CLEMSON UNIVERSITY

Research and Learning Capital Plan

December 06, 2019

AECOM | Strategy+

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TABLE OF CONTENTS :
PART 1 - SPACE

01. EXECUTIVE SUMMARY **05**

SPACE BASELINE FOR MAIN CAMPUS 06
SPACE PROJECTIONS 08
PRIORITY PROGRAMS 10
PROGRAM MOVES 12
PROPOSED CAPITAL SCHEDULE 13

02. INPUTS AND SOURCES **15**

ENROLLMENT GROWTH (IR) 16
FACULTY GROWTH (IR) 17
EXPENDITURE GROWTH (RESEARCH) 18
CLEMSONFORWARD GOALS (PROVOST) 19
PRIORITY PROGRAM SURVEY (DEANS + IR) 20

03. CALCULATION OF SPACE **23**

PROGRAM INTENSITY 24
STANDARDS AND COMPARISONS 26
ASSUMPTIONS 28

04. CAPITAL PROJECT SEQUENCING **31**

CPIP 32
RENOVATION EQUIVALENT SPACE 33
INCREASED UTILIZATION 34
SEQUENCE TO KEEP UP WITH DEMAND 35

1

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

SPACE BASELINE FOR MAIN CAMPUS

Strategy+ engaged with Clemson University to create a 15-year capital plan. The capital plan was created through the analysis of the existing Clemson University conditions and future projected academic needs. The project started in June 2018 and completed in November 2019. The project consisted of two phases: phase one focused on the sequencing of a 15-year capital plan to accommodate future growth needs and phase two focused on the programmatic sequencing between new renovations and construction projects.

The project process consisted of bi-monthly coordination calls with Strategy+ and monthly on-campus engagements. The on-campus engagements consisted of workshops, campus walkthroughs, surveys, and executive team presentations to establish the needs of the university from the perspective of all participating colleges. This report is structured to establish the current Clemson college conditions, goals, and needs of each college. Projected space needs were then calculated based on enrollment growth and change projections in priority programs, changes in learning pedagogy, faculty and staff projections, growth and change in research expenditures and improvements in space efficiency and utilization.

The current space types of Clemson are separated into five categories: learning, research, library/non-scheduled study, office, and support. Space data for each category, on a room-by-room basis for each building is housed on Clemson's in-house space database.

This study was confined to an analysis of this data and projects of capital projects on the main campus. It did not include other campus locations. This study also does not include assessment of housing, student union, sports and recreation facilities.

To establish current space requirements an assessment has been made for each space type category on the basis of current enrollment, research and utilization data to project 2019 benchmark areas. These calculations reflect the areas Clemson should have based on their current needs. It is important to note that some of the current space areas have a modifier to take into account suitability, new building areas, and assumed utilization.

> **" Clemson has a deficit range of 2% - 9% "**

Future state projections are based on 2% undergraduate and 4% graduate growth over the next 15 years. Additionally, the benchmark areas are based on South Caroline Council on Higher Education standards for space and utilization.

The projected areas for learning, research, library / non-scheduled study, office and support indicate that Clemson University has a current deficit range of 2% - 9% for all space types. This indicates that Clemson will need to strategize their capital plan to accommodate and alleviate these space deficits fas well as accommodating future enrollment and research growth.

CURRENT SPACE SURPLUS / DEFICIT

	Current Space* NASF (2018)	2019 Benchmark Area NASF	Surplus / Deficit NASF	% Surplus / Deficit
Learning	**595,292**	**644,607**	**-49,315**	**-8%**
Classroom	236,698			
Teaching Labs	275,583			
Service	83,011			
Research	**355,808*** **	**381,810**	**-26,002**	**-7%**
Research Labs	278,686			
Research Service	77,122			
Library / Non-scheduled Study	**205,593**	**224,559**	**-18,966**	**-9%**
Non-scheduled Study Space	205,593			
Stacks	15,114**			
Office	**830,666**	**847,260**	**-16,594**	**-2%**
Faculty Offices	196,110			
Staff and Other Offices	634,556			
Support	**709,932**	**752,888**	**-42,956**	**-6%**
Student Services	532,875			

Space Baseline Table

**Current space does not include areas from the new College of Business Building, Daniel Hall Renovations and Additions, Lehotsky Hall Renovations, Long Hall Renovations, and Martin Halls. Also does not reflect modifiers like, departmental to central scheduling*

***Areas not included in overall library space for benchmarking.*

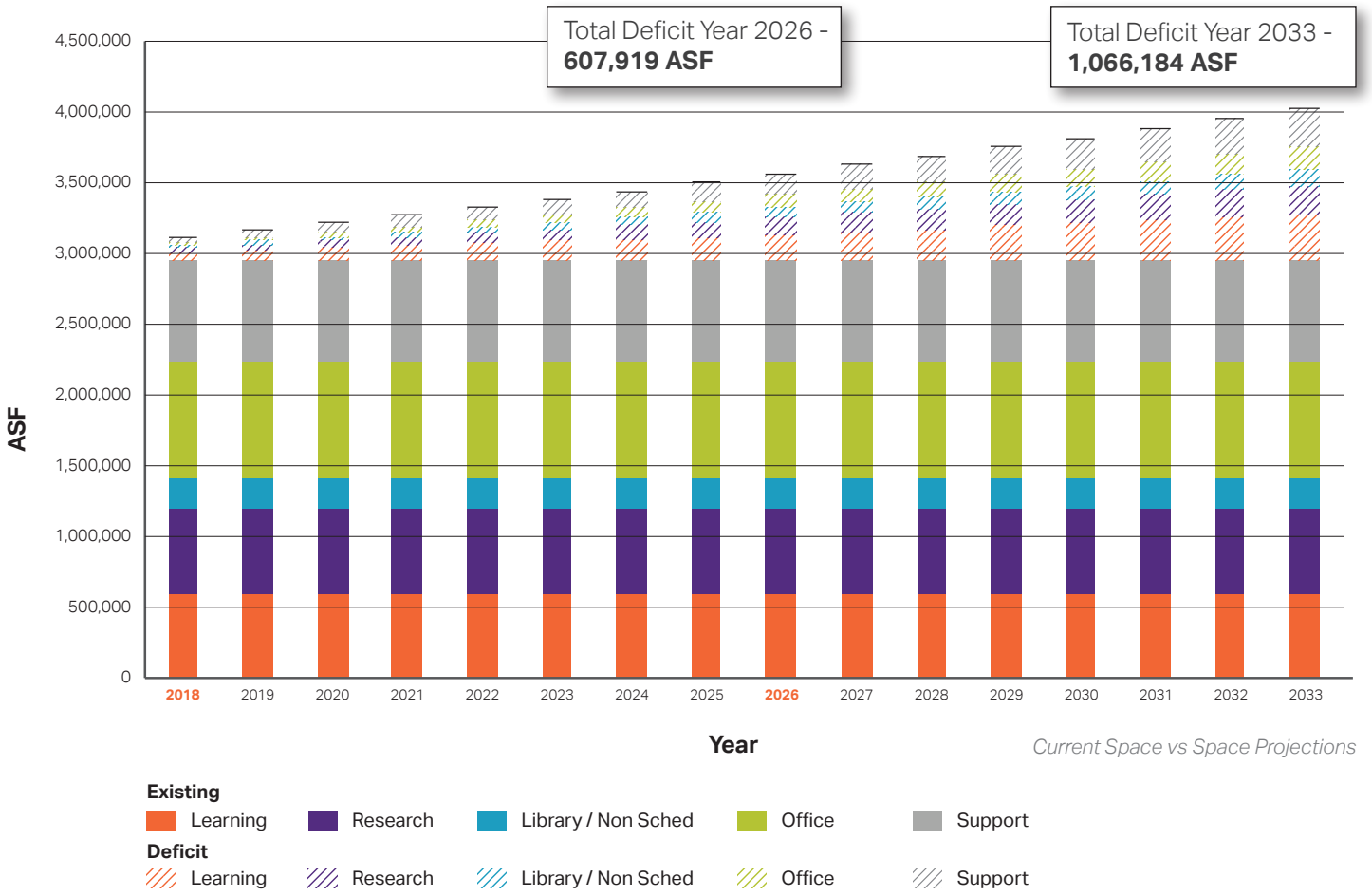
****Modified for suitability and assumed utilization*

Future space projections are based on 2% undergraduate and 4% graduate enrollment growth over the next 15 years.

Benchmark areas do not account for suitability or quality of existing space to meet existing academic and research needs.

Benchmark areas are based of South Carolina CHE standards for space and utilization.

SPACE PROJECTIONS



Current Space vs Space Projections

Space projections are used to illustrate the current and future facilities needs of Clemson University. The space projections are based on growth and change in student enrollment, research expenditures, student study time needs, faculty, and staff.

This growth and change data and metrics inform the space projections of each space type: learning, research, library / non-scheduled study space, office, and support. The combined values indicate the total spatial needs of Clemson. The deficit values below are expected if no new buildings are built or space is renovated.

Total Deficit by Year 2026: **607,919 ASF**
Total Deficit by Year 2033: **1,066,184 ASF**

As this is net square footage, the overall total, assuming an average net to gross of 65% is:
935,260 GSF by 2026
1,640,283 GSF by 2033

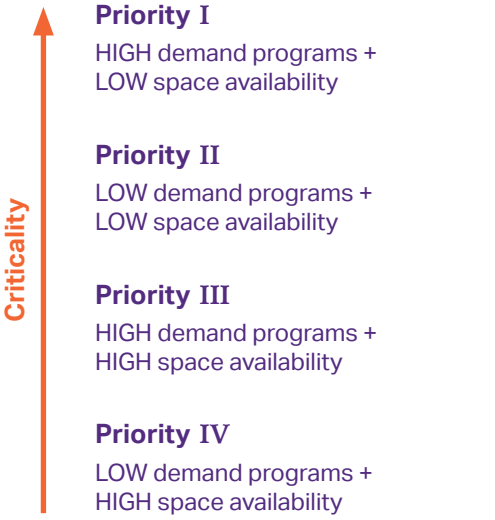
UNDERSTANDING PROGRAM PRIORITIES

A priority program list is created to understand which programs have the most need and most potential in the future growth plans of Clemson. This process sets up priority program relocations to coincide with the capital plan sequence.

Strategy+ engaged with project team and stakeholders through workshops and questionnaires to identify priority programs. This process captured a holistic picture of all academic asepcts integral to the future goals of each college and department.

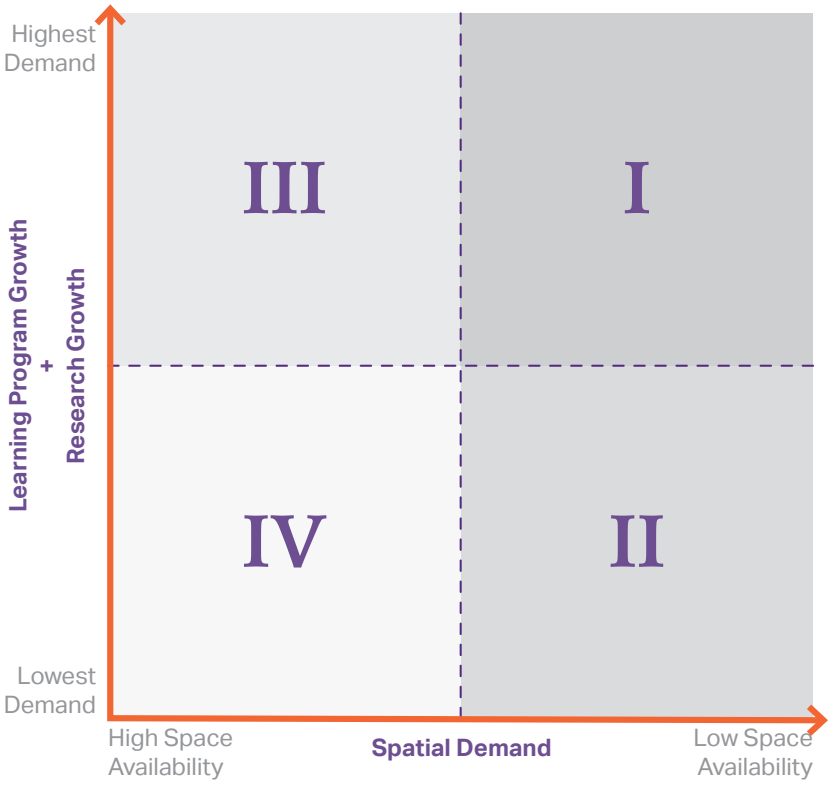
The Y-axis is the results of the Learning Program Growth scores or the Research Growth Scores. The X-axis is the results of the Spatial Demand scores. The higher the score on the Y-axis, the higher demand the program is based on learning and or research. The higher the score on the X-axis, the lower the available space for the program, which indicates a higher need to be prioritized.

The end result has the identified priority programs populated across the four quadrants This tool is set-up to help inform Clemson on what programs have more imminent needs. All programs identified are still considered priority, but this tool is to help differentiate priority within the priorities.



Weighing strategic growth metrics against the spatial demand, a quadrant system is used to determine the sequencing and priority of capital projects to support academic programs.

Quadrant Diagram



IDENTIFYING PRIORITY PROGRAMS

	College	Undergrad	Graduate	Research
	COLLEGE OF AGRICULTURE, FORESTRY AND LIFE SCIENCES	AGRIBUSINESS AGRICULTURAL EDUCATION ANIMAL & VETERINARY SCIENCES BIOLOGY ENTOMOLOGY ENVIRONMENTAL AND NATURAL RESOURCES, FOOD SCIENCE & HUMAN NUTRITION FOREST RESOURCE MANAGEMENT HORTICULTURE PACKAGING SCIENCE PLANT & ENVIRONMENTAL SCIENCES TURFGRASS WILDLIFE & FISHERIES	AGRICULTURAL EDUCATION ANIMAL & VETERINARY SCIENCES BIOLOGY ENTOMOLOGY FOOD NUTRITION & CULINARY SCIENCES FOOD TECHNOLOGY FOREST RESOURCES MANAGEMENT PACKAGING SCIENCE PLANT AND ENVIRONMENTAL SCIENCES WILDLIFE & FISHERIES	WATER MANAGEMENT
	COLLEGE OF ARCHITECTURE, ARTS AND HUMANITIES	ARCHITECTURE ART CONSTRUCTION SCIENCE & MANAGEMENT ENGLISH GENERAL EDUCATION LANGUAGE & INTERNATIONAL HEALTH, LANGUAGE & INTERNATIONAL TRADE PERFOMING ARTS & WOMEN'S LEADERSHIP PHILOSOPHY RELIGIOUS STUDIES WORLD CINEMA HISTORY	ARCHITECTURE DIGITAL HISTORY / HUMANITIES REAL ESTATE DEVELOPMENT	DESIGN BUILDING SYSTEMS HISTORY/HUMANITIES SUSTAINABILITY HEALTHCARE
	COLLEGE OF BEHAVIOURAL STUDIES AND HEALTH STUDIES	ARCHEOLOGY COMMUNITY HEALTH PSYCHOLOGY CRIMINAL JUSTICE NURSING PSYCHOLOGY PUBLIC HEALTH SCIENCES SOCIOLOGY SPORTS COMMUNICATION	APPLIED HEALTH RESEARCH & EVALUATION ARCHEOLOGY CLINICAL & TRANSLATIONAL RESEARCH CRIMINAL JUSTICE HEALTH SYSTEM SCIENCE PUBLIC ADMINISTRATION PARKS, RECREATION, & TOURISM MANAGEMENT MENTAL HEALTH TRAINING NURSING NURSING PRACTICE POLICY STUDIES PSYCHOLOGY SOCIOLOGY GERONTOLOGY	HEALTH RELATED RESEARCH - PHYSICAL, RURAL ECONOMIC & COMMUNITY HEALTH

Priority programs determined by each College are shown above. Establishing and assessing this list allows Clemson to understand how to prioritize programmatic moves in their capital schedule strategy to create opportunities for departmental colocation and to accommodate the growing needs of specific programs. This process gives an equal opportunity for each College to have them identify the programs they most wish to grow or change and have them assessed in relation to one another through the prioritization criteria and methodology.

Strategy+ engaged with the project team and stakeholders through workshops and questionnaires to curate and finalize this list of

College	Undergrad	Graduate	Research
COLLEGE OF BUSINESS	ACCOUNTING ECONOMICS FINANCIAL MANAGEMENT MARKETING PRE-BUSINESS MANAGEMENT	ACCOUNTING BRAND COMMUNICATIONS BUSINESS ADMINISTRATION	HIGH QUALITY JOURNAL PUBLICATION
COLLEGE OF EDUCATION	ELEMENTARY EDUCATION HUMAN RESOURCE DEVELOPMENT LEARNING & SYSTEMS IMPROVEMENT SCIENCE MATHEMATICS SCIENCE EDUCATION	ATHLETIC LEADERSHIP EDUCATIONAL ADMINISTRATION EDUCATIONAL SYSTEMS IMPROVEMENT SCIENCE INSTRUCTIONAL TECHNOLOGY LEARNING SCIENCES LITERACY SPECIAL EDUCATION SUPERVISION TEACHING & LEARNING	INTERDISCIPLINARY LEARNING SCIENCES, STEM
COLLEGE OF ENGINEERING, COMPUTING AND APPLIED SCIENCES	CHEMICAL ENGINEERING\ CIVIL ENGINEERING COMPUTER INFORMATION SYSTEMS COMPUTER SCIENCE ENVIRONMENTAL ENGINEERING INDUSTRIAL ENGINEERING MECHANICAL ENGINEERING	BIOMEDICAL ENGINEERING CHEMICAL ENGINEERING COMPUTER SCIENCE EARTH SCIENCE	ADVANCED MATERIALS & MANUFACTURING DATA ANALYTICS ELECTRFIICATION, ENERGY HEALTH INNOVATION SUSTAINABLE ENVIRONMENT AI
COLLEGE OF SCIENCE	BIOCHEMISTRY BIOLOGICAL SCIENCES CHEMISTRY GENERAL EDUCATION GENETICS MATHEMATICAL SCIENCES MICROBIOLOGY PHYSICS STATISTICS DATA & DECISION SCIENCE	BIOCHEMISTRY BIOLOGICAL SCIENCES GENETICS MICROBIOLOGY MOLUCULAR BIOLOGY	ADVANCED MATERIALS ASTROPHYSICS DATA & INFOMRATION SCIENCE GENOMICS & PRECISION MEDICINE HEALTH INNOVATION PLANETARY SCIENCES

priority programs. This program collection is the result of a holistic process to capture the essential each integral part of every college and department.

The tables on page 10-11 are created by highlighting programs with the largest enrollment and the fastest growing enrollment by undergraduate and graduate programs. Programs were also supplemented by the request of College Deans. The tables on page 10-11 identify the priority programs by each college and by academic type: undergraduate, graduate, and research.

PRIORITY PROGRAM MOVES

The 15-year capital plan sequences both renovations and new construction. This is supplemented by a deeper investigation into the types of spaces produced by these projections and the type of academic programs that can benefit from using them.

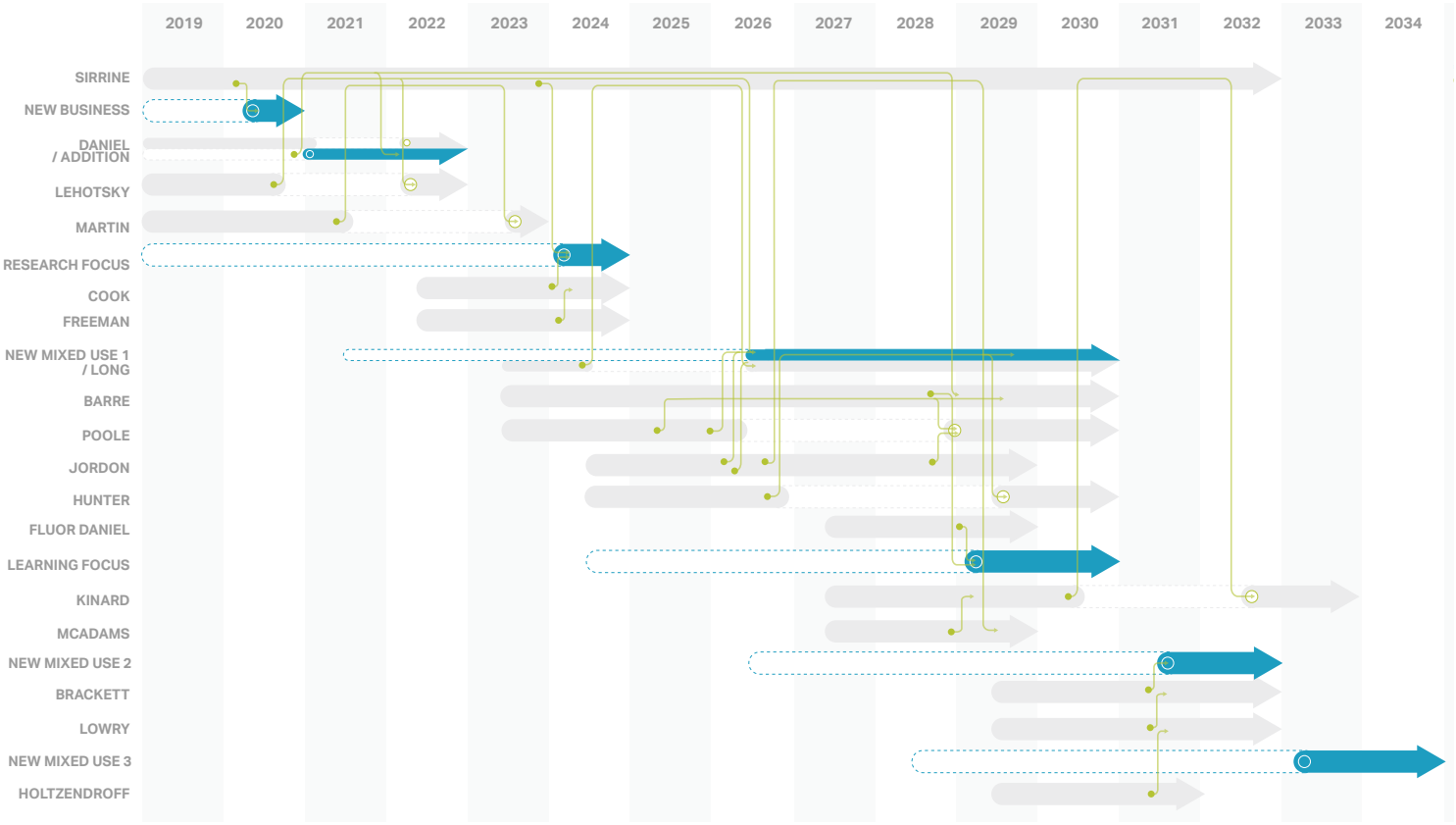
The capital plan creates an opportunity for Clemson to accommodate the growth of priority programs and for departments to maximize colocation opportunities. This also allows Clemson to create hubs of academic specialty with each renovation or new building.

The sequence of priority program moves is determined by the quadrant priority methodology. Identifying which programs have more urgent needs to grow or move informs program moves within the capital plan.

Sirrine plays a very important role in the capital program moves schedule. Sirrine has the capabilities of becoming an integral transition swing space for programs to temporarily move into as they await their new location.

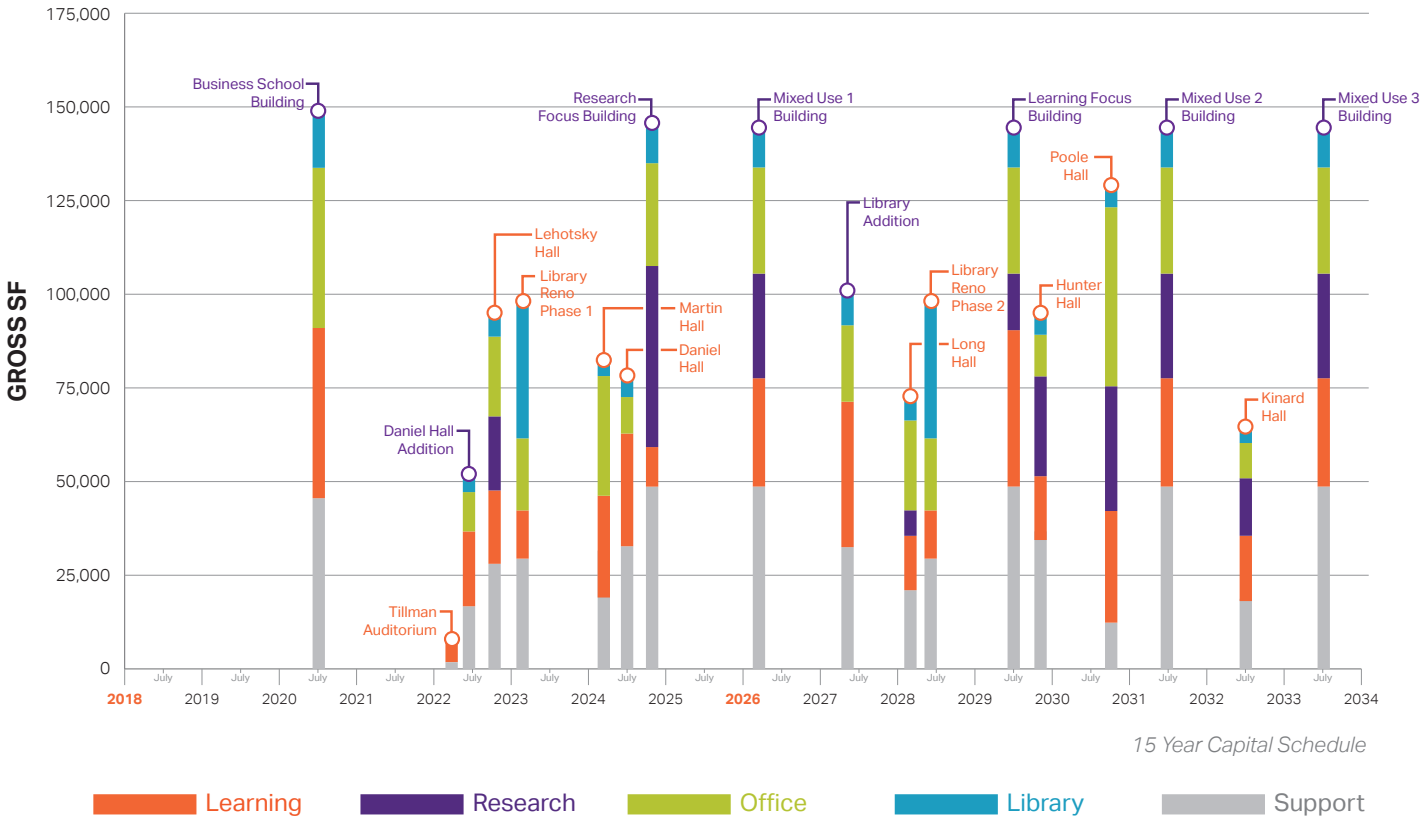
These moves allow programs to synergize, as well as creating larger open areas for programs to grow in their relevant buildings as others move out.

A detailed diagram of program moves is located



Priority Program Moves

CAPITAL SCHEDULE



Strategy+ and Clemson University worked closely together to establish a 15-year capital plan to accommodate the future goals and needs of the University. The product above, through months of workshops, engagements, interviews and site visits, addresses the issues of future space deficit and program moves aligned with the goals of ClemsonForward.

The capital plan projects shown above are each dissected by their space contributions in learning, research, office, library and support. The schedule combines CPIP projects, new renovations, and new construction projects. The capital plan assumes each new completed project will adhere to the state standard of a 67% utilization rate.

Ultimately, this series of planned relocations will create academic clusters focused on uniting College departments together and grouping interdisciplinary syngergies identified during the prioritization exercise.

"Each new completed project will adhere to the state standard of a 67% utilization rate"

EL HALL
Levi's

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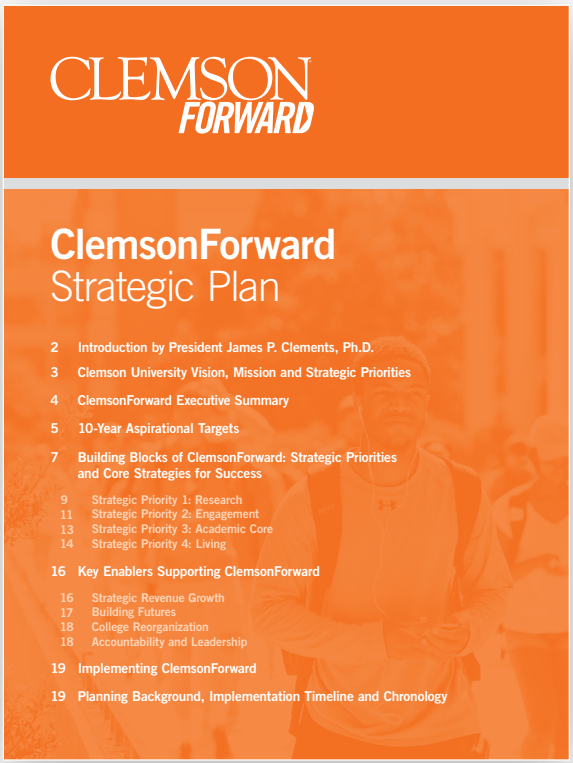
INPUTS AND SOURCES

INPUTS AND SOURCES

CLEMSONFORWARD GOALS



ClemsonForward Strategic Plan

The ClemsonForward strategic plan is the primary data source for establishing the future vision and goals of the university.

The metrics established by ClemsonForward allows Clemson to examine their current trends and develop, implement and monitor activites in response.

ClemsonFoward is broken into three main categories:

- Research
- Academic Core
- Learning / Living

Each of these categories set outs specific goals and targets for Clemson to aspire towards. As seen in the graph below.

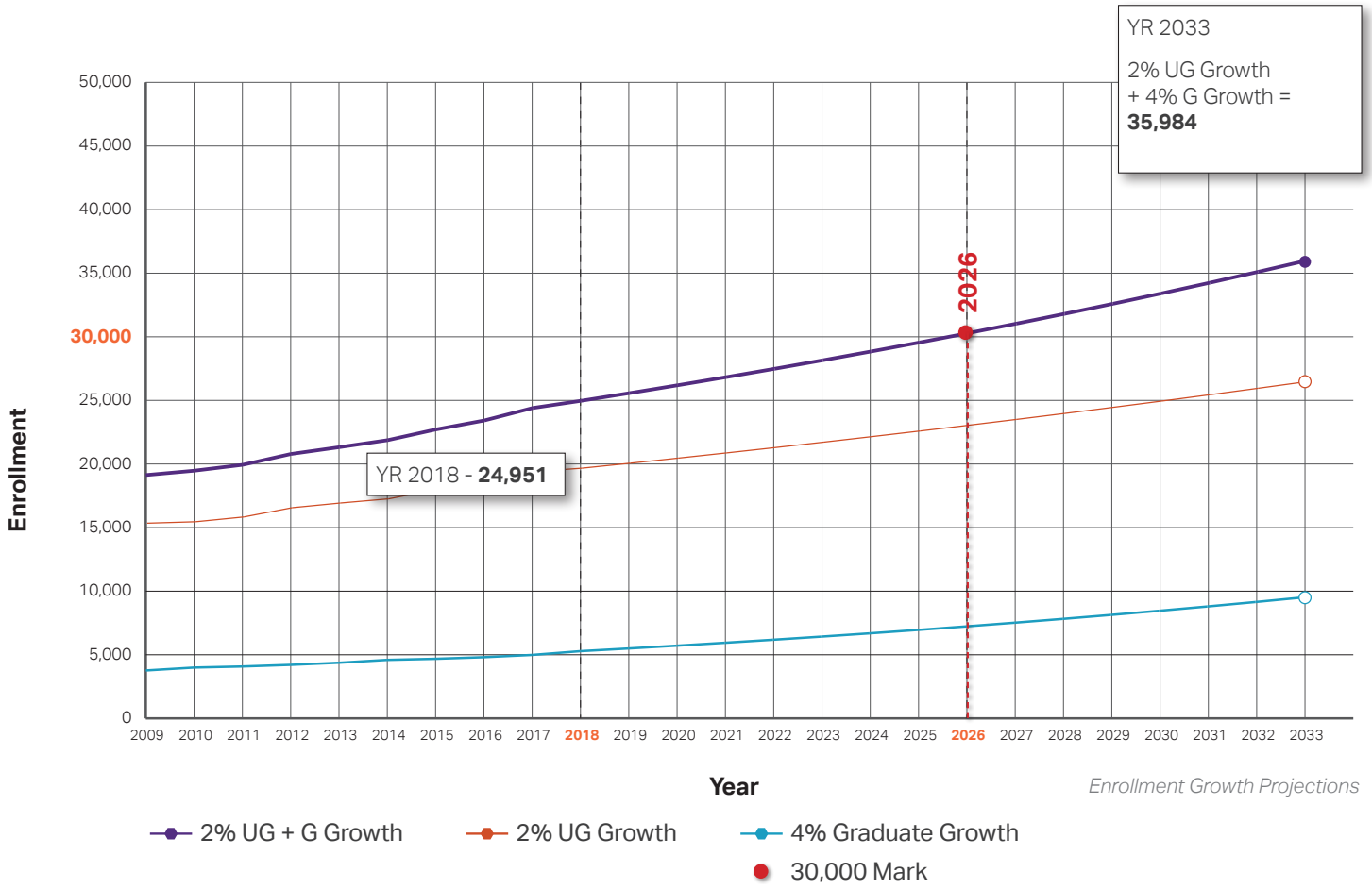
In addition, to these metrics, each college from Clemson has produced a dashboard to highlights each of their own targets according to the goals of ClemsonForward. These metrics and established goals are all considered in creating space projections, program priority and capital scheduling.

The key drivers for the projections of space and the scheduling of capital projects are the Research, Academic Core and Learning / Living goals set out in the ClemsonForward strategic plan.

RESEARCH	**Increase annual submission in research proposals by 80% to $1B**
	Increase externally-funded research expenditures to $100M/yr
	Increase annual production of nationally recognized forms of scholarship by 50%
ACADEMIC CORE	**Rank among the nation's top-10 public universities in undergraduate student success, as measured by freshman-to-sophomore retention and graduation rates**
	Increase doctoral degrees awarded by 50%
LEARNING / LIVING	**Enroll a student body that is at least 15% from underrepresented groups**
	Double # of all underrepresented instructional faculty members

ClemsonForward Strategic Goals

ENROLLMENT GROWTH



Enrollment Growth Projections

To establish space projections and a capital strategy plan for all departments and schools at Clemson University, multiple inputs, data points and sources were identified and integrated into a holistic calculation methodology. This methodology takes into account the grwoth needs of each College in conjuction with the ClemsonForward Strategic Plan.

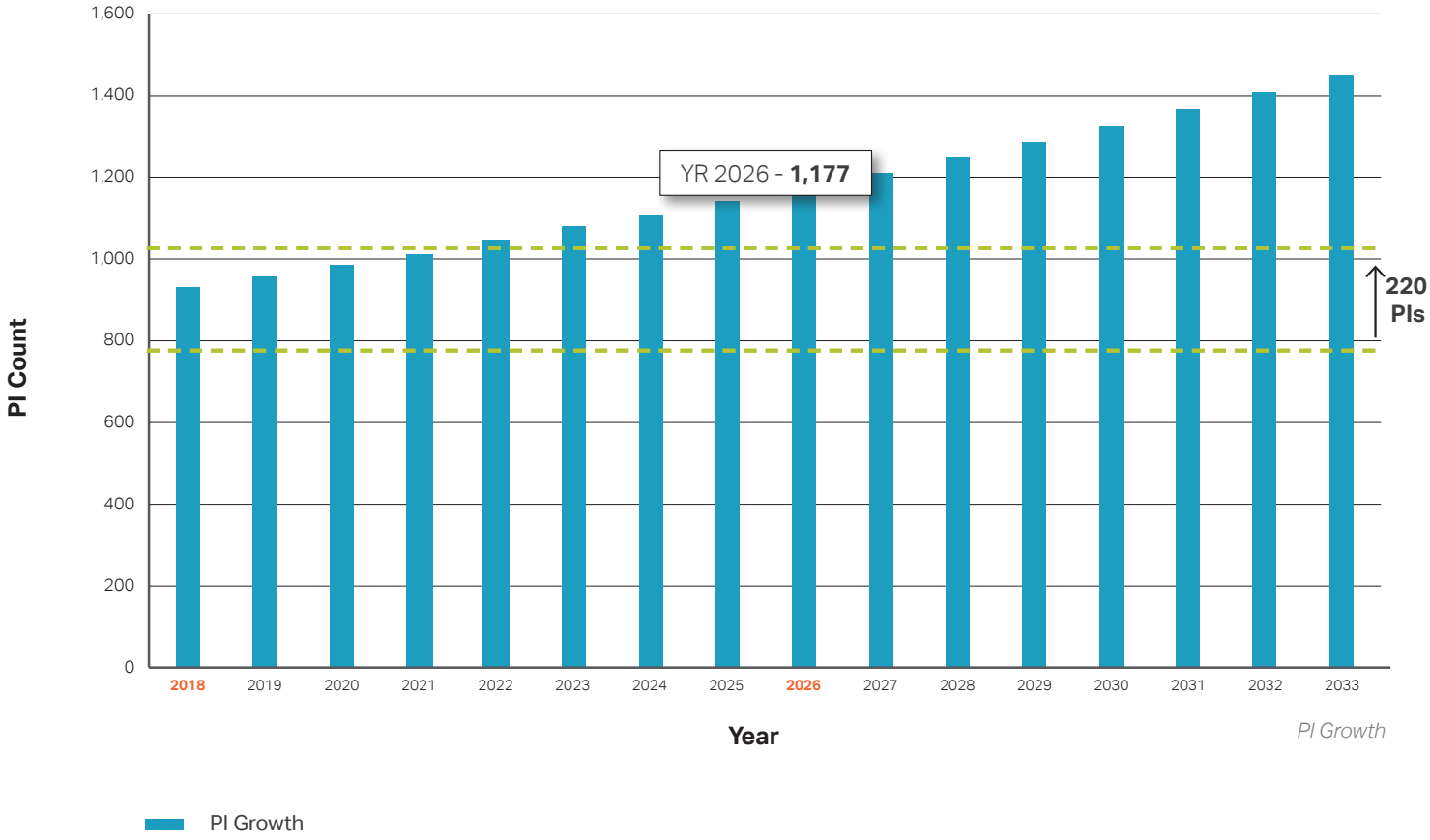
Working directly with Institutional Research, Strategy+ aligned enrollment data with ClemsonForward goals to project an enrollment growth scenario until 2033. This scenario used the following assumptions:

- Combined enrollment of Undergraduate and Graduate students of 30,000 by 2026
- Annual 2% UG growth and 4% Grad growth

These variables result in an enrollment of 35,984 by 2033.

Enrollment data is used for calculating learning, research, and library space in relation to priority program metrics.

FACULTY GROWTH



Alongside understanding how enrollment of students grow, faculty and PI growth will be equally as important. Faculty and research growth will be tied to understanding research space and office space requirements for the future.

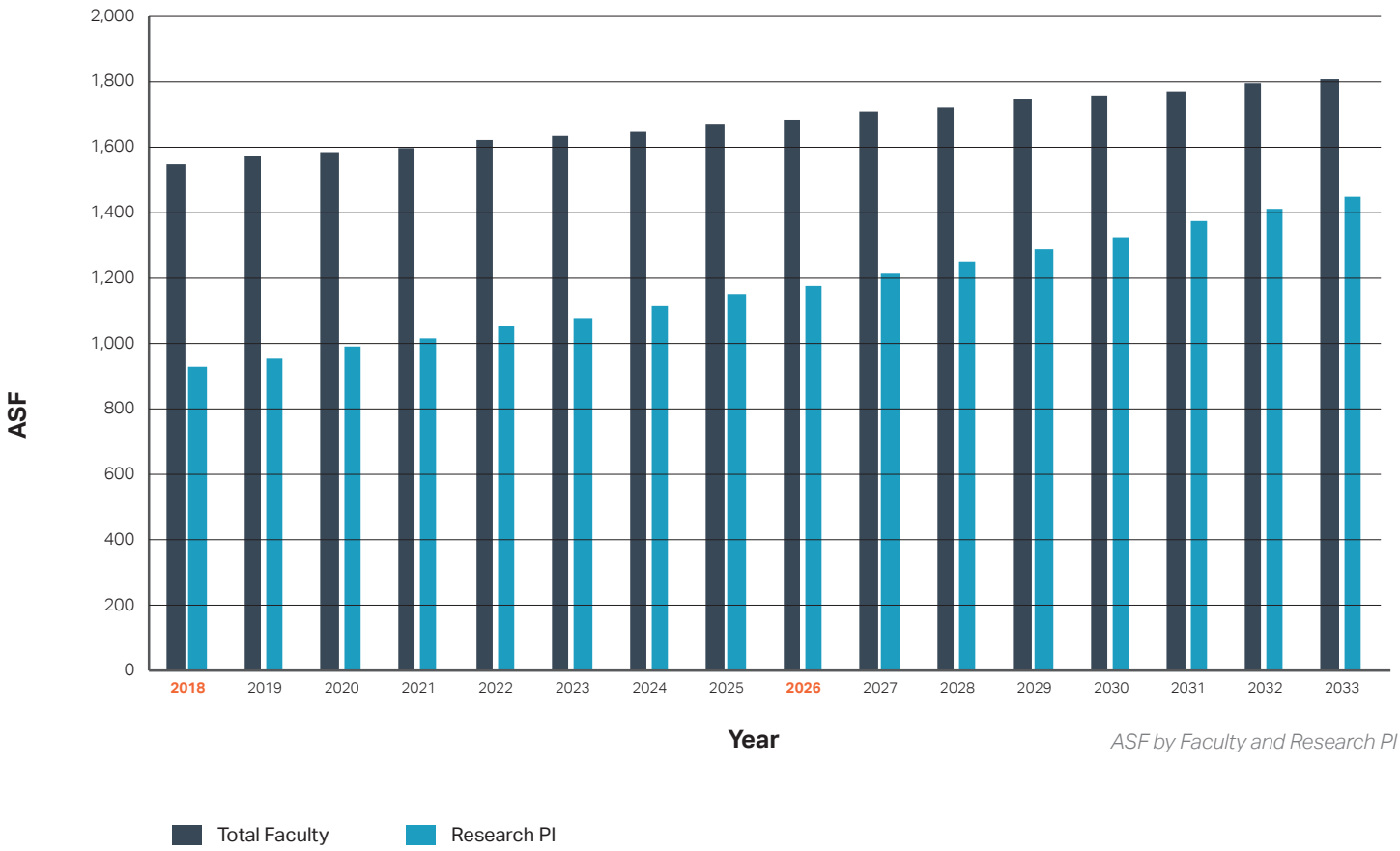
Faculty growth is designed to improve future student-faculty ratios for an improved learning experience. PI growth is designed to maintain growth in research proposals, and expenditures and awards in line with ClemsonForward goals and maintenance of Clemson's R1 status.

This growth model utilizes the following data:

- Institutional Research – Enrollment
- FY2019 Research Report Card
- ClemsonForward Dashboards
- Faculty and PI counts
- Strategic Enrollment Plan

In 2026, Clemson is projected to have 1,177 PI's and aims to grow by 220 PI's according to the Strategic Enrollment Plan.

EXPENDITURE / RESEARCH GROWTH



ASF by Faculty and Research PI

Faculty and PI population growth has a direct relationship to growth in research expenditures. Projections of research space needs and strategic research allocations can be achieved by analyzing the types of research produced by each department, College and PI.

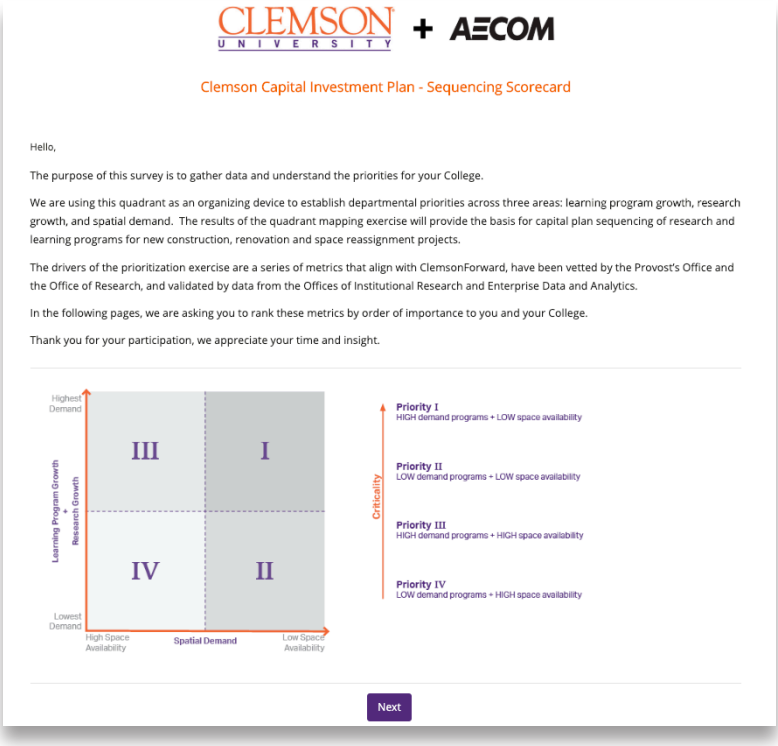
This data insight produces trends in what is proving to be successful in varying research areas and what needs to be prioritized as future Clemson Research goals.

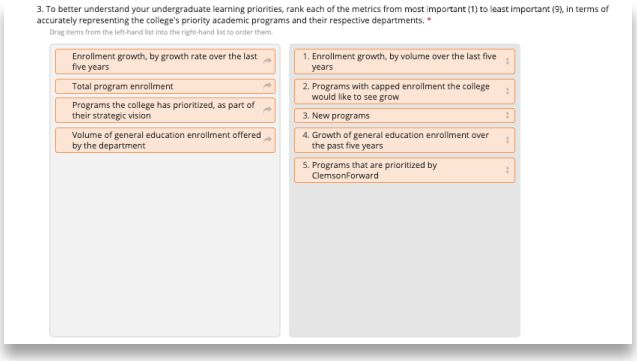
The graph above illustrates growth in faculty on the basis of current faculty / student ratios, it considers all new hires to be PI or research support. This growth is also aimed to improve the student faculty ratio and improve staff needed for support.

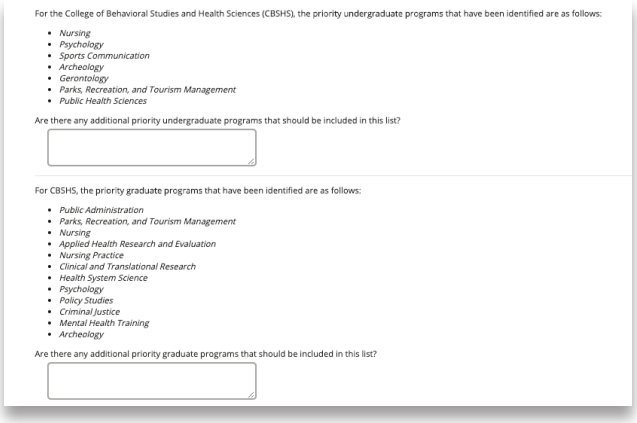
Expenditure and research data uses the following data sources:

- FY13-FY18 Expenditures Research Data
- FY2019 Research Report Card
- College Research Lab Space and Research Productivity
- ClemsonForward Dashboards
- Institutional Research – Enrollment Data

PRIORITY PROGRAM SURVEY







Priority Program Survey for College Deans

In August 2019, Strategy+ engaged the stakeholder leadership team of Clemson with a priority program survey. The goal was to understand holistically how each stakeholder prioritized their college in terms of learning program growth, research growth and spatial demands. The results provided insights into specific metrics to be used in assessing the future space needs of Clemson.

These results informed a quadrant mapping exercise that drove the capital plan sequencing of research and learning programs in new constructions and renovations.

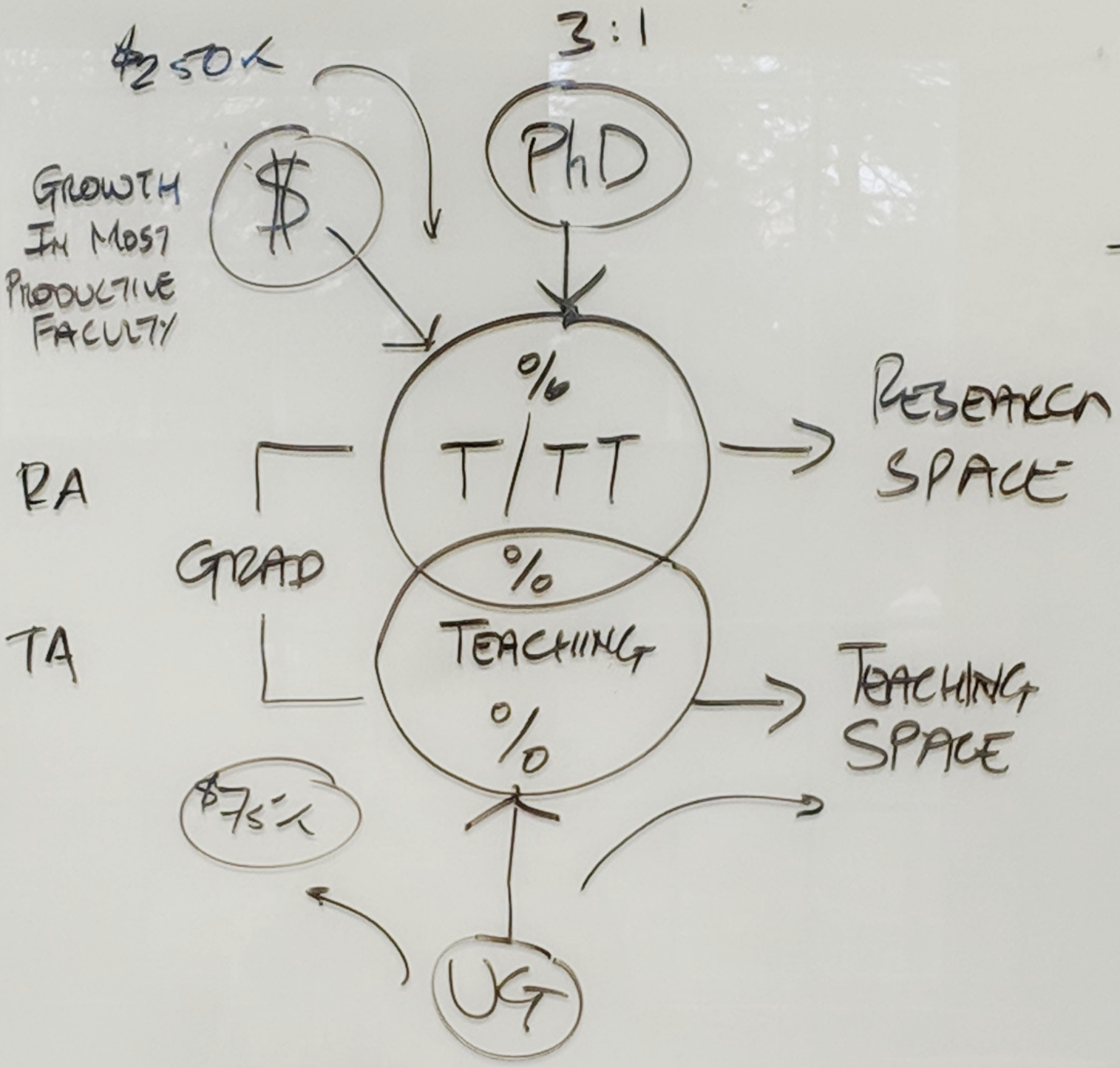
Illustrated on the following pages is a snapshot of the results of the survey questions which informed the final lists of prioritization criteria. Each of the criteria was weighed according to the results of the survey and vetted by the Provost's Office and the Office of Research, and validated by data from the Offices of Institutional Research and Enterprise Data and Analytics.

Refer to pages 37-60 for further details of the calculation methodology, criteria weightings and priority program results that drove the capital plan.

QUESTIONNAIRE ASSESSMENT AND RESULTS

METRIC	OVERALL RANK	RANK DISTRIBUTION	SCORE (POINTS)	NO. OF RANKINGS
Programs the college has prioritized, as part of their strategic vision	1		15	7
Total program enrollment	2		14	7
Enrollment growth, by volumn over the last five years	3		13	6
Volume of general education enrollment offered by the department	4		12	7
Programs that are prioritized by ClemsonForward	5		12	7
Enrollment growth, by growth rate over the last five years	6		12	6
Growth of general education enrollment over the past five years	7		10	6
Net Position	8		6	7
Programs with capped enrollment the college would like to see grow	9		6	6
			100 PTS	

METRIC	OVERALL RANK	RANK DISTRIBUTION	SCORE (POINTS)	NO. OF RANKINGS
Priority areas of research	1		15	7
Total research expenditures	2		14	7
Graduate programs the college has prioritized, as part of their strategic vision	3		13	7
Expenditures per PI	4		13	7
PhD production	5		11	7
Expenditure growth rate over the last five years	6		11	6
Total graduate program enrollment	7		11	7
Alignment of research expenditures with Clemson Forward targets	8		10	7
Graduate enrollment growth, by volume over the last five years	9		6	6
			100 PTS	



7. SHOW LEARNING SPACE
HOW ACCOUNTS FOR SCH

RESEARCH

8 RESEARCH SPACE BY CO

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CALCULATION OF SPACE

CALCULATION OF SPACE

PROGRAM INTENSITY

Program Intensity 1

- Agriculture, Agriculture Operations and Related Sciences
- Architecture and Related Services
- Visual and Performing Arts
- **Landscape Architecture**
- **Plant and Environmental Sciences**

Program Intensity 2

- Natural Resources and Conservation
- Engineering
- Engineering Technologies/ Technicians
- Technology Education/Industrial Arts/Technology Education
- Construction Trades
- Mechanic and Repair Technologies/ Technicians
- Precision Production
- Transportation and Materials Moving
- **Biological and Biomedical Sciences**
- **Planning, Urban Design, Built Environment**
- **Systems Engineering**

Program Intensity 3

- Communication, Journalism and Related Programs
- Communications Technologies/ Technicians and Support Services
- Computer and Information Sciences and Support Services
- Family and Consumer Sciences/ Human Services
- Basic Skills
- Physical Sciences
- Science Technologies/Technicians
- Psychology
- Health Professions and Related Clinical Sciences

Program Intensity 4

- Ethnic, Cultural, and Gender Studies
- Education
- Foreign Languages, Literatures and Linguistics
- Liberal Arts and Sciences, General Studies and Humanities
- Mathematics and Statistics
- Multi/Interdisciplinary Studies
- Parks, Recreation, Leisure and Fitness Studies
- Health-Related Knowledge and Skills
- Philosophy and Religious Studies
- Theology and Religious Vocations
- Public Administration and Social Service Professions
- Social Sciences
- Business, Management, Marketing, and Related Support Services

Priority Program Categories

When calculating space needs, each program is investigated to understand the type of activity, experience and equipment requirements it has, current and future. Programs have different space needs as varying learning environments have varying learning needs. All learning programs have different mixes of pedagogy, contact hours and complexity of academic activities and curriculum. Research programs also vary in needs of staffing, environmental, technological and equipment requirements.

To calculate space, each program from Clemson was placed into one of 4 program intensity types according to its CIP code: Intensity 1, Intensity 2, Intensity 3 and Intensity 4. Each intensity type represents a different spatial need for learning and research. Program intensity 1 requires the largest amount of space and intensity 4 requires the smallest amount of space.

Each intensity has a space metric assigned to it for learning and research. This metric takes into account, not only the spatial needs of activities in the respective prorams by divison, but also the time spent in each activity. This metric is used in conjuction with population forecast to predict the overall space needs for each program.

Intensity 1

Intensity 2

Intensity 3

Intensity 4

Program Intensity 1 has the largest space requirements. It contains programs such as agriculture, performing arts and environmental sciences. Programs in this category require large equipment, large work areas, performance spaces and large collaborative group areas.

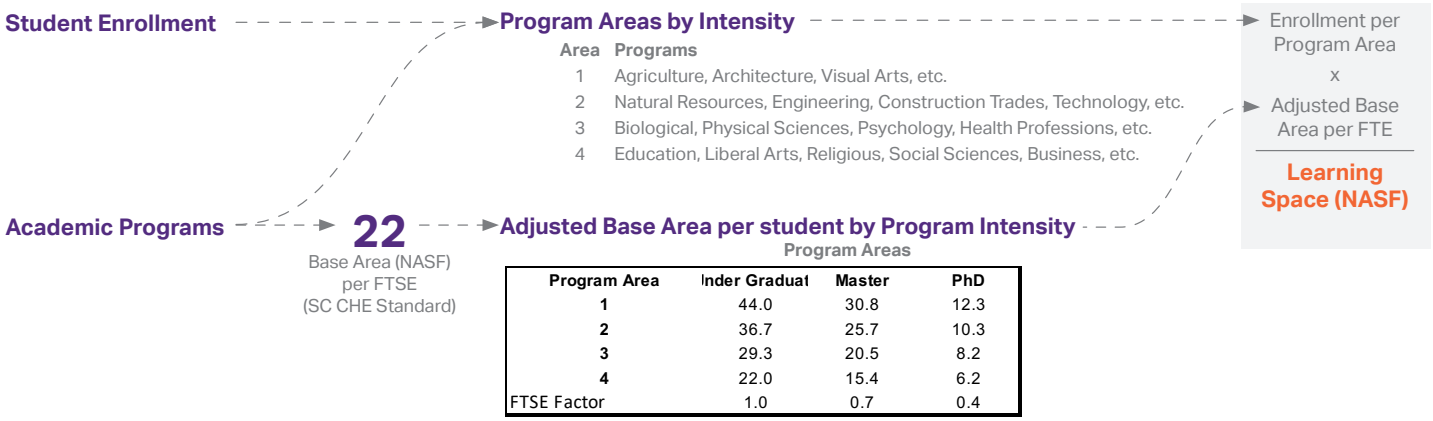
Program Intensity 2 have lower space requirements than intensity 1. These programs have equipment space needs for medium to large scale projects. Intensity 2 is akin to scale-up and small construction type areas. Programs in this category are engineering, transportation, biological sciences, and urban design.

Program Intensity 3 programs still require equipment and collaboration but have smaller workspace requirements. Programs in this category are communication, journalism, and psychology. Each user might have a dedicated work area with the supporting technology.

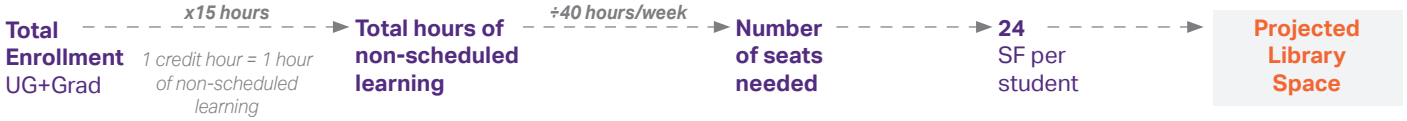
Program Intensity 4 has denser environments. These are typically lecture halls with auditorium type seating. Programs in this category can be taught in large groups. Programs in this category are mathematics, philosophy, social sciences and business related majors where research space requirements are minimal.

SPACE CALCULATIONS

LEARNING SPACE



NON-SCHEDULED STUDