011 • Market Enrollment Growth	1,400	385,000	197,963

Existing number of beds is 700.
Existing Assignable Square Footage (ASF) is 187,037.
Additional Space Requirements = Guideline ASF minus Existing ASF.

The results of housing only 30% of the student enrollment are shown below. No additional beds would be required for any of the enrollment scenarios. However, to bring existing facilities up to the recommended standard would require an additional 490,000 ASF. On the following page are the results of continuing to house 40% of the student enrollment. No additional beds are required at the current year or the static enrollment growth scenario. At the

NEW BRUNSWICK/ PISCATAWAY ***30% of Student Headcount***		**Option #1** *Existing Beds and Space "As Is" plus New Growth beyond 13,800 beds at Recommended Standards*			**Option #2** *Updating Current Space to Recommended Standards*		**Additional Space Requirements *(ASF)***	
	Student Headcount	No. of Beds	No. of Additional Beds Required	Guideline ASF	No. of Beds at 30% of Student Headcount	Guideline ASF	Option 1 Existing Beds and Space "As Is" plus New Growth at Standards	Option 2 Updating Current Space to Standards
Guideline = 275 ASF/Bed @ 30% of Student Headcount								
Fall 2000 • Current Enrollment	34,363	13,800	0	2,859,377	10,309	2,834,975	0	0
Fall 2011 • Static Enrollment Growth	34,400	13,800	0	2,859,377	10,320	2,838,000	0	0
Fall 2011 • Moderate Enrollment Growth	36,438	13,800	0	2,859,377	10,932	3,006,300	0	146,923
Fall 2011 • Market Enrollment Growth	40,587	13,800	0	2,859,377	12,176	3,348,400	0	489,023

Existing number of beds is 13,800.
Existing Assignable Square Footage (ASF) is 2,859,377.

moderate enrollment growth scenario 775 beds would be needed and at the market enrollment growth scenario, 2,435 beds would be required. Depending on the option, between 213,000 ASF and 1,150,000 ASF of additional facilities would be required at the moderate enrollment growth scenarios and between 670,000 ASF and 1,605,000 ASF of additional facilities would be required at the market enrollment growth scenario.

New Brunswick/ Piscataway

40% of Student Headcount

		Option #1			Option #2		Additional Space Requirements *(ASF)*	
		Existing Beds and Space "As Is" plus New Growth beyond 13,800 beds at Recommended Standards			*Updating Current Space to Recommended Standards*			
	Student Headcount	No. of Beds	No. of Additional Beds Required	Guideline ASF	No. of Beds at 40% of Student Headcount	Guideline ASF	Option 1 Existing Beds and Space "As Is" plus New Growth at Standards	Option 2 Updating Current Space to Standards
Guideline = 275 ASF/Bed @ 40% of Student Headcount								
Fall 2000 • Current Enrollment	34,363	13,800	0	2,859,377	13,745	3,779,875	0	920,498
Fall 2011 • Static Enrollment Growth	34,400	13,800	0	2,859,377	13,760	3,784,000	0	924,623
Fall 2011 • Moderate Enrollment Growth	36,438	14,575	775	3,072,502	14,575	4,008,125	213,125	1,148,748
Fall 2011 • Market Enrollment Growth	40,587	16,235	2,435	3,529,002	16,235	4,464,625	669,625	1,605,248

Existing number of beds is 13,800.
Existing Assignable Square Footage (ASF) is 2,859,377.
Additional Space Requirements = Guideline ASF minus Existing ASF.

Section 2

BENCHMARK ANALYSIS OF ACADEMIC SPACE NEEDS

BENCHMARK ANALYSIS OF ACADEMIC SPACE NEEDS

1.0 BACKGROUND AND OBJECTIVES

Rutgers University aspires to become one of America's very best public research universities. The quality of educational programs in research universities is in large measure dependent upon the faculty the University is able to attract and retain and the nature and quality of the facilities provided to support academic programs. Rutgers University competes with other leading research universities for faculty, students and professional staff, as well as for federal and corporate support for research, graduate and professional programs. Adequate and appropriate facilities are critically important for attracting students and faculty of the highest caliber and the extramural funding needed to support the faculty's scholarly research.

The data presented in this section supplement the conventional normative guideline analysis by comparing academic space — the space that supports instruction and scholarly research — at the New Brunswick/Piscataway campus of Rutgers with that of other public flagship universities.

2.0 PROCESS

Peer Data

Six universities were selected for inclusion in the comparison group:

University of California at Berkeley
University of Michigan-Ann Arbor
University of North Carolina at Chapel Hill
University of Virginia
University of Washington-Seattle
University of Wisconsin-Madison

Data regarding enrollment and faculty distribution by academic division was obtained in the spring of 1999 from university fact books, web sites, and/or planning offices. Key information about the peer universities is shown in the tables that follow. Detailed enrollment and faculty counts by school and college can be found in Appendix C.

COMPARISON OF RUTGERS WITH SAMPLED INSTITUTIONS

UNIVERSITY	Total Student Enrollment	Undergraduate Student Headcount	Grad & Prof Student Headcount	Total Faculty Count
University of California at Berkeley	31,351	22,694	8,646	2,098
University of Michigan - Ann Arbor	37,197	24,015	13,182	3,429
University of North Carolina - Chapel Hill	24,189	15,274	8,368	2,421
University of Virginia	22,441	12,296	5,835	2,052
University of Washington - Seattle	34,300	25,018	9,312	3,963
University of Wisconsin - Madison	39,995	27,418	10,639	1,947
MEAN	**31,579**	**21,119**	**9,330**	**2,652**
Rutgers University • New Brunswick/Piscataway	***35,308***	***27,799***	***7,509***	***1,852***

Enrollments and faculty counts were provided by participating institutions.
Rutgers values are for Fall 1999, reported in Factbook.

Graduate and Professional Program Offerings

UNIVERSITY	Arts & Sciences	Business	Education	Engineering	Infor & Library Sci	Journ & Communic	Law
UC Berkeley	yes	yes	yes	yes	yes	yes	yes
Michigan - Ann Arbor	yes	yes	yes	yes	yes		yes
UNC Chapel Hill	yes	yes	yes		yes	yes	yes
Virginia	yes	yes	yes	yes			yes
Washington - Seattle	yes	yes	yes	yes			yes
Wisconsin - Madison	yes	yes	yes	yes			yes
Rutgers University • New Brunswick/Piscataway	yes	yes	yes	yes	yes	yes	

UNIVERSITY	Natural Resources	Nursing	Pharmacy	Planning Pub Pol/Govt	Public Health	Social Work	Other Disciplines
UC Berkeley	yes			yes	yes	yes	1,5
Michigan - Ann Arbor	yes	yes	yes	yes	yes	yes	1,2,3,4,
UNC Chapel Hill		yes	yes	yes	yes	yes	2,3
Virginia		yes					1,3,
Washington - Seattle	yes	yes	yes	yes	yes	yes	1,2,3
Wisconsin - Madison		yes	yes				3,6
Rutgers University • New Brunswick/Piscataway	yes		yes	yes		yes	

Code for Other Disciplines:

1. *Architecture or Environmental Design*
2. *Dentistry*
3. *Medicine*
4. *Kinesiology*
5. *Optometry*
6. *Veterinary Medicine*

Each University provided a facilities inventory describing the space assigned to each academic division (College or School). Facilities data included both total assignable square feet (ASF) of space for each academic division and assignable square feet by room use code. (Peer Comparison Appendix D.) This study focused on academic space, that is, space occupied by the academic units (schools and colleges) on each of the peer campuses. Data gathered included space used for instruction (classrooms, instructional laboratories), research, and offices as well as library space.

Benchmarking Methodology

Data obtained from the peer schools were reorganized so that all space available could be compared on a discipline-by-discipline basis. Space data then were normalized to permit comparisons between universities with different enrollments and staffing levels. ASF per student and ASF per faculty for each room use code (RUC) by school or program in each University were calculated. (Appendix E.) To estimate the academic space required at the New Brunswick/Piscataway campus, space factors were calculated for each space type by discipline/program. (See table on the following page.) The factors were applied according to enrollment patterns and program mix offered on each campus.

First, estimates of the amount of space required to bring the New Brunswick/Piscataway campus of Rutgers University to the average for the peer group was determined for each room-use category at current enrollment and staffing levels using the Existing Facilities Inventory provided by the University. The space factors for each type of space were applied by school/program for the schools/programs represented on the New Brunswick/Piscataway campus. Then a campus total was calculated by combining the values obtained for each disciplinary group. In calculating the campus needs for instructional space (classrooms, teaching laboratories), space requirements were calculated using average

Summary of Factors Used for Calculating Benchmark Analysis

SCHOOL OR PROGRAM	Classrooms & Service in ASF	Instructional Labs & Serv in ASF	Research Labs & Serv in ASF
Multiplier =	per Student	per Student	per Faculty
College of Arts and Sciences	10.0	11.4	440
School of Business	10.4	2.1	7
School of Education	10.1	14.2	***40***
School of Engineering	2.2	20.0	1,011
School of Communication, Information & Library Science	12.5	22.4	***38***
School of Natural Resource Management and Agriculture*	7.0	21.7	***1,085***
School of Pharmacy	10.1	20.5	***513***
School of Planning, Public Policy & Government	1.7	0.6	0
School of Social Work	5.9	0.7	***3***

Space factors were determined by calculating the mean value for those Universities that have schools in each discipline. In instances where one University's value was significantly out of line with those of other universities in the sample, the median was substituted for the mean to eliminate the effects of skewing. Medians are shown in ***Italics***.

Only three of the comparison university have separate schools for natural resource management and agriculture. Research space per faculty member was fifteen times higher for the top school than for the next school in this group.

space per student in each discipline at the peer universities. For research space, space requirements were calculated using average space per faculty member at the peer universities.

It is important to remember that the data gathered here represent only one component of the space needs for the University. Space requirements for student unions, general administration, residential complexes, athletic and recreational facilities, plant management operations and auxiliary services generally are not assigned to a particular school or academic program, so were not considered in the comparative analysis.

Originally, this study was to calculate space needs estimates for academic office and library space at the New Brunswick/ Piscataway campus using a benchmarking approach. The organizational structure of Rutgers is sufficiently different from that at the flagship campuses in the comparison group to make such comparisons unreliable and misleading. After consultation with Rutger's leadership, the data and analyses relating to office and library space were deleted from the study.

Project Space Requirements for the Fall 2011 Enrollment Scenarios

The University has developed three possible enrollment scenarios, as described in detail in Section 1. For purposes of estimating future space needs using the comparison school approach, faculty numbers were assumed to increase in proportion to enrollment increases. Furthermore, growth was assumed to be similar in all programs, colleges and schools on the New Brunswick/Piscataway campus.

3.0 Benchmarking Analysis: Current Year

Enrollment at the peer universities ranged from about 22,500 at the University of Virginia to nearly 40,000 at the University of Wisconsin. Mean enrollment for the group is about 31,600. Enrollment at Rutgers • New Brunswick/ Piscataway is about 35,300, or about 12% larger than the peer average.

Academic Space by Room-Use-Code at Peer Campuses

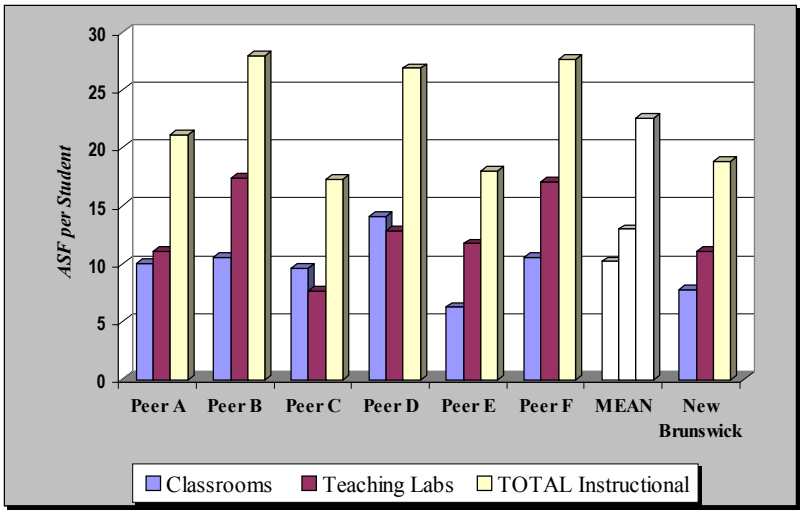
UNIVERSITY	Student Enrollment	Assignable Square Feet (ASF) Classrooms & Service	Instructional Labs & Service	Research Labs & Service
UC Berkeley	31,351	196,260	368,409	1,355,404
Michigan - Ann Arbor	37,197	523,000	476,102	1,374,252
UNC - Chapel Hill	24,189	241,853	267,840	558,540
Virginia	22,441	216,378	171,567	715,004
Washington - Seattle	34,300	362,728	597,844	1,203,577
Wisconsin - Madison	39,995	420,677	684,086	1,573,695
MEAN	**31,579**	**326,816**	**427,641**	**1,130,079**
New Brunswick/Piscataway	**35,308**	**273,041**	**391,587**	**777,431**

Although the New Brunswick/Piscataway campus has 12% **more** students than the peer average, the campus has 16.5% **less** total classroom and classroom service space than peers. When needs are calculated on a campus-by-campus basis as described earlier, the overall deficit in this category is about 50,000 ASF.

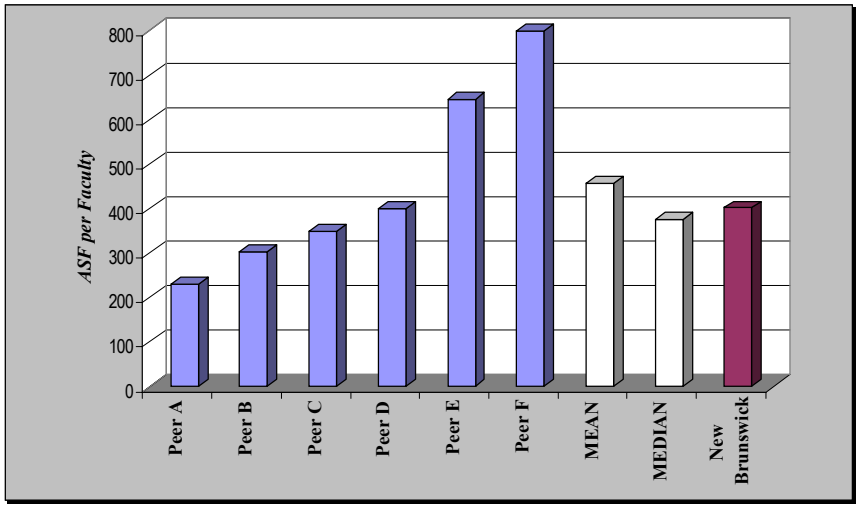
New Brunswick/Piscataway has about 8.5% **less** instructional laboratory space than the peer universities. The deficit in this category totals about 67,400 ASF.

Peer universities reported having between 6 and 14 ASF of classroom space per student; they have between 7.6 and 17.4 ASF of teaching and open laboratory space per student. For the peer group as a whole, the weighted average amount of classroom plus classroom service space (RUC 110 and 115) per student is about 10.3 ASF. The peer group has on average about 13.5 ASF of instructional laboratory and laboratory service (RUC 210 and 215 and RUC 220 and 225) per student. For the New Brunswick/Piscataway campus, those values are about 7.7 ASF and 11.1 ASF, respectively.

Instructional Space per Student at Peer Universities



Research Space per Faculty Member at Peer Universities



As shown in the graph to the left, New Brunswick/Piscataway has only about two-thirds (69%) as much total research space (RUC 250 and 255) as the peer universities.

Research space per faculty member varied widely at the peer schools, ranging from a low of about 230 ASF per faculty member at UNC-Chapel Hill to over 800 ASF per faculty member at the University of Wisconsin. At New Brunswick/Piscataway, the average is about 400 ASF per faculty member. Research space per faculty member there is

about 50 ASF below the mean amount of space provided per faculty member on the peer campuses. If the peer average values are applied on a discipline by discipline basis, the combined deficit in research space for the New Brunswick/Piscataway campus is over 330,000 ASF for Fall 2000.

At current enrollment levels, the New Brunswick/Piscataway campus is in deficit relative to peers for each of the space types studied. Combined, these deficits total over 450,000 ASF.

4.0 Benchmarking Analysis: Fall 2011 Enrollment Modeling

As noted earlier, the University is considering three potential strategies for increasing enrollment over the next decade. Enrollment targets for the New Brunswick/Piscataway campus under the three enrollment models are shown in the table below. For purposes of this study, the consultant assumed that enrollment would be distributed proportionately among existing programs. Faculty numbers were projected to increase in proportion to enrollment growth.

Projected Increases in Student Headcount

	Fall 2000 • Current Enrollment	Fall 2011 • Static Enrollment Growth	Fall 2011 • Moderate Enrollment Growth	Fall 2011 • Market Enrollment Growth
New Brunswick/ Piscataway	34,363	34,400	36,438	40,587

Using the enrollment targets shown for FY 2011, space needs were calculated for classrooms and classroom service, instructional laboratories and instructional lab service and research laboratories and research lab service using the benchmark process and space factors described above. The values calculated for FY 2011 not only reflect projected changes in enrollment and staffing levels, but also include factors for inflationary growth in the level of sponsored support for research at 2% per year.

Instructional Space

Under the Static Enrollment Model, enrollment at the New Brunswick/Piscataway campus is projected to decline from 35,300 students to about 34,000 students. Consequently, deficits in classroom and instructional laboratory space also decline. Those deficits would be about 41,750 ASF and 55,600 ASF respectively.

Benchmarking Analysis

		Fall 2011 • Static Enrollment Growth			Fall 2011 • Moderate Enrollment Growth			Fall 2011 • Market Enrollment Growth		
Student FTE		*28,448*			*30,186*			*33,958*		
Faculty FTE		*2,079*			*2,202*			*2,453*		
Student Headcount		*34,400*			*36,438*			*40,587*		
Faculty Full-time		*1,887*			*1,999*			*2,227*		
S:F Ratio		*18.2*			*18.2*			*18.2*		
	Existing ASF	Peer Average ASF	Surplus/ (Deficit)	Percent Surplus/ (Deficit)	Peer Average ASF	Surplus/ (Deficit)	Percent Surplus/ (Deficit)	Peer Average ASF	Surplus/ (Deficit)	Percent Surplus/ (Deficit)
Space Category										
Classroom & Service	273,041	314,788	(41,747)	(15%)	333,437	(60,396)	(22%)	371,404	(98,363)	(36%)
Instructional Labs & Service	391,587	447,184	(55,597)	(14%)	473,677	(82,090)	(21%)	527,612	(136,025)	(35%)
Research Space	777,431	1,353,279	(575,848)	(74%)	1,454,048	(676,617)	(87%)	1,572,977	(795,546)	(102%)
TOTAL	**1,442,059**	**2,115,251**	**(673,192)**	**(47%)**	**2,261,162**	**(819,103)**	**(57%)**	**2,471,993**	**(1,029,934)**	**(71%)**

ASF = Assignable Square Feet

Comparison Institutions included in this study were:

- *University of California at Berkeley*
- *University of Michigan*
- *University of North Carolina at Chapel Hill*
- *University of Virginia*
- *University of Washington*
- *University of Wisconsin*

If enrollment at New Brunswick/Piscataway increases to 36,438 (Moderate Enrollment Growth), approximately 60,400 ASF of classroom space and about 82,000 ASF of additional teaching and open laboratory space will be required to achieve peer-average levels.

If enrollment grows to 40,587 (as projected in the Market Enrollment Growth scenario), need for the deficit in classroom space will become 98,400 ASF and the deficit in teaching and open laboratory space will be about 136,000 ASF.

Research Space

Though faculty numbers decline slightly at New Brunswick/Piscataway under the Static Enrollment Model, the requirement for research space increases because sponsored research is projected to increase at the rate of 2% per year. By 2011, total space required to support sponsored research is projected to approach 1.4 million ASF, creating a deficit of 74% or 575,000 ASF.

Faculty numbers at New Brunswick/Piscataway are projected to increase to nearly 2,000 in the Moderate Enrollment Growth Model and to over 2,200 in the Market Enrollment Growth Model, increasing the deficit in research space to about 675,000 ASF and 795,000 ASF, respectively.

Comparison of Benchmarking and Normative Guideline Approaches

The benchmarking approach provides a second estimate of future University-wide space needs for three key categories of academic space: instructional space, which includes general purpose classrooms, regularly scheduled teaching laboratories, open laboratories, and related service space; and research and research service space. The table on the following page compares the estimates of space needs derived using the benchmarking approach with those calculated using the traditional guideline methodology of Study 1.

- The benchmarking approach produces lower deficits in instructional laboratory space but larger deficits in classroom and research space than the traditional guideline methodology.

- To provide levels of classroom space comparable to the peers, the University would have to add about 50,000 GSF at New Brunswick/Piscataway over and above the level provided in the guideline analysis.

- To achieve levels of research space comparable to those found at the comparison institutions, Rutgers University would have to add about 785,00 GSF of space at New Brunswick/Piscataway by Fall 2011, even if enrollment is steady at Fall 2000 levels. If enrollment were to grow as projected in the market enrollment growth scenario and faculty numbers increase correspondingly, nearly 1 million additional GSF of research space will be required to meet peer-average levels.

5.0 IMPLICATIONS AND LIMITATIONS OF THE BENCHMARKING APPROACH

A benchmarking analysis like the one presented here can help answer such questions as "does Rutgers - New Brunswick/ Piscataway have more or less research space than peers?" It can tell us whether the gap is a small one--a few tens of thousands of GSF or a much larger one--a million or more GSF. Clearly the answers here are that there is a substantial deficit of nearly 20% in instructional space and a very serious shortfall of over 40% in research space. Taken together, the shortfalls in these two categories of space alone approach a million GSF. The deficits are likely to increase substantially if enrollment and staffing increases to the highest level now contemplated.

As might be expected, the amount of space generated for research laboratories is significantly higher when estimates are developed using top-ranked public universities as the benchmark. For planning purposes, we recommend that the University include an allowance for bringing the New Brunswick/Piscataway campus to peer-levels of research space. It will be important to test these findings on a school-by-school basis before allocating space among colleges and schools on the campus. The amount and mix of instruction space-the ratio of classroom to lab space-also is different for the benchmark group than the generalized guidelines would predict.

Comparison of Benchmarking & Normative Guideline Approaches

Classroom & Classroom Service Space

Methodology	Fall 2011 • Static Enrollment Growth	Fall 2011 • Moderate Enrollment Growth	Fall 2011 • Market Enrollment Growth
Peer Benchmarking Surplus or (Deficit)	(41,747)	(60,396)	(98,363)
Guideline Analysis Surplus or (Deficit)	(11,442)	(28,819)	(66,542)
Difference (PB-GA) in ASF	**(30,305)**	**(31,577)**	**(31,821)**
DIFFERENCE IN GROSS SQ. FT. *(using a 61% conversion factor)*	**(49,680)**	**(51,766)**	**(52,166)**

Instructional Laboratories and Instructional Lab Service Space

Methodology	Fall 2011 • Static Enrollment Growth	Fall 2011 • Moderate Enrollment Growth	Fall 2011 • Market Enrollment Growth
Peer Benchmarking Surplus or (Deficit)	(55,597)	(82,090)	(136,025)
Guideline Analysis Surplus or (Deficit)	(63,586)	(91,389)	(151,746)
Difference (PB-GA) in ASF	**7,989**	**9,299**	**15,721**
DIFFERENCE IN GROSS SQ. FT. *(using a 61% conversion factor)*	**13,097**	**15,245**	**25,773**

Research and Research Service

Methodology	Fall 2011 • Static Enrollment Growth	Fall 2011 • Moderate Enrollment Growth	Fall 2011 • Market Enrollment Growth
Peer Benchmarking Surplus or (Deficit)	(575,848)	(676,617)	(795,546)
Guideline Analysis Surplus or (Deficit)	(96,678)	(173,156)	(249,635)
Difference (PB-GA) in ASF	**(479,170)**	**(503,461)**	**(545,911)**
DIFFERENCE IN GROSS SQ. FT. *(using a 61% conversion factor)*	**(785,525)**	**(825,346)**	**(894,936)**

The focus of this benchmarking analysis has been on the amount of space available at top ranked public research universities. Quality of space also contributes importantly to instructional effectiveness and scholarly productivity. Some academic space at Rutgers is outdated and in need of renovation and upgrade. In some cases, it may be more cost effective to build new space than to try to convert older facilities to support sophisticated high-tech programs.

The methodology used here controls for differences in program mix at the various campuses by allocating research and teaching space by disciplinary cluster (arts & sciences, engineering, education, etc.). Still, the absence of a medical school or an elaborate health science component may contribute to lower levels of sponsored research funding per faculty member. Conversely, the land-grant mission is more fully developed at Rutgers than at most of the schools in the comparison group. The model used here cannot delineate the effects of **collaborations with programs in the health sciences or agriculture**. Such collaborations may increase or decrease the amount of research space within a given school, depending on which school serves as "home" for the particular sponsored project.

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Section 3

COST OF ENROLLMENT GROWTH

COST OF ENROLLMENT GROWTH

1.0 BACKGROUND & OVERVIEW OF METHODOLOGY

The purpose of this section is to provide a financial frame of reference for Rutgers officers as they explore various scenarios for increasing enrollment. In the analyses that follow, the consultants prepared order-of-magnitude estimates of probable capital and operating cost under the conditions of the Static Enrollment Growth, Moderate Enrollment Growth and Market Enrollment Growth Models.

In Sections 1 and 2, using normative guidelines and peer analyses the consultants calculated the amount of built space needed to support the three enrollment scenarios. Here, the consultant estimates the capital cost of constructing this additional space. Capital costs like these are one-time expenses. They may find their way into the operating budget as debt-service if the project is paid for with borrowed funds and generally will increase annual facilities maintenance costs when new buildings come on line.

Operating budgets fund recurring annual expenses. Their magnitude depends on staffing levels, salary structure and other non-personnel costs. Operating budgets include such non-personnel expenses such as financial aid, communication expenses, facilities maintenance and costs of supplies, books and other non-capital equipment. Most of these costs increase in response to inflationary pressures even when enrollment is stable. Typically, increases in enrollment require additional increases in staffing and in many of the other categories mentioned. For instance, if new facilities are required to accommodate enrollment increases, facilities maintenance costs are likely to rise.

The numbers reported in this section are not budgets; they are preliminary cost estimates. As such, they are BIG-PICTURE, FIRST APPROXIMATIONS to actual project costs. These analyses can help determine the relative costs of enrollment growth by estimating whether different enrollment scenarios will produce differences of millions, 10's or 100's of millions, or billions of dollars of capital and/or operating expense. Note, though, that even if overall enrollment goals for each scenario remain constant in subsequent iterations of the plan, the projected costs are likely to increase in later analyses because additional details and requirements are added. The text below highlights factors that may increase costs above the levels reported.

2.0 CAPITAL INVESTMENTS

These are **One-time Costs**, projected using the guideline space needs analysis and a benchmarking study prepared by Paulien & Associates. For this analysis a single factor (61%) was used to convert assignable square feet to gross square feet. Next, estimates of total construction costs were derived using current average costs per GSF for various space types. The University provided both average building efficiency (ratios of ASF to GSF) and cost per GSF for the different types of space. Typically, building efficiencies vary by type of space and costs per square foot depend on the size of the facility being constructed. In subsequent iterations, and as space needs become clearer, it will be desirable to apply space factors according to type of space and the size of the structures being built.

One-time Capital Costs are estimated in 2001 dollars. Actual construction costs will be higher than this as they will include inflation to the project start date.

On the following page is the detail Estimate of Capital Costs by Space Category. Because the Other Departmental Space category includes space from several room use code groups an average of the costs per GSF was used ($350/GSF).

ESTIMATE OF CAPITAL COSTS BY SPACE CATEGORY

	Cost per GSF	FALL 2011 • STATIC ENROLLMENT GROWTH Facilities Required (GSF in millions)	FALL 2011 • STATIC ENROLLMENT GROWTH Capital Construction ($ in millions)	FALL 2011 • MODERATE ENROLLMENT GROWTH Facilities Required (GSF in millions)	FALL 2011 • MODERATE ENROLLMENT GROWTH Capital Construction ($ in millions)	FALL 2011 • MARKET ENROLLMENT GROWTH Facilities Required (GSF in millions)	FALL 2011 • MARKET ENROLLMENT GROWTH Capital Construction ($ in millions)
SPACE CATEGORY							
Instructional Space							
Classroom Space	$245	0.00	$0.00	0.01	$3.41	0.08	$18.56
Teaching Laboratories	$480	0.02	7.82	0.08	36.74	0.13	63.46
Open Laboratories	$480	0.12	57.40	0.17	79.90	0.21	100.68
Offices & Service	$210	0.00	0.00	0.08	16.91	0.25	52.65
Library	$350	0.00	0.52	0.04	12.93	0.07	24.07
	Subtotal	***0.14***	***$65.73***	***0.37***	***$149.89***	***0.74***	***$259.42***
Research Space	$480	***0.21***	***$100.71***	***0.37***	***$175.22***	***0.52***	***$249.74***
Student Space							
Physical Education & Recreation	$315	0.20	$62.79	0.24	$76.66	0.32	$100.44
Student Union	$385	0.14	55.68	0.21	81.46	0.27	105.27
	Subtotal	***0.34***	***$118.47***	***0.45***	***$158.12***	***0.59***	***$205.71***
Other Space							
Other Departmental Space	$350	0.00	$0.00	0.00	$0.00	0.05	$16.33
Athletics (dedicated space only)	$315	0.22	69.76	0.22	69.76	0.22	69.76
Physical Plant	$175	0.00	0.00	0.00	0.00	0.00	0.00
	Subtotal	***0.22***	***$69.76***	***0.22***	***$69.76***	***0.27***	***$86.09***
Academic Space Subtotal		***0.91***	***$354.67***	***1.42***	***$553.00***	***2.12***	***$800.96***
New Construction to meet Benchmark Institution Averages							
Instructional Space	$245	0.05	$12.17	0.05	$12.68	0.05	$12.78
Research Space	$480	0.79	377.05	0.83	396.17	0.89	429.57
	Subtotal	***0.84***	***$389.22***	***0.88***	***$408.85***	***0.95***	***$442.35***
ACADEMIC SPACE TOTAL		**1.75**	**$743.90**	**2.29**	**$961.85**	**3.07**	**$1,243.31**
Residence Life Space *(expressed as a range)*							
Low	$280	0.04	$9.84	0.93	$259.14	1.67	$468.68
		\	\	\	\	\	\
High	$280	1.55	$434.25	2.46	$688.61	3.21	$898.15
TOTAL *(expressed as a range)*							
	Low	**1.78**	**$753.74**	**3.22**	**$1,220.99**	**4.74**	**$1,712.00**
		\	\	\	\	\	\
	High	**3.30**	**$1,178.15**	**4.75**	**$1,650.46**	**6.27**	**$2,141.46**

GSF = Gross Square Feet

Key Findings: Static Enrollment Growth Scenario

This model holds total enrollment for Fall 2011 at approximately the same level as Fall 2000, though distribution of students among campuses changes slightly. The increases in space required to support this enrollment model include:

- Space needed to resolve deficits identified in the normative space needs analysis,
- Space needed to bring Rutgers to peer averages for instructional and research space, and
- Space needed to accommodate annual growth in sponsored research, library collection and the like.

COMPARISON OF ALTERNATIVE ENROLLMENT SCENARIOS

ESTIMATES OF FACILITIES REQUIREMENTS AND CAPITAL COSTS

	Fall 2011 • Static Enrollment Growth	Fall 2011 • Moderate Enrollment Growth	Fall 2011 • Market Enrollment Growth
Student Headcount	*48,625*	*53,429*	*57,578*
Student FTE	*38,994*	*43,079*	*46,848*
Existing Facilities	***(Gross Square Feet in Millions)***		
Fall 2000 Base in GSF; ASF/GSF = 61%	15.35	15.35	15.35
New Construction Required			
Facilities to Achieve Guideline Levels at Base Year	2.06	2.06	2.06
Facilities to Accommodate Enrollment Growth			
Academic Space	0.00	0.77	1.58
Residential Space	0.00	0.91	1.66
Facilities to meet Peer-Average @ New Brunswick			
Instructional Space	0.05	0.05	0.05
Research Space	0.79	0.83	0.89
TOTAL ADDITIONAL GSF *(in millions)*	**2.89**	**4.61**	**6.25**
Cost of New Construction *($ in millions)*	**$1,178.15**	**$1,650.46**	**$2,141.46**
Actual Costs	*Adjust for Inflation on Construction Costs to Project Date*		
	Funding to be Determined		

Sources for Rutgers University Data:

(a) The Office of University Planning and Development provided net to gross ratios for existing buildings and estimated cost per gsf for new construction.

If there is **NO SIGNIFICANT INCREASE in enrollment**, providing adequate facilities for existing programs using existing standards **will require substantial increases in space to resolve existing deficits.**

The normative analysis identified space deficits totaling over 1,500,000 ASF systemwide by Fall 2011. The largest deficits were in:

Residential space deficit is about	950,000 asf
Laboratory space for instructional and research labs deficit is about	210,000 asf
Physical education and athletic space deficit is about	260,000 asf
Student union space	90,000 asf

The benchmarking study identified additional shortfalls in instructional and research space, relative to top-ranked public research universities. Together, it would require an additional 510,000 ASF of space over and above that provided in the guideline calculations to resolve these deficits.

To eliminate these deficits and bring Rutgers to peer-average levels of instructional and research space, **approximately 2.9 million GSF of additional space** would have to be created, at an **estimated cost of $1.2 billion.**

Key Findings: Moderate Enrollment Growth Scenario

In the moderate enrollment growth scenario, enrollment increases systemwide by just over 10.6%. Numerically, the largest increases occur at Newark and New Brunswick/Piscataway, which both gain about 2,000 students. Proportionally though, this scenario will have the greatest impact at the Camden and Newark campuses, where enrollment is projected to grow by about 20% and about 23%, respectively. These changes would bring total enrollment for the University to about 53,400 students.

Approximately 4.61 million GSF of new space, costing about $1.7 billion will be needed to accommodate a total headcount enrollment of 53,400 (about 4,000 additional student FTE) and the faculty and staff who will educate them, based on current average costs. This figure includes space to resolve deficits identified in the guideline and benchmarking analyses. It does not include additional outdoor space for athletics and outdoor recreation, nor does it include space for new programmatic initiatives or funds for addressing qualitative deficiencies of existing space.

Key Findings: Market Enrollment Growth Scenario

In the market enrollment growth scenario, enrollment levels at Camden and Newark are the same as under the moderate enrollment growth scenario. Enrollment at Camden increases by about 20% to just under 6,100 student, while enrollment at Newark increases by about 23%, to a total of about 11,000 students. The primary factor that differentiates this scenario from the moderate enrollment growth scenario is a much larger proposed increase in enrollment for the New Brunswick/Piscataway campus. There, enrollment is projected to increase by over 6,000 students (about 18%) to total 40,600 students. Under this scenario, total enrollment for the University as a whole would increase to about 57,600 students.

Approximately 6.25 million GSF of new space, costing about $2.2 billion will be needed to accommodate a total headcount enrollment of 57,600 (nearly 8,000 more student FTE than the static enrollment model) and the faculty and staff who will educate them, based on current average costs. This figure includes space to resolve deficits identified in the guideline and benchmarking analyses. It does not include additional outdoor space for athletics and outdoor recreation, nor does it include space for new programmatic initiatives or funds for addressing qualitative deficiencies of existing space.

Caveats

As is often the case at the beginning of a master planning project, several capital projects already have been approved for planning or construction. It is important to determine early in the next phase of the master planning process the extent to which these projects will:

(1) fully resolve the deficits identified using guideline and benchmarking methods for estimating space needs; and
(2) provide some or all of the research space needed to support enhanced sponsored research activity projected in the areas of computing, engineering and science in the next decade.

Given the time constraints and lacking estimates of several important variables, the estimate of Space Needs is a "business as usual" projection.

The projected One-time Capital Investments Budgets DO NOT take into account the costs of

- Inflation for projects that begin construction after 2001;
- Creating additional space for new initiatives;
- Modernizing existing space to remedy known deficiencies;
- Renovating/reconfiguring vacated space for new uses.

MORE IMPORTANTLY, this estimate does not include CAPITAL COSTS for:

- **Parking and Transportation**
- **Campus Systems** (utilities, technology) and **Support Areas** (media, technology support, training) which must be sized to accommodate new facilities and staff
- **Media and Computer Equipment** for new and existing classrooms and other teaching spaces
- **Research Equipment**, as in start-up packages for new faculty
- **Outdoor Athletic Facilities and Outdoor Recreational Spaces**

3.0 ANNUAL OPERATING COSTS *(THE EDUCATIONAL & GENERAL BUDGET)*

These Recurring Costs were projected using 1999-2000 E&G Actual Expenditures as the base. The Director of Budget and Resource Studies and the Division of University Accounting provided the baseline data for this section of the report. Note that this is not an all-funds budget. It only includes expenditures against unrestricted revenues, such as state appropriations, tuition and fees, and unrestricted gifts.

Incremental growth in the Educational and General Budget was projected in 2011 dollars. The 1999-2000 Expenditure Base was increased by a factor of 3.5% per year to adjust for the effects of inflation. In recent years, most client institutions have used an inflation factor of 3% to 4% when projecting overall increase in expenses. Such an increase would be consistent with recent trends in the growth of the two principle sources of unrestricted revenues. State Appropriations (net of the effects of enrollment increases) and Annual per-student Tuition & Fees together, appear to comprise about 85% of the revenues that support the Unrestricted Budgets for Rutgers University.

State Appropriations, which comprise about 50% of unrestricted revenues, have been increasing by about 3-3.5% per year ON AVERAGE for the last five years, based on the data reported in the Rutgers Factbook. The increases in this category are vary greatly from year to year. Again, per Factbook, annual tuition and fees per student, which comprise about 35% of unrestricted revenues, have been increasing at an average rate of about 5% per year during the same period. Note, however, that tuition increases at other AAU Publics have been averaging closer to 4% per year, so it may be advisable to assume that increases in annual tuition at Rutgers may slow to something closer to the AAU Average level.

The University's leadership has not yet determined either the total number of faculty or staff that will have to be added to support additional students or new program initiatives as outlined in the University's Strategic Plan, so faculty counts and staffing projections were estimated using a linear model. The estimates of both personnel and non-personnel budgets also assume that the enrollment and staffing growth will be distributed among programs on each campus in proportion to their relative size as of Fall 2000. It is not only possible but likely that the actual distribution will be non-linear, as some programs and faculties are likely to grow more rapidly than others and enrollment shifts occur between academic programs even when total enrollment is stable.

Given the time constraints for this study and lacking detailed information about several important variables, the **estimate of Annual Operating Costs is a "business as usual" estimate; it almost certainly UNDERESTIMATES future operating costs** by a significant margin. This model does not incorporate the costs of initiatives aimed at improving quality of existing programs. Nor does the model reflect differential costs associated with disproportionate growth in disciplines such as computing, engineering and science that are more expensive to support in terms of salaries, staffing requirements and non-personnel expenses than most other arts and science and professional disciplines.

Using the enrollment scenarios provided by the University, cost increases were projected on a campus by campus basis for three budget components: salaries, facilities maintenance, and other non-personnel expenses. Projected budgets for each campus were then combined to create a total University Budget. Salaries and other costs were first adjusted to reflect inflationary increases to the target year as described earlier. Then the baseline budgets for FY 2011 were increased to provide support for enrollment growth. The models maintained existing student/faculty ratios. Staff numbers were increased at half the rate of enrollment increases and non-personnel costs were increased in proportion to the increase in enrollment. E&G expenditures for facilities maintenance were calculated separately. The calculation included projected costs to support new facilities as outlined in Section 2.0 — Capital Investments.

Key Findings: Static Enrollment Growth Scenario

This model holds total enrollment for Fall 2011 at approximately the same level as Fall 2000, though distribution of students among campuses changes slightly.

If there were **NO SIGNIFICANT INCREASE in enrollment**, faculty and staff numbers are projected to be stable or nearly so, though the distribution of faculty and staff between campuses and programs may occur.

Under the static enrollment scenario, the cost of funding existing programs is projected **to require an Educational and General Budget of nearly $1.1 billion by 2011**. This represents an inflationary increase of 3.5% per year and makes no allowance for new initiatives or for potential savings that might accrue through increased operating efficiencies or internal reallocations.

COMPARISON OF ALTERNATIVE ENROLLMENT SCENARIOS

ESTIMATES OF STAFFING REQUIREMENTS AND ANNUAL OPERATING COSTS

	Fall 2011 • Static Enrollment Growth	Fall 2011 • Moderate Enrollment Growth	Fall 2011 • Market Enrollment Growth
Student Headcount	*48,625*	*53,429*	*57,578*
Student FTE	*38,994*	*43,079*	*46,848*
Staffing Requirements			
Full-time Faculty Count (a)	2,543	2,783	3,010
Growth vs. Static		*240*	*467*
Faculty Budgeted FTE (b)	2,832	3,110	3,354
Growth vs. Static		*278*	*522*
Faculty & Staff FTE (c)	**8,632**	**9,158**	**9,691**
Growth vs. Static		***526***	***1,059***
Education & General Budget		***(Dollars in Millions)***	
Fiscal 2000 (1999-2000) (d)	$678	$735	$784
Fiscal 2011 *(inflation at 3.5%) (e)*	**$1,099**	**$1,192**	**$1,273**
Growth vs. Static		***$93***	***$174***

Sources for Rutgers University Data:

(a) Human Resources records, counts by physical location.
(b) Director of Budget and Resource Studies, FTE by reporting assignment.
(c) Office of Institutional Research
(d) Division of University Accounting, Expenditures for FY 2000 by executive level.
(e) Office of University Planning and Development provided net to gross ratios for existing buildings and estimated cost per gsf for new construction.

Key Findings: Moderate Enrollment Growth Scenario

The moderate enrollment growth scenario, enrollment increases systemwide by just over 10.6%. Proportionally though, this scenario will have the greatest budgetary impact at the Camden and Newark campuses, where enrollment is projected to grow by about 20% and about 23%, respectively. Budgetary growth at New Brunswick/Piscataway is estimated to be about 6 %. These changes will bring total enrollment for the University to about 53,400 students.

Rutgers University will require the addition of **about 240 regular full-time faculty or about 280 faculty FTE and 250 staff FTE** to achieve target student-to-faculty and staff-to-faculty ratios as enrollment is increased to 53,400.

An additional $93 million must be added to the annual Educational and General Budget by 2011 to support this growth. This will require a **Total Educational and General Budget of about $1.19 billion in year 2011.**

Key Findings: Market Enrollment Growth Scenario

In the market enrollment growth scenario, enrollment levels at Camden and Newark are the same as under the moderate enrollment growth scenario. Enrollment for the New Brunswick/Piscataway campus is projected to increase by over 6,000 students (about 18%) to total 40,600 students. Under this scenario, total enrollment for the University as a whole would increase to about 57,600 students.

Rutgers University will require the addition of **at least 470 faculty (about 525 faculty FTE) and about 535 staff FTE** if enrollment is increased to 57,600.

An additional $175 million must be added to the annual Static Enrollment Educational and General Budget by 2011 to support this growth. This will require a **Total Educational and General Budget of over $1.27 billion in year 2011.**

Caveats

As noted in the introduction, given the timing of this analysis and lacking estimates of several important variables, **the estimate of Annual Operating Costs is a "business as usual" projection.**

The projected Annual E & G budgets for 2011 ($1.1 to $1.27 billion) DO NOT take into account:

- the costs of new initiatives planned or under discussion either for the 49,000 students now enrolled or for any students that may be added;
- the need to remedy existing program or staffing deficits;
- the possibility that the mix of programs offered will change in the next decade;
- debt service to fund new construction;
- the likelihood that federal or state regulations may change in ways that could increase costs;
- the fact that inflation for some elements of the budget (e.g., library acquisitions; salaries of technology specialists) is more than 3.5% per year.

The University's stated desire is to provide a first-rate intellectual environment for faculty and to be a preferred choice among students. Achieving that goal may require funding beyond a "business as usual" budget to maintain or improve academic quality and diversity within its faculty and student body and to increase retention among students, faculty and staff. It is possible that some funding for such initiatives can be captured through a process of internal reallocation. However, unless some additional funds can be provided to support quality enhancements, quality will decline as enrollment grows.

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Section 4

NEXT STEPS: MOVING TOWARD IMPLEMENTATION

NEXT STEPS: MOVING TOWARD IMPLEMENTATION

The analyses presented here are a first step toward preparing detailed master plans for the physical development of the Rutgers campuses. Planning of this type is an iterative process, where each set of analyses narrows the conversation and sets up a more clearly focused understanding of the information required to guide executive decision making. During the course of this Phase I Analysis, the consultants have identified a number of issues that require further investigation if the University is to meet its space needs in a way that advances the academic agenda most cost-effectively.

1.0 REFINE THE SPACE NEEDS ANALYSIS FOR EACH CAMPUS

The normative analysis applied the same space factors to each of the three Rutgers campuses. In contrast, Rutgers is comprised of three campuses distant from one another, creating three separate operating environments. In our judgment, the differences in size, program offerings and mission-focus for the three campuses are sufficient to warrant separate analysis for each, both in terms of validation of the normative guidelines and in terms of developing appropriate peer comparisons.

- **For New Brunswick/Piscataway, reviewing the specific land grant and environmental needs of Cook College, the Douglas campus, the College Avenue campus, and the Bush campus and Livingston campus** would assist the physical planners in making appropriate decisions about each physical precinct within New Brunswick/Piscataway. The consultants note in particular that the strength of the land grant and environmental focus and the absence of a large health science component differentiate the New Brunswick/Piscataway campus from most of the schools in the original peer group and may warrant further study.

- **Identify and study an appropriate group of comparison schools for Camden and Newark.** The peer analysis that was presented in the Phase I study was geared toward flagship campuses like Rutgers -- New Brunswick/Piscataway. The specific missions of Camden and Newark and their needs could be articulated more clearly by focusing on a set of peers for each of them comprised of institutions with a similar mission, size, and academic mix. Issues of quality often require different solutions for campuses that have different enrollments, mission and mix.

- **Assess the potential impact of projects now under construction or in the early stages of planning.** Revise and adjust space requirements to reflect this planned space. Test building program plans against projected space needs to ensure that they address the most pressing needs on each campus.

2.0 DEVELOP A LIST OF CAPITAL NEEDS

Space needs analyses, whether based on normative guidelines or peer-derived benchmarks, can identify the different type of spaces needed and estimate the total amount of each space required to support a particular set of programs or enrollments. These initial analyses typically do not address issues of quality or appropriateness of existing space. To translate the finding of this study into recommendations regarding specific capital projects, it is important to consider a full array of options for meeting future space needs. Thus, we recommend that in the next phase of master planning Rutgers:

- **Confirm the space needs for individual programs, schools or reporting units, so the institution can know which units need what kinds of space.** This involves applying the space needs methodology at a more detailed level on each campus. In the next phase of this

process, consultants normally would meet with school and college leadership to incorporate an understanding of anticipated pedagogical changes, new program initiatives and changing technological environment.

- **Continue integration of Strategic Planning directions with the physical master planning process.** Incorporate a more refined understanding of the projected patterns of enrollment and staffing growth, and the nature, size and requirements of new programmatic initiatives as that information becomes available through the strategic planning process. The basic benchmarking model developed in the Phase 1 analysis can be readily adjusted to reflect projected changes in the distribution of students and faculty by discipline, and similar models could be built for Camden and Newark using data derived from a more appropriate comparison group. It may be desirable to periodically update projections of operating costs as well, to ensure that the University will have the capacity to meet both capital and operating requirements under whichever enrollment scenario is adopted.

- **Update the Classroom Utilization Analysis to reflect new Fall 2001 data, and expand it to include an assessment of utilization of teaching laboratories**. Rutgers University had a detailed classroom utilization study done in 1999 based on Fall 1998 data. The recommendations regarding the sizes of rooms that were needed has not been well received by Rutgers staff working directly with classroom evaluation. Furthermore, that study did not take into account now anticipated increases in enrollment or identify opportunities for improving productivity through sharing and other mechanisms. This new analysis should focus in specific detail on issues of section sizing. Differences by school and college and by campus should be identified so that as capital projects move forward an appropriate mix of classrooms is included in the new construction or renovations. The consultants noted that the peer universities included in this study have less instructional space per student, on average, than Rutgers does. If Rutgers can improve the productivity of existing teaching spaces, more resources will be available to address other critical needs.

- **Conduct further analysis of Housing Needs for each campus**. New Brunswick/Piscataway has substantially less space per student in their housing than either Camden or Newark. In other recent housing studies, our client institutions have utilized per-student space factors about 10% higher than the those now existing at Camden and Newark to estimate the space required for new housing facilities. Furthermore, when the same space factor is applied at New Brunswick/Piscataway (as it was in Phase I), the findings suggest that there is a significant need for additional space. If the current housing stock at New Brunswick/Piscataway is largely deemed acceptable for the next decade or two, this could substantially lower the estimate of capital needs for the New Brunswick/Piscataway campus.

- **Conduct an assessment of building condition and suitability for existing structures on each campus**. Such a study can evaluate the general condition of buildings, verifying issues related to deferred maintenance and determine the extent to which buildings are in compliance with safety and accessibility standards. It also should assess their suitability for current use. By estimating the cost of converting existing space to various other purposes, the University can ensure that all space is being used as productively as possible.

3.0 Programming of Specific Capital Projects

Finally, the Consultants recommend that the programming process for specific capital projects include a space needs component that provides normative and comparative needs information to the requests of the unit. Some recent project documents have focused almost exclusively on an architectural solution without a clear description of how the spaces included in the project were evaluated and whether or not they most cost-effectively address the most critical needs of the school, the campus or the University as a whole.


THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS
NEWARK
NEW BRUNSWICK
CAMDEN
Appendices

Appendix A

Library Guideline Application

CAMDEN CAMPUS

STATIC ENROLLMENT GROWTH

						FALL 2000 TOTAL	FALL 2011 TOTAL
VOLUME GENERATION	**Current Items**	**Conversion Factor**	**Volumes**	**Volume Growth***	**Fall 2011 Volumes**		
Books/Serials	714,447	1.00	714,447	22%	871,625		
Unbound Serials	0	0.50	0	22%	0		
Microforms	259,982	80.00	3,250	22%	3,965		
Audio/Visual Materials	326	5.00	65	22%	80		
TOTAL VOLUMES						**717,762**	**875,670**
	No. of Volumes						
COLLECTION SPACE	**0 - 150,000**	**150,001 - 300,000**	**300,001 - 600,000**	**600,001 - 3,000,000**	**3,000,001 and above**		
ASF per Volume	*0.10*	*0.09*	*0.08*	*0.07*	*0.02*		
2000 Collection Space	15,000	13,500	24,000	8,243	0		
2011 Collection Space	15,000	13,500	24,000	19,297	0		
					TOTAL COLLECTION SPACE	60,743	71,797
STUDY SPACE	**Percent of FTE**	**2000 FTE**	**2000 Stations**	**2011 FTE**	**2011 Stations**		
Undergraduate	15%	2,725	409	2,841	426		
Graduate	25%	1,159	290	1,090	273		
Faculty	10%	256	26	259	26		
Total Study Stations			**724**		**725**		
Regular Study Stations	*75% @ 25 ASF/Station*		13,577		13,587		
Electronic Study Stations	*25% @ 30 ASF/Station*		5,431		5,435		
					TOTAL STUDY SPACE	19,008	19,022
					TOTAL COLLECTION & STUDY SPACE	**79,751**	**90,819**
					LOUNGE SPACE *(3 ASF per Study Station)*	2,172	2,174
					SERVICE SPACE *(12.5% of Total Collection & Study Space)*	9,969	11,352
					TOTAL LIBRARY SPACE	**91,892**	**104,345**

ASF = Assignable Square Feet

* Volume growth was calculated at 2% per year for 11 years.

NOTE: Campuswide data did not delineate special needs for the law library.

Appendix A

Library Guideline Application

CAMDEN CAMPUS

MODERATE ENROLLMENT GROWTH

						FALL 2000 TOTAL	FALL 2011 TOTAL
VOLUME GENERATION	**Current Items**	**Conversion Factor**	**Volumes**	**Volume Growth***	**Fall 2011 Volumes**		
Books/Serials	714,447	1.00	714,447	22%	871,625		
Unbound Serials	0	0.50	0	22%	0		
Microforms	259,982	80.00	3,250	22%	3,965		
Audio/Visual Materials	326	5.00	65	22%	80		
TOTAL VOLUMES						**717,762**	**875,670**
	No. of Volumes						
COLLECTION SPACE	**0 - 150,000**	**150,001 - 300,000**	**300,001 - 600,000**	**600,001 - 3,000,000**	**3,000,001 and above**		
ASF per Volume	*0.10*	*0.09*	*0.08*	*0.07*	*0.02*		
2000 Collection Space	15,000	13,500	24,000	8,243	0		
2011 Collection Space	15,000	13,500	24,000	19,297	0		
					TOTAL COLLECTION SPACE	60,743	71,797
STUDY SPACE	**Percent of FTE**	**2000 FTE**	**2000 Stations**	**2011 FTE**	**2011 Stations**		
Undergraduate	15%	2,725	409	3,569	535		
Graduate	25%	1,159	290	1,090	273		
Faculty	10%	256	26	307	31		
Total Study Stations			**724**		**839**		
Regular Study Stations	*75% @ 25 ASF/Station*		13,577		15,724		
Electronic Study Stations	*25% @ 30 ASF/Station*		5,431		6,290		
					TOTAL STUDY SPACE	19,008	22,013
					TOTAL COLLECTION & STUDY SPACE	**79,751**	**93,810**
					LOUNGE SPACE *(3 ASF per Study Station)*	2,172	2,516
					SERVICE SPACE *(12.5% of Total Collection & Study Space)*	9,969	11,726
					TOTAL LIBRARY SPACE	**91,892**	**108,052**

ASF = Assignable Square Feet

* Volume growth was calculated at 2% per year for 11 years.

NOTE: Campuswide data did not delineate special needs for the law library.

Appendix A

Library Guideline Application

CAMDEN CAMPUS

MARKET ENROLLMENT GROWTH

						FALL 2000 TOTAL	FALL 2011 TOTAL
VOLUME GENERATION	**Current Items**	**Conversion Factor**	**Volumes**	**Volume Growth***	**Fall 2011 Volumes**		
Books/Serials	714,447	1.00	714,447	22%	871,625		
Unbound Serials	0	0.50	0	22%	0		
Microforms	259,982	80.00	3,250	22%	3,965		
Audio/Visual Materials	326	5.00	65	22%	80		
TOTAL VOLUMES						**717,762**	**875,670**
	No. of Volumes						
COLLECTION SPACE	**0 - 150,000**	**150,001 - 300,000**	**300,001 - 600,000**	**600,001 - 3,000,000**	**3,000,001 and above**		
ASF per Volume	*0.10*	*0.09*	*0.08*	*0.07*	*0.02*		
2000 Collection Space	15,000	13,500	24,000	8,243	0		
2011 Collection Space	15,000	13,500	24,000	19,297	0		
					TOTAL COLLECTION SPACE	60,743	71,797
STUDY SPACE	**Percent of FTE**	**2000 FTE**	**2000 Stations**	**2011 FTE**	**2011 Stations**		
Undergraduate	15%	2,725	409	3,569	535		
Graduate	25%	1,159	290	1,090	273		
Faculty	10%	256	26	307	31		
Total Study Stations			**724**		**839**		
Regular Study Stations	*75% @ 25 ASF/Station*		13,577		15,724		
Electronic Study Stations	*25% @ 30 ASF/Station*		5,431		6,290		
					TOTAL STUDY SPACE	19,008	22,013
					TOTAL COLLECTION & STUDY SPACE	**79,751**	**93,810**
					LOUNGE SPACE *(3 ASF per Study Station)*	2,172	2,516
					SERVICE SPACE *(12.5% of Total Collection & Study Space)*	9,969	11,726
					TOTAL LIBRARY SPACE	**91,892**	**108,052**

ASF = Assignable Square Feet

* Volume growth was calculated at 2% per year for 11 years.

NOTE: Campuswide data did not delineate special needs for the law library.

Appendix A

Library Guideline Application

NEWARK CAMPUS

STATIC ENROLLMENT GROWTH

						FALL 2000 TOTAL	FALL 2011 TOTAL
VOLUME GENERATION	**Current Items**	**Conversion Factor**	**Volumes**	**Volume Growth***	**Fall 2011 Volumes**		
Books/Serials	941,103	1.00	941,103	22%	1,148,146		
Unbound Serials	0	0.50	0	22%	0		
Microforms	1,464,368	80.00	18,305	22%	22,332		
Audio/Visual Materials	34,994	5.00	6,999	22%	8,539		
TOTAL VOLUMES						**966,406**	**1,179,016**

	No. of Volumes						
COLLECTION SPACE	**0 - 150,000**	**150,001 - 300,000**	**300,001 - 600,000**	**600,001 - 3,000,000**	**3,000,001 and above**		
ASF per Volume	*0.10*	*0.09*	*0.08*	*0.07*	*0.02*		
2000 Collection Space	15,000	13,500	24,000	25,648	0		
2011 Collection Space	15,000	13,500	24,000	40,531	0		
					TOTAL COLLECTION SPACE	78,148	93,031

STUDY SPACE	**Percent of FTE**	**2000 FTE**	**2000 Stations**	**2011 FTE**	**2011 Stations**		
Undergraduate	15%	4,298	645	4,451	668		
Graduate	25%	2,122	531	2,164	541		
Faculty	10%	550	55	564	56		
Total Study Stations			**1,230**		**1,265**		
Regular Study Stations	*75% @ 25 ASF/Station*		23,066		23,720		
Electronic Study Stations	*25% @ 30 ASF/Station*		9,227		9,488		
					TOTAL STUDY SPACE	32,293	33,208
					TOTAL COLLECTION & STUDY SPACE	**110,441**	**126,239**
					LOUNGE SPACE *(3 ASF per Study Station)*	3,691	3,795
					SERVICE SPACE *(12.5% of Total Collection & Study Space)*	13,805	15,780
					TOTAL LIBRARY SPACE	**127,937**	**145,814**

ASF = Assignable Square Feet

* Volume growth was calculated at 2% per year for 11 years.

NOTE: Campuswide data did not delineate special needs for the law library.

Appendix A

Library Guideline Application

NEWARK CAMPUS

MODERATE ENROLLMENT GROWTH

						FALL 2000 TOTAL	FALL 2011 TOTAL
VOLUME GENERATION	**Current Items**	**Conversion Factor**	**Volumes**	**Volume Growth***	**Fall 2011 Volumes**		
Books/Serials	941,103	1.00	941,103	22%	1,148,146		
Unbound Serials	0	0.50	0	22%	0		
Microforms	1,464,368	80.00	18,305	22%	22,332		
Audio/Visual Materials	34,994	5.00	6,999	22%	8,539		
TOTAL VOLUMES						**966,406**	**1,179,016**
	No. of Volumes						
COLLECTION SPACE	**0 - 150,000**	**150,001 - 300,000**	**300,001 - 600,000**	**600,001 - 3,000,000**	**3,000,001 and above**		
ASF per Volume	*0.10*	*0.09*	*0.08*	*0.07*	*0.02*		
2000 Collection Space	15,000	13,500	24,000	25,648	0		
2011 Collection Space	15,000	13,500	24,000	40,531	0		
					TOTAL COLLECTION SPACE	78,148	93,031
STUDY SPACE	**Percent of FTE**	**2000 FTE**	**2000 Stations**	**2011 FTE**	**2011 Stations**		
Undergraduate	15%	4,298	645	6,070	911		
Graduate	25%	2,122	531	2,164	541		
Faculty	10%	550	55	678	68		
Total Study Stations			**1,230**		**1,519**		
Regular Study Stations	*75% @ 25 ASF/Station*		23,066		28,486		
Electronic Study Stations	*25% @ 30 ASF/Station*		9,227		11,394		
					TOTAL STUDY SPACE	32,293	39,880
					TOTAL COLLECTION & STUDY SPACE	**110,441**	**132,911**
					LOUNGE SPACE *(3 ASF per Study Station)*	3,691	4,558
					SERVICE SPACE *(12.5% of Total Collection & Study Space)*	13,805	16,614
					TOTAL LIBRARY SPACE	**127,937**	**154,083**

ASF = Assignable Square Feet

* Volume growth was calculated at 2% per year for 11 years.

NOTE: Campuswide data did not delineate special needs for the law library.

Appendix A

Library Guideline Application

NEWARK CAMPUS

MARKET ENROLLMENT GROWTH

						FALL 2000 TOTAL	FALL 2011 TOTAL
VOLUME GENERATION	**Current Items**	**Conversion Factor**	**Volumes**	**Volume Growth***	**Fall 2011 Volumes**		
Books/Serials	941,103	1.00	941,103	22%	1,148,146		
Unbound Serials	0	0.50	0	22%	0		
Microforms	1,464,368	80.00	18,305	22%	22,332		
Audio/Visual Materials	34,994	5.00	6,999	22%	8,539		
TOTAL VOLUMES						**966,406**	**1,179,016**
	No. of Volumes						
COLLECTION SPACE	**0 - 150,000**	**150,001 - 300,000**	**300,001 - 600,000**	**600,001 - 3,000,000**	**3,000,001 and above**		
ASF per Volume	*0.10*	*0.09*	*0.08*	*0.07*	*0.02*		
2000 Collection Space	15,000	13,500	24,000	25,648	0		
2011 Collection Space	15,000	13,500	24,000	40,531	0		
					TOTAL COLLECTION SPACE	78,148	93,031
STUDY SPACE	**Percent of FTE**	**2000 FTE**	**2000 Stations**	**2011 FTE**	**2011 Stations**		
Undergraduate	15%	4,298	645	6,070	911		
Graduate	25%	2,122	531	2,164	541		
Faculty	10%	550	55	678	68		
Total Study Stations			**1,230**		**1,519**		
Regular Study Stations	*75% @ 25 ASF/Station*		23,066		28,486		
Electronic Study Stations	*25% @ 30 ASF/Station*		9,227		11,394		
					TOTAL STUDY SPACE	32,293	39,880
					TOTAL COLLECTION & STUDY SPACE	**110,441**	**132,911**
					LOUNGE SPACE *(3 ASF per Study Station)*	3,691	4,558
					SERVICE SPACE *(12.5% of Total Collection & Study Space)*	13,805	16,614
					TOTAL LIBRARY SPACE	**127,937**	**154,083**

ASF = Assignable Square Feet

* Volume growth was calculated at 2% per year for 11 years.

NOTE: Campuswide data did not delineate special needs for the law library.

Appendix A

Library Guideline Application

NEW BRUNSWICK/PISCATAWAY CAMPUS

STATIC ENROLLMENT GROWTH

						FALL 2000 TOTAL	FALL 2011 TOTAL
VOLUME GENERATION	**Current Items**	**Conversion Factor**	**Volumes**	**Volume Growth***	**Fall 2011 Volumes**		
Books/Serials	4,737,147	1.00	4,737,147	0%	4,737,147		
Unbound Serials	0	0.50	0	0%	0		
Microforms	3,280,875	80.00	41,011	0%	41,011		
Audio/Visual Materials	91,657	5.00	18,331	0%	18,331		
TOTAL VOLUMES						**4,796,489**	**4,796,489**

	No. of Volumes						
COLLECTION SPACE	**0 - 150,000**	**150,001 - 300,000**	**300,001 - 600,000**	**600,001 - 3,000,000**	**3,000,001 and above**		
ASF per Volume	*0.10*	*0.09*	*0.08*	*0.07*	*0.02*		
2000 Collection Space	15,000	13,500	24,000	168,000	35,930		
2011 Collection Space	15,000	13,500	24,000	168,000	35,930		
					TOTAL COLLECTION SPACE	256,430	256,430

STUDY SPACE	**Percent of FTE**	**2000 FTE**	**2000 Stations**	**2011 FTE**	**2011 Stations**		
Undergraduate	15%	24,515	3,677	24,733	3,710		
Graduate	25%	3,802	951	3,715	929		
Faculty	10%	2,077	208	2,079	208		
Total Study Stations			**4,835**		**4,847**		
Regular Study Stations	*75% @ 25 ASF/Station*		90,665		90,876		
Electronic Study Stations	*25% @ 30 ASF/Station*		36,266		36,350		
					TOTAL STUDY SPACE	126,931	127,226
					TOTAL COLLECTION & STUDY SPACE	**383,360**	**383,656**
					LOUNGE SPACE *(3 ASF per Study Station)*	14,506	14,540
					SERVICE SPACE *(12.5% of Total Collection & Study Space)*	47,920	47,957
					TOTAL LIBRARY SPACE	**445,787**	**446,153**

ASF = Assignable Square Feet

* No collection growth is assumed.

Appendix A

Library Guideline Application

NEW BRUNSWICK/PISCATAWAY CAMPUS

MODERATE ENROLLMENT GROWTH

						FALL 2000 TOTAL	FALL 2011 TOTAL
VOLUME GENERATION	**Current Items**	**Conversion Factor**	**Volumes**	**Volume Growth***	**Fall 2011 Volumes**		
Books/Serials	4,737,147	1.00	4,737,147	0%	4,737,147		
Unbound Serials	0	0.50	0	0%	0		
Microforms	3,280,875	80.00	41,011	0%	41,011		
Audio/Visual Materials	91,657	5.00	18,331	0%	18,331		
TOTAL VOLUMES						**4,796,489**	**4,796,489**

	No. of Volumes						
COLLECTION SPACE	**0 - 150,000**	**150,001 - 300,000**	**300,001 - 600,000**	**600,001 - 3,000,000**	**3,000,001 and above**		
ASF per Volume	*0.10*	*0.09*	*0.08*	*0.07*	*0.02*		
2000 Collection Space	15,000	13,500	24,000	168,000	35,930		
2011 Collection Space	15,000	13,500	24,000	168,000	35,930		
					TOTAL COLLECTION SPACE	256,430	256,430

STUDY SPACE	**Percent of FTE**	**2000 FTE**	**2000 Stations**	**2011 FTE**	**2011 Stations**		
Undergraduate	15%	24,515	3,677	26,233	3,935		
Graduate	25%	3,802	951	3,953	988		
Faculty	10%	2,077	208	2,202	220		
Total Study Stations			**4,835**		**5,143**		
Regular Study Stations	*75% @ 25 ASF/Station*		90,665		96,439		
Electronic Study Stations	*25% @ 30 ASF/Station*		36,266		38,576		
					TOTAL STUDY SPACE	126,931	135,015
					TOTAL COLLECTION & STUDY SPACE	**383,360**	**391,445**
					LOUNGE SPACE *(3 ASF per Study Station)*	14,506	15,430
					SERVICE SPACE *(12.5% of Total Collection & Study Space)*	47,920	48,931
					TOTAL LIBRARY SPACE	**445,787**	**455,806**

ASF = Assignable Square Feet

* No collection growth is assumed.

Appendix A

Library Guideline Application

NEW BRUNSWICK/PISCATAWAY CAMPUS

MARKET ENROLLMENT GROWTH

						FALL 2000 TOTAL	FALL 2011 TOTAL
VOLUME GENERATION	**Current Items**	**Conversion Factor**	**Volumes**	**Volume Growth***	**Fall 2011 Volumes**		
Books/Serials	4,737,147	1.00	4,737,147	0%	4,737,147		
Unbound Serials	0	0.50	0	0%	0		
Microforms	3,280,875	80.00	41,011	0%	41,011		
Audio/Visual Materials	91,657	5.00	18,331	0%	18,331		
TOTAL VOLUMES						**4,796,489**	**4,796,489**

	No. of Volumes						
COLLECTION SPACE	**0 - 150,000**	**150,001 - 300,000**	**300,001 - 600,000**	**600,001 - 3,000,000**	**3,000,001 and above**		
ASF per Volume	*0.10*	*0.09*	*0.08*	*0.07*	*0.02*		
2000 Collection Space	15,000	13,500	24,000	168,000	35,930		
2011 Collection Space	15,000	13,500	24,000	168,000	35,930		
					TOTAL COLLECTION SPACE	256,430	256,430

STUDY SPACE	**Percent of FTE**	**2000 FTE**	**2000 Stations**	**2011 FTE**	**2011 Stations**		
Undergraduate	15%	24,515	3,677	29,944	4,492		
Graduate	25%	3,802	951	4,014	1,004		
Faculty	10%	2,077	208	2,453	245		
Total Study Stations			**4,835**		**5,740**		
Regular Study Stations	*75% @ 25 ASF/Station*		90,665		107,634		
Electronic Study Stations	*25% @ 30 ASF/Station*		36,266		43,054		
					TOTAL STUDY SPACE	126,931	150,688
					TOTAL COLLECTION & STUDY SPACE	**383,360**	**407,118**
					LOUNGE SPACE *(3 ASF per Study Station)*	14,506	17,221
					SERVICE SPACE *(12.5% of Total Collection & Study Space)*	47,920	50,890
					TOTAL LIBRARY SPACE	**445,787**	**475,229**

ASF = Assignable Square Feet

* No collection growth is assumed.

Appendix B

ATHLETIC COMPARATIVE ANALYSIS

Rutgers competes in Division 1A for major sports and has a large number of Olympic sports. It has 33 intercollegiate sports, a similar count to some of the Ivy League schools. Other Division 1A public universities often compete in as few as 14 or 15 sports and most of them have 20 or less. The number of sports is part of Rutgers rich and long heritage.

Rutgers currently has approximately 265,000 ASF of New Brunswick/Piscataway space assigned specifically to Athletics. These are indoor facilities and do not include the outdoor elements of the football stadium and other outdoor facilities. The Rutgers Athletic Department shares the College Avenue Gym on a time available basis but the primary assignment of the College Avenue Gym is for recreation.

The Athletic Department has identified two projects, a new boathouse for crew and an indoor facility for sports such as volleyball, gymnastics, wrestling, weightlifting, etc.

The consultant has looked at several of the Big East institutions that have major Division 1A programs. These include University of Miami, Boston College, Virginia Tech, and Syracuse University. All of them will have close to or more than 400,000 ASF when current athletic expansion programs are completed.

The Master Plan Coordinating Committee asked us to look at Big 10 space amounts, since those universities are viewed by Committee members as a better match academically for Rutgers. Ohio State University is over 700,000 ASF of indoor space, suggesting that the Big 10 programs are not a good athletic facilities comparison. The University of Nebraska and the University of Oklahoma in the Big 12 conference have between 500,000 ASF and 625,000 ASF. The University of Colorado, which does not have an indoor football practice facility, which it is attempting to have funded, has less indoor athletic space than Rutgers but has a master plan goal of doubling their athletic space.

The only highly successful athletic program the consultants have found that has less indoor athletic space than Rutgers and is satisfied with what they have is the University of Arizona. Their situation is impacted by the fact that they do not need an indoor football practice facility because of their climate and they also have their entire swimming and diving program outdoors for similar reasons.

The consultant believes a figure of approximately 400,000 ASF is a reasonable target based on the discussions and receipt of information from approximately 10 leading university athletic programs. The two projects noted earlier would still show Rutgers with less than 400,000 ASF of athletic space.

Appendix C

Peer Student Enrollment and Faculty Data
UNIVERSITY OF CALIFORNIA AT BERKELEY

FALL 1998						
	Students					Faculty Count
	1998 Headcount					
	Undergrad	Grad	Prof	Extension	Total	
College of Arts and Sciences*	17,695	3,118			20,813	1,576
Continuing Studies						
School of Business	502	868			1,370	63
School of Education	0	419			419	33
School of Engineering	3,061	1,551			4,612	198
School of Information and Library Science	0	60			60	8
Institute of Government/Public Policy		103			103	12
School of Journalism and Mass Communication		100			100	11
School of Law	0		891		891	49
School of Natural Resources	694	319			1,013	12
School of Nursing						
School of Pharmacy						
School of Public Health	0	446			446	42
School of Social Work	0	233			233	15
SUBTOTAL: Schools with Peers at Rutgers	**21,952**	**7,217**	**891**	**0**	**30,060**	**2,019**
Architecture/Environmental Design	630	382			1,012	62
Miscellaneous & Intercampus Visitors					11	
Optometry	112	156			268	17
GRAND TOTAL	**22,694**	**7,755**	**891**	**0**	**31,351**	**2,098**

*Arts & Sciences includes majors in Arts & Humanities, Biological Sciences, Chemistry, Physical Sciences, Social Sciences, Unclassified Students & UG Interdisciplinary.

Appendix C

Peer Student Enrollment and Faculty Data
UNIVERSITY OF MICHIGAN AT ANN ARBOR

FALL 1998						
	Students					Faculty Count
	1998 Headcount					
	Undergrad	Grad	Prof	Extension	Total	
College of Arts and Sciences	16,359	2,151			18,510	1,204
School of Business	652	2,082			2,734	166
School of Education	283	325			608	62
School of Engineering	4,639	2,045			6,684	320
School of Information and Library Science		204			204	20
Government/Public Policy		107			107	12
School of Journalism and Mass Communication						
School of Law			1,073		1,073	70
School of Natural Resources & Enviroment	423	208			631	38
School of Nursing	520	278			798	75
School of Pharmacy	107	72	110		289	54
School of Public Health		794			794	99
School of Social Work		606			606	51
SUBTOTAL: Schools with Peers at Rutgers	**22,983**	**8,872**	**1,183**	**0**	**33,038**	**2,171**
Architecture & Urban Planning	163	328			491	45
Continuing Studies	38	8			46	
School of Dentistry	89	75	400		564	97
Kinesiology	742	27			769	29
School of Medicine		187	1,502		1,689	1,088
Intercollegiate Programs		600			600	
GRAND TOTAL	**24,015**	**10,097**	**3,085**	**0**	**37,197**	**3,429**

* Arts & Sciences includes School of Art & Design, College of Literature, Science, & the Arts, and School of Music.

Appendix C

Peer Student Enrollment and Faculty Data
UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

FALL 1997						
	Students					Faculty Count
	1997 Headcount					
	Undergrad	Grad	Prof	Extension	Total	
College of Arts and Sciences	12,792	2,256		40	15,088	758
Kenan-Flagler School of Business	551	577		137	1,265	69
School of Education	214	300			514	84
School of Information and Library Science		236			236	25
Institute of Government						36
School of Journalism and Mass Communication	525	105			630	33
School of Law			689		689	41
School of Nursing	304	145		6	455	61
School of Pharmacy	61	67	424	46	598	58
School of Public Health	149	878		125	1,152	186
School of Social Work		242		72	314	48
SUBTOTAL: Schools with Peers at Rutgers	**14,596**	**4,806**	**1,113**	**426**	**20,941**	**1,399**
Continuing Studies	576	807		121	1,504	0
School of Dentistry	52	63	302		417	105
School of Medicine	50	634	643		1,327	911
Other Academic Affairs						6
GRAND TOTAL	**15,274**	**6,310**	**2,058**	**547**	**24,189**	**2,421**

Appendix C

Peer Student Enrollment and Faculty Data
UNIVERSITY OF VIRGINIA

FALL 1998						
	Students					Faculty Count
	1998 Headcount					
	Undergrad	Grad	Prof	Extension	Total	
College of Arts and Sciences	9,164	1,552			10,716	629
School of Business & Commerce	636	559			1,195	127
School of Education	56	911			967	108
School of Engineering	1,793	530			2,323	169
School of Information and Library Science						
Institute of Government						
School of Journalism and Mass Communication						
School of Law		19	1,127		1,146	90
School of Nursing	289	156			445	51
School of Pharmacy						
School of Public Health						
School of Social Work						
SUBTOTAL: Schools with Peers at Rutgers	**11,938**	**3,727**	**1,127**	**0**	**16,792**	**1,173**
Architecture	358	197				54
Continuing Studies				4,310	4,310	55
School of Medicine		231	553		784	771
Other						628
GRAND TOTAL	**12,296**	**4,155**	**1,680**	**4,310**	**22,441**	**2,052**

Appendix C

Peer Student Enrollment and Faculty Data
UNIVERSITY OF WASHINGTON AT SEATTLE

FALL 1998						
	Students					Faculty Count
	1998 Headcount					
	Undergrad	Grad	Prof	Extension	Total	
College of Arts and Sciences	20609	3074			23,683	1,215
School of Business	1628	475			2,103	132
School of Education	9	607			616	75
School of Engineering	1574	1062			2,636	249
School of Information and Library Science					0	
Institute of Government/Public Affairs		196			196	24
School of Journalism and Mass Communication					0	
School of Law	4	60	487		551	47
School of Natural Resources*	389	416			805	142
School of Nursing	131	290			421	104
School of Pharmacy		53	283		336	56
School of Public Health	29	404			433	165
School of Social Work	125	333			458	56
SUBTOTAL: Schools with Peers at Rutgers	**24,498**	**6,970**	**770**	**0**	**32,238**	**2,264**
Architecture	204	314			518	59.3
School of Dentistry	2	61	211		274	103
School of Medicine	314	398	588		1,300	1,537
GRAND TOTAL	**25,018**	**7,743**	**981**	**0**	**33,742**	**3,963**

* Includes the Schools of Forestestry, Oceanography & Fishery Science

Appendix C

Peer Student Enrollment and Faculty Data
UNIVERSITY OF WISCONSIN AT MADISON

FALL 1998						
	Students					Faculty Count
	1997 Headcount					
	Undergrad	Grad	Prof	Special	Total	
College of Arts and Sciences*	19,339	5,455		2	24,796	1,112
School of Business	1,256	519		3	1,778	68
School of Education	2,628	1,206		59	3,893	134
School of Engineering	3,396	993		100	4,489	163
School of Information and Library Science						
Institute of Government						
School of Journalism and Mass Communication						
School of Law		30	841	11	882	27
School of Nursing	410	161			571	18
School of Pharmacy	109	65	161		335	26
School of Public Health						
School of Social Work						
SUBTOTAL: Schools with Peers at Rutgers	**27,138**	**8,429**	**1,002**	**175**	**36,744**	**1,548**
Architecture						
Continuing Studies				1,735	1,735	17.5
School of Medicine	280	300	592	27	1,199	324
Veterinary Medicine			316	1	317	58
GRAND TOTAL	**27,418**	**8,729**	**1,910**	**1,938**	**39,995**	**1,947**

* Arts & Sciences includes Agric & Life Sci, Human Ecology, Instititute for Environmental Studies, and Letters & Science.

Appendix D

Peer Assignable Square Feet by Room Use Code by School/College
UNIVERSITY OF CALIFORNIA AT BERKELEY

FALL 1997						
	Classrooms	Instructional Laboratories	Research Labs	Office	Library & Study	TOTAL ASF
College of Arts and Sciences	6,027	171,509	846,800	570,206	174,184	2,641,235
School of Business	15,204	6,264		40,531	4,168	87,447
School of Education	680	5,103	18,186	31,365	665	56,774
School of Engineering	1,570	73,785	248,062	188,047	86,735	613,836
School of Information and Library Science		2,036	2,151	6,948	1,074	15,281
Institute of Government/Public Policy		169		6,893	2,168	9,220
School of Journalism and Mass Communication		4,308		4,240	2,599	13,283
School of Law		14,627	716	56,402	75,335	164,834
School of Natural Resources		10,027	185,604	26,441	28,825	412,702
School of Nursing						
School of Pharmacy						
School of Public Health	90	3,830	20,775	41,726	1,342	71,155
School of Social Work	419	661	5,117	11,058	707	18,660
SUBTOTAL: Schools with Peers at Rutgers	**23,990**	**292,319**	**1,327,411**	**983,857**	**377,802**	**4,104,427**
VP Provost						
Other Academic Affairs	171,540					171,540
University Libraries				66,742	665,464	818,703
School of Architecture/Environmental Design	730	69,937	8,793	20,195	6,138	121,670
School of Optometry		6,153	19,200	47,898		54,441
GRAND TOTAL	**196,260**	**368,409**	**1,355,404**	**1,118,692**	**1,049,404**	**5,270,781**

Appendix D

Peer Assignable Square Feet by Room Use Code by School/College
UNIVERSITY OF MICHIGAN AT ANN ARBOR

FALL 1997						
	Classrooms	Instructional Laboratories	Research Labs	Office	Library & Study	TOTAL ASF
College of Arts and Sciences	274,254	260,577	420,790	670,070	49,484	2,123,116
School of Business	43,786	6,676	7,191	77,801	40,514	204,430
School of Education	16,396	8,076	2,557	61,067	3,149	97,300
School of Engineering	60,062	47,550	325,520	293,930	6,982	819,394
School of Information and Library Science	3,875	3,422	757	10,165	88	20,442
Institute of Government/Public Policy	557	0	0	6,879	0	8,278
School of Journalism and Mass Communication						0
School of Law	24,856	1,339	0	69,912	88,129	198,363
School of Natural Resources	8,725	10,447	9,787	22,353	1,412	68,128
School of Nursing	5,242	2,816	2,462	49,741	1,543	64,953
School of Pharmacy	4,892	4,012	35,542	14,283	0	66,330
School of Public Health	18,789	5,489	44,306	69,618	4,974	153,113
School of Social Work	5,423	0	304	35,353	240	43,216
SUBTOTAL: Schools with Peers at Rutgers	**466,857**	**350,404**	**849,216**	**1,381,172**	**196,515**	**3,867,063**
						0
VP Provost	1,792	17,787			157,176	176,755
Other Academic Affairs						0
University Libraries	1,187	16,807	0	65,027	456,184	551,907
						0
School of Architecture	7,786	40,151	8,416	17,178	0	75,743
School of Dentistry	9,928	14,165	30,419	42,862	933	193,646
School of Medicine & Med Library	31,114	35,423	481,000	254,947	12,489	983,346
School of Kinesiology	4,336	1,365	5,201	6,617	264	20,338
GRAND TOTAL	**523,000**	**476,102**	**1,374,252**	**1,767,803**	**823,561**	**5,868,798**

Appendix D

Peer Assignable Square Feet by Room Use Code by School/College
UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

FALL 1997						
	Classrooms	Instructional Laboratories	Research Labs	Office	Library & Study	TOTAL ASF
College of Arts and Sciences	128,840	165,879	207,295	359,711	56,370	1,252,680
School of Business	6,780	0	0	57,210	8,343	103,146
School of Education	14,371	4,703	0	28,264	0	48,610
School of Engineering						
School of Information and Library Science	6,498	1,964	0	6,325	7,782	22,569
Institute of Government/Public Affairs						
School of Journalism and Mass Communication	16,390	3,315	0	8,492	1,359	30,060
School of Law	15,027	1,316	0	22,012	36,863	76,384
School of Natural Resources						
School of Nursing	7,284	2,281	611	26,834	1,669	42,443
School of Pharmacy	7,206	17,590	8,736	17,757	150	54,950
School of Public Health	13,967	4,665	41,470	102,605	5,942	190,011
School of Social Work	3,040	0	0	26,225	2,823	36,727
SUBTOTAL: Schools with Peers at Rutgers	**219,403**	**201,713**	**258,112**	**655,435**	**121,301**	**1,857,580**
VP Provost						0
Other Academic Affairs	527	510	10,215			11,252
University Libraries				31,995	457,869	520,799
School of Dentistry	7,376	10,918	17,518	46,353	2,134	136,397
School of Medicine & Med Library	14,547	54,300	272,695	296,490	4,252	781,840
Health Sci Admin		399		11,776	48,738	63,602
GRAND TOTAL	**241,853**	**267,840**	**558,540**	**1,042,049**	**634,294**	**3,371,470**

Appendix D

Peer Assignable Square Feet by Room Use Code by School/College

UNIVERSITY OF VIRGINIA

FALL 1997						
	Classrooms	Instructional Laboratories	Research Labs	Office	Library & Study	TOTAL ASF
College of Arts and Sciences	0	83,525	241,367	229,587	9,054	659,127
School of Business/Commerce	18,087	1,970	155	53,182	26,802	169,695
School of Education	0	7,921	4,244	34,473	5,101	57,510
School of Engineering	0	28,718	86,599	88,436	3,958	226,390
School of Information and Library Science						
Institute of Government/Public Policy						
School of Journalism and Mass Communication						
School of Law	23,835	7,597	0	54,893	76,220	188,243
School of Natural Resources						
School of Nursing	0	4,573	0	19,247	0	30,532
School of Pharmacy						
School of Social Work						
SUB TOTAL: Schools with Peers at Rutgers	**41,922**	**134,304**	**332,365**	**479,818**	**121,135**	**1,331,497**
VP Provost	155,649		34,542		0	190,191
Other Academic Affairs						
University Libraries	0	2,289	0	22,099	307,944	347,171
School of Architecture	0	22,161	0	14,941	0	42,612
Continuing Studies	0	302	0	60,861	0	72,196
School of Medicine & Med Library	18,807	12,511	348,097	257,522	39,041	705,974
GRAND TOTAL	**216,378**	**171,567**	**715,004**	**835,241**	**468,120**	**2,689,641**

Appendix D

Peer Assignable Square Feet by Room Use Code by School/College

UNIVERSITY OF WASHINGTON AT SEATTLE

FALL 1997						
	Classrooms	Instructional Laboratories	Research Labs	Office	Library & Study	TOTAL ASF
College of Arts and Sciences	6,585	280,334	335,114	456,045	3,770	1,270,014
School of Business	1,548	3,933		51,478	23,465	83,968
School of Education	326	8,298	250	41,382		64,248
School of Engineering	2,852	101,803	177,077	168,373	2,223	463,884
School of Information and Library Science						
Institute of Government/Public Affairs		7		12,477	223	17,588
School of Journalism and Mass Communication						
School of Law	9,087	2,487		33,360	42,682	91,943
School of Natural Resources	5,838	31,035	154,060	146,886	811	421,340
School of Nursing	56	5,237	7,471	38,486	1,669	54,910
School of Pharmacy		343	20,598	15,514		38,388
School of Public Health		762	38,481	65,882	123,171	233,624
School of Social Work				24,583		38,576
SUBTOTAL: Schools with Peers at Rutgers	**26,292**	**434,239**	**733,051**	**1,054,466**	**198,014**	**2,778,483**
VP Provost	3,466	7,838	28,883			40,187
Other Academic Affairs	273,366					295,109
University Libraries		23,303		69,469	508,478	627,668
School of Architecture	68	41,795	1,202	19,468		68,116
Continuing Studies/Educational Outreach	11,626	2,194		25,748		41,262
School of Dentistry		45,112	16,191	39,032	204	110,546
School of Medicine & Med Library	6,708	7,032	400,081	288,063	160	781,206
Health Sci Admin	41,202	36,331	24,169		661	210,331
GRAND TOTAL	**362,728**	**597,844**	**1,203,577**	**1,496,246**	**707,517**	**4,952,908**

Appendix D

Peer Assignable Square Feet by Room Use Code by School/College
UNIVERSITY OF WISCONSIN AT MADISON

FALL 1997						
	Classrooms	Instructional Laboratories	Research Labs	Office	Library & Study	TOTAL ASF
College of Arts and Sciences	49,909	378,014	911,105	991,321	57,295	2,918,921
School of Business	757	4,019	0	77,575	5,250	96,609
School of Education	21,355	115,180	21,848	172,111	23,115	493,898
School of Engineering	2,277	98,985	254,420	196,942	47,987	618,197
School of Information and Library Science						
Institute of Government/Public Policy						
School of Journalism and Mass Communication						
School of Law	13,434	5,520	0	41,639	51,329	114,128
School of Natural Resources						
School of Nursing	10,696	5,629	3,403	23,756	1,425	52,416
School of Pharmacy	3,041	10,852	37,238	22,253	0	79,206
School of Social Work						
SUBTOTAL: Schools with Peers at Rutgers	**101,469**	**618,199**	**1,228,014**	**1,525,597**	**186,401**	**4,373,375**
VP Provost	305,618					305,618
Other Academic Affairs						
University Libraries				56,201	541,920	618,945
Continuing Studies				28,888	209	30,469
School of Medicine & Med Library	10,558	51,594	307,849	340,098	64,541	888,019
School of Veterinary Medicine	3,032	14,293	37,832	34,434	1,977	192,251
GRAND TOTAL	**420,677**	**684,086**	**1,573,695**	**1,985,218**	**795,048**	**6,408,677**

Appendix E

ARTS & SCIENCES

Assignable Square Feet by Student by Institution

UNIVERSITY	School Student Enrollment	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley	20,813	0.3	8.2	40.7	27.4	8.4
Michigan	18,510	14.8	14.1	22.7	36.2	2.7
UNC Chapel Hill	15,062	9.3	11.3	14.3	25.8	3.9
Virginia	10,716	0.0	7.8	22.5	21.4	0.8
Washington	23,683	0.3	11.8	14.1	19.3	0.2
Wisconsin	24,796	2.0	15.2	36.7	40.0	2.3
MEAN	**18,930**	**4.5**	**11.4**	**25.2**	**28.3**	**3.0**
MEDIAN	**19,662**	**1.1**	**11.6**	**22.6**	**24.4**	**2.5**

Assignable Square Feet by Faculty by Institution

UNIVERSITY	School Faculty Count	Classrooms & Service in ASF/Fac	Instructional Labs & Serv in ASF/Fac	Research Labs & Serv in ASF/Fac	Offices & Serv for Acad Progs in ASF/Fac	Library & Study Space in ASF/Fac
UC Berkeley	1,576	4	109	537	362	111
Michigan	1,217	225	214	346	551	41
UNC Chapel Hill	773	182	220	280	503	76
Virginia	629	0	133	384	365	14
Washington	1,215	5	231	276	375	3
Wisconsin	1,112	45	340	819	891	52
MEAN	**1,087**	**77**	**208**	**440**	**508**	**49**
MEDIAN	**1,164**	**25**	**217**	**365**	**439**	**46**

Appendix E

BUSINESS

Assignable Square Feet by Student by Institution

UNIVERSITY	School Student Enrollment	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley	1,370	11.1	4.6	0.0	29.6	3.0
Michigan	2,734	16.0	2.4	2.6	28.5	14.8
UNC Chapel Hill	1,305	19.3	0.0	0.0	42.6	6.8
Virginia	1,195	15.1	1.6	0.1	44.5	22.4
Washington	2,103	0.7	1.9	0.0	24.5	11.2
Wisconsin	1,778	0.4	2.3	0.0	43.6	3.0
MEAN	**1,748**	**10.4**	**2.1**	**0.5**	**35.5**	**10.2**
MEDIAN	**1,574**	**13.1**	**2.1**	**0.0**	**36.1**	**9.0**

Assignable Square Feet by Faculty by Institution

UNIVERSITY	School Faculty Count	Classrooms & Service in ASF/Fac	Instructional Labs & Serv in ASF/Fac	Research Labs & Serv in ASF/Fac	Offices & Serv for Acad Progs in ASF/Fac	Library & Study Space in ASF/Fac
UC Berkeley	63	241	99	0	643	66
Michigan	166	264	40	43	469	244
UNC Chapel Hill	96	262	0	0	579	92
Virginia	127	142	16	1	419	211
Washington	132	12	30	0	390	178
Wisconsin	68	11	59	0	1,141	77
MEAN	**109**	**155**	**41**	**7**	**607**	**145**
MEDIAN	**112**	**192**	**44**	**0**	**524**	**135**

Appendix E

COMMUNICATION, LIBRARY, AND INFORMATION SCIENCE

Assignable Square Feet by Student by Institution

UNIVERSITY	School Student Enrollment	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley (ILS)	60	0.0	33.9	35.9	115.8	17.9
UC Berkeley (JOU))	100	0.0	43.1	0.0	42.4	26.0
UCB Average		**0.0**	**38.5**	**17.9**	**79.1**	**21.9**
Michigan (ILS)	204	**19.0**	**16.8**	**3.7**	**49.8**	**0.4**
UNC Chapel Hill (ILS)	238	23.9	12.4	0.0	28.2	38.1
UNC Chapel Hill (JOU)	842	13.2	11.5	0.0	24.6	1.6
UNC Average		**18.5**	**12.0**	**0.0**	**26.4**	**19.9**
MEAN		**12.5**	**22.4**	**7.2**	**51.8**	**14.1**
MEDIAN		**19.0**	**16.8**	**3.7**	**49.8**	**19.9**

Assignable Square Feet by Faculty by Institution

UNIVERSITY	School Faculty Count	Classrooms & Service in ASF/Fac	Instructional Labs & Serv in ASF/Fac	Research Labs & Serv in ASF/Fac	Offices & Serv for Acad Progs in ASF/Fac	Library & Study Space in ASF/Fac
UC Berkeley (ILS)	8	0	255	269	869	134
UC Berkeley (JOU))	11	0	392	0	385	236
UC B Average		**0**	**323**	**134**	**627**	**185**
Michigan (ILS)	20	**194**	**171**	**38**	**508**	**4**
UNC Chapel Hill (ILS)	37	154	80	0	181	245
UNC Chapel Hill (JOU)	33	336	294	0	627	41
UNC Average		**245**	**187**	**0**	**404**	**143**
MEAN		**146**	**227**	**57**	**513**	**111**
MEDIAN		**194**	**187**	**38**	**508**	**143**

Appendix E

EDUCATION

Assignable Square Feet by Student by Institution

UNIVERSITY	School Student Enrollment	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley	419	1.6	12.2	43.4	74.9	1.6
Michigan	608	27.0	13.3	4.2	100.4	5.2
UNC Chapel Hill	538	25.7	8.3	0.0	52.8	0.0
Virginia	967	0.0	8.2	4.4	35.6	5.3
Washington	616	0.5	13.5	0.4	67.2	0.0
Wisconsin	3,893	5.5	29.6	5.6	44.2	5.9
MEAN	**1,174**	**10.1**	**14.2**	**9.7**	**62.5**	**3.0**
MEDIAN	**612**	**3.6**	**12.7**	**4.3**	**60.0**	**3.4**

Assignable Square Feet by Faculty by Institution

UNIVERSITY	School Faculty Count	Classrooms & Service in ASF/Fac	Instructional Labs & Serv in ASF/Fac	Research Labs & Serv in ASF/Fac	Offices & Serv for Acad Progs in ASF/Fac	Library & Study Space in ASF/Fac
UC Berkeley	33	21	155	551	950	20
Michigan	62	264	130	41	985	51
UNC Chapel Hill	85	163	53	0	334	0
Virginia	108	0	73	39	319	47
Washington	75	4	111	3	552	0
Wisconsin	134	159	860	163	1,284	173
MEAN	**83**	**102**	**230**	**133**	**737**	**48**
MEDIAN	**80**	**90**	**120**	**40**	**751**	**34**

Appendix E

ENGINEERING

Assignable Square Feet by Student by Institution

UNIVERSITY	School Student Enrollment	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley	4,612	0.4	19.8	66.5	50.4	23.3
Michigan	6,684	9.0	7.1	48.7	44.0	1.0
UNC Chapel Hill						
Virginia	2,323	0.0	12.4	37.3	38.1	1.7
Washington	2,636	1.1	38.6	67.2	63.9	0.8
Wisconsin	4,489	0.5	22.1	56.7	43.9	10.7
MEAN	**4,149**	**2.2**	**20.0**	**55.3**	**48.0**	**7.5**
MEDIAN	**4,489**	**0.5**	**19.8**	**56.7**	**44.0**	**1.7**

Assignable Square Feet by Faculty by Institution

UNIVERSITY	School Faculty Count	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley	198	8	373	1,253	950	438
Michigan	320	188	149	1,017	919	22
UNC Chapel Hill						
Virginia	169	0	170	512	523	23
Washington	249	11	409	711	676	9
Wisconsin	163	14	607	1,561	1,208	294
MEAN	**220**	**44**	**341**	**1,011**	**855**	**157**
MEDIAN	**198**	**11**	**373**	**1,017**	**919**	**23**

Appendix E

JOURNALISM & MASS COMMUNICATION

Assignable Square Feet by Student by Institution

UNIVERSITY	School Student Enrollment	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley	100	0.0	43.1	0.0	42.4	26.0
Michigan						
UNC Chapel Hill	842	13.2	11.5	0.0	24.6	1.6
Virginia						
Washington						
Wisconsin						
MEAN	**471**	**6.6**	**27.3**	**0.0**	**33.5**	**13.8**
MEDIAN	**471**	**6.6**	**27.3**	**0.0**	**33.5**	**13.8**

Assignable Square Feet by Faculty by Institution

UNIVERSITY	School Faculty Count	Classrooms & Service in ASF/Fac	Instructional Labs & Serv in ASF/Fac	Research Labs & Serv in ASF/Fac	Offices & Serv for Acad Progs in ASF/Fac	Library & Study Space in ASF/Fac
UC Berkeley	11	0	392	0	385	236
Michigan						
UNC Chapel Hill	33	336	294	0	627	41
Virginia						
Washington						
Wisconsin						
MEAN	**22**	**168.1**	**343.0**	**0.0**	**506.4**	**138.7**
MEDIAN	**22**	**168.1**	**343.0**	**0.0**	**506.4**	**138.7**

Appendix E

LAW

Assignable Square Feet by Student by Institution

UNIVERSITY	School Student Enrollment	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley	891	0.0	16.4	0.8	63.3	84.6
Michigan	1,073	23.2	1.2	0.0	65.2	82.1
UNC Chapel Hill	686	26.3	1.9	0.0	41.5	61.3
Virginia	1,146	20.8	6.6	0.0	47.9	66.5
Washington	551	16.5	4.5	0.0	60.5	77.5
Wisconsin	882	15.2	6.3	0.0	47.2	58.2
MEAN	**872**	**17.0**	**6.2**	**0.1**	**54.3**	**71.7**
MEDIAN	**887**	**18.6**	**5.4**	**0.0**	**54.2**	**72.0**

Assignable Square Feet by Faculty by Institution

UNIVERSITY	School Faculty Count	Classrooms & Service in ASF/Fac	Instructional Labs & Serv in ASF/Fac	Research Labs & Serv in ASF/Fac	Offices & Serv for Acad Progs in ASF/Fac	Library & Study Space in ASF/Fac
UC Berkeley	49	0	299	15	1,151	1,537
Michigan	70	355	19	0	999	1,259
UNC Chapel Hill	48	376	27	0	594	876
Virginia	90	265	84	0	610	847
Washington	47	193	53	0	710	908
Wisconsin	27	498	204	0	1,542	1,901
MEAN	**55**	**281**	**114**	**2**	**934**	**1,221**
MEDIAN	**49**	**310**	**69**	**0**	**854**	**1,084**

Appendix E

NATURAL RESOURCES/AGRICULTURE

Assignable Square Feet by Student by Institution

UNIVERSITY	School Student Enrollment	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley	1,013	0.0	9.9	183.2	26.1	28.5
Michigan	631	13.8	16.6	15.5	35.4	2.2
UNC Chapel Hill						
Virginia						
Washington	805	7.3	38.6	191.4	182.5	1.0
Wisconsin						
MEAN	**816**	**7.0**	**21.7**	**130.0**	**81.3**	**10.6**
MEDIAN	**805**	**7.3**	**16.6**	**183.2**	**35.4**	**2.2**

Assignable Square Feet by Faculty by Institution

UNIVERSITY	School Faculty Count	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley	12	0	836	15,467	2,203	2,402
Michigan	38	230	275	258	588	37
UNC Chapel Hill						
Virginia						
Washington	142	41	219	1,085	1,034	6
Wisconsin						
MEAN	**64**	**90**	**443**	**5,603**	**1,275**	**815**
MEDIAN	**38**	**41**	**275**	**1,085**	**1,034**	**37**

Appendix E

NURSING

Assignable Square Feet by Student by Institution

UNIVERSITY	School Student Enrollment	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley						
Michigan	798	6.6	3.5	3.1	62.3	1.9
UNC Chapel Hill	470	13.8	4.4	1.3	56.9	3.6
Virginia	445	0.0	10.3	0.0	43.3	0.0
Washington	421	0.1	12.4	17.7	91.4	4.0
Wisconsin	571	18.7	9.9	6.0	41.6	2.5
MEAN	**541**	**7.9**	**8.1**	**5.6**	**59.1**	**2.4**
MEDIAN	**470**	**6.6**	**9.9**	**3.1**	**56.9**	**2.5**

Assignable Square Feet by Faculty by Institution

UNIVERSITY	School Faculty Count	Classrooms & Service in ASF/Fac	Instructional Labs & Serv in ASF/Fac	Research Labs & Serv in ASF/Fac	Offices & Serv for Acad Progs in ASF/Fac	Library & Study Space in ASF/Fac
UC Berkeley						
Michigan	75	70	38	33	663	21
UNC Chapel Hill	68	96	31	9	393	25
Virginia	31	0	148	0	621	0
Washington	104	1	50	72	370	16
Wisconsin	18	594	313	189	1,320	79
MEAN	**59**	**152**	**116**	**61**	**673**	**28**
MEDIAN	**68**	**70**	**50**	**33**	**621**	**21**

Appendix E

PHARMACY

Assignable Square Feet by Student by Institution

UNIVERSITY	School Student Enrollment	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley						
Michigan	289	16.9	13.9	123.0	49.4	0.0
UNC Chapel Hill	506	14.2	34.8	17.6	37.0	0.3
Virginia						
Washington	336	0.0	1.0	61.3	46.2	0.0
Wisconsin	335	9.1	32.4	111.2	66.4	0.0
MEAN	**367**	**10.1**	**20.5**	**78.3**	**49.7**	**0.1**
MEDIAN	**336**	**11.7**	**23.1**	**86.2**	**47.8**	**0.0**

Assignable Square Feet by Faculty by Institution

UNIVERSITY	School Faculty Count	Classrooms & Service in ASF/Fac	Instructional Labs & Serv in ASF/Fac	Research Labs & Serv in ASF/Fac	Offices & Serv for Acad Progs in ASF/Fac	Library & Study Space in ASF/Fac
UC Berkeley						
Michigan	54	91	74	658	265	0
UNC Chapel Hill	59	122	298	151	317	3
Virginia						
Washington	56	0	6	368	277	0
Wisconsin	26	117	417	1,432	856	0
MEAN	**49**	**82**	**199**	**652**	**429**	**1**
MEDIAN	**55**	**104**	**186**	**513**	**297**	**0**

Appendix E

PLANNING, PUBLIC POLICY, AND GOVERNMENT

Assignable Square Feet by Student by Institution

UNIVERSITY	School Student Enrollment	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley	103	0.0	1.6	0.0	66.9	21.0
Michigan	107	5.2	0.0	0.0	64.3	0.0
UNC Chapel Hill						
Virginia						
Washington	196	0.0	0.0	0.0	63.7	1.1
Wisconsin						
MEAN	**135**	**1.7**	**0.6**	**0.0**	**65.0**	**7.4**
MEDIAN	**105**	**0.0**	**0.0**	**0.0**	**64.3**	**1.1**

Assignable Square Feet by Faculty by Institution

UNIVERSITY	School Faculty Count	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley	12	0	14	0	574	181
Michigan	12	46	0	0	573	0
UNC Chapel Hill	36	0	0	0	0	0
Virginia						
Washington	24	0	0	0	520	9
Wisconsin						
MEAN	**21**	**12**	**4**	**0**	**417**	**47**
MEDIAN	**18**	**0**	**0**	**0**	**573**	**5**

Appendix E

PUBLIC HEALTH

Assignable Square Feet by Student by Institution

UNIVERSITY	School Student Enrollment	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley	446	0.2	8.6	46.6	93.6	3.0
Michigan	794	23.7	6.9	55.8	87.7	6.3
UNC Chapel Hill	1,064	12.2	5.7	38.3	107.3	3.5
Virginia						
Washington	433	0.0	1.8	88.9	152.2	284.5
Wisconsin						
MEAN	**684**	**9.0**	**5.7**	**57.4**	**110.2**	**74.3**
MEDIAN	**620**	**6.2**	**6.3**	**51.2**	**100.4**	**4.9**

Assignable Square Feet by Faculty by Institution

UNIVERSITY	School Faculty Count	Classrooms & Service in ASF/Fac	Instructional Labs & Serv in ASF/Fac	Research Labs & Serv in ASF/Fac	Offices & Serv for Acad Progs in ASF/Fac	Library & Study Space in ASF/Fac
UC Berkeley	42	2	91	495	993	32
Michigan	99	190	55	448	703	50
UNC Chapel Hill	199	65	30	205	574	19
Virginia						
Washington	165	0	5	233	399	746
Wisconsin						
MEAN	**126**	**64**	**45**	**345**	**667**	**212**
MEDIAN	**132**	**34**	**43**	**340**	**639**	**41**

Appendix E

SOCIAL WORK

Assignable Square Feet by Student by Institution

UNIVERSITY	School Student Enrollment	Classrooms & Service in ASF/Stu	Instructional Labs & Serv in ASF/Stu	Research Labs & Serv in ASF/Stu	Offices & Serv for Acad Progs in ASF/Stu	Library & Study Space in ASF/Stu
UC Berkeley	233	1.8	2.8	22.0	47.5	3.0
Michigan	606	8.9	0.0	0.5	58.3	0.4
UNC Chapel Hill	236	12.9	0.0	0.0	110.7	12.8
Virginia						
Washington	458	0.0	0.0	0.0	53.7	0.0
Wisconsin						
MEAN	**383**	**5.9**	**0.7**	**5.6**	**67.5**	**4.1**
MEDIAN	**347**	**5.4**	**0.0**	**0.3**	**56.0**	**1.7**

Assignable Square Feet by Faculty by Institution

UNIVERSITY	School Faculty Count	Classrooms & Service in ASF/Fac	Instructional Labs & Serv in ASF/Fac	Research Labs & Serv in ASF/Fac	Offices & Serv for Acad Progs in ASF/Fac	Library & Study Space in ASF/Fac
UC Berkeley	15	28	44	341	737	47
Michigan	51	106	0	6	693	5
UNC Chapel Hill	65	47	0	0	402	46
Virginia						
Washington	56	0	0	0	439	0
Wisconsin						
MEAN	**47**	**45**	**11**	**87**	**568**	**25**
MEDIAN	**54**	**37**	**0**	**3**	**566**	**26**

Appendix F

HOUSING COMPARATIVE ANALYSIS

Housing Comparison Table for Rutgers**							
	Institution	**City**	**Enrollment: Fall 1999 Undergrad**	**Enrollment: Fall 1999 Graduate**	**Enrollment: Fall 1999 Total**	**Number of Beds ***	**% of All Students Living on Campus**
1	University of Minnesota	Twin Cities	26,968	12,218	39,186	5,336	13.6%
2	West Virginia University	Morgantown	15,417	6,898	22,315	3,400	15.2%
3	University of Florida	Gainesville	31,633	11,749	43,382	6,779	15.6%
4	Ohio State University	Columbus	36,092	11,911	48,003	9,000	18.7%
5	University of Wisconsin	Madison	25,616	11,000	36,616	7,975	21.8%
6	University of Georgia	Athens	24,040	6,872	30,912	7,933	25.7%
7	University of Maryland	College Park	24,028	7,423	31,451	8,359	26.6%
8	University of Miami	Coral Gables	8,628	5,087	13,715	3,793	27.7%
9	University of North Carolina	Chapel Hill	15,434	9,219	24,653	7,070	28.7%
10	University of Michigan	Ann Arbor	24,493	13,353	37,846	10,936	28.9%
11	University of Virginia	Charlottesville	13,570	8,863	22,433	6,875	30.6%
12	Pennsylvania State University	University Park	34,505	6,153	40,658	12,648	31.1%
13	Virginia Polytech & State Univ.	Blacksburg	21,810	3,618	25,428	8,682	34.1%
14	**RUTGERS UNIVERSITY**	**New Brunswick**	**27,799**	**7,509**	**35,308**	**13,769**	**39.0%**
15	Michigan State University	East Lansing	33,966	9,072	43,038	17,000	39.5%
16	University of Delaware	Newark	14,500	3,108	17,608	7,100	40.3%
17	University of Massachusetts	Amherst	19,372	5,659	25,031	11,000	43.9%
18	Syracuse University	Syracuse	10,685	3,983	14,668	6,700	45.7%
19	University of Connecticut	Storrs	11,987	3,347	15,334	8,046	52.5%
	AVERAGE						***30.5%***
	* Number of beds includes dorms, apartments, Greek houses,and married housing; excludes special interest houses.						
	** Most data from Barron's 2001 Guide						

Appendix G

PARKING COMPARATIVE ANALYSIS

Parking Comparison Table for Rutgers							
	Institution	**City**	**Parking Spaces**	**Students per Parking Space**	**Enrollment: Fall 1999 Undergrad**	**Enrollment: Fall 1999 Graduate**	**Enrollment: Fall 1999 Total**
1	University of North Carolina	Chapel Hill	16,210	1.52	15,434	9,219	24,653
2	University of Virginia	Charlottesville	14,120	1.59	13,570	8,863	22,433
3	Syracuse University	Syracuse	8,776	1.67	10,685	3,983	14,668
4	University of Georgia	Athens	18,300	1.69	24,040	6,872	30,912
5	University of Maryland	College Park	18,368	1.71	24,028	7,423	31,451
6	University of Michigan	Ann Arbor	22,000	1.72	24,493	13,353	37,846
7	**RUTGERS UNIVERSITY**	**New Brunswick**	**19,453**	**1.82**	**27,799**	**7,509**	**35,308**
8	Ohio State University	Columbus	25,168	1.91	36,092	11,911	48,003
9	University of Miami	Coral Gables	7,000	1.96	8,628	5,087	13,715
10	University of Delaware	Newark	8,900	1.98	14,500	3,108	17,608
11	Virginia Polytech & State Univ.	Blacksburg	12,114	2.10	21,810	3,618	25,428
12	University of Massachusetts	Amherst	11,059	2.26	19,372	5,659	25,031
13	Pennsylvania State University	University Park	15,000	2.71	34,505	6,153	40,658
14	University of Wisconsin	Madison	11,600	3.16	25,616	11,000	36,616
	AVERAGES including Rutgers		***14,862***	***1.99***			
	Note: Parking space data from Ayers Saint Gross Comparing Campuses website. Enrollments from Barron's and Peterson's and Rutgers Fact Book. Rutgers Parking space data collected by Rutgers Physical & Capital Planning.						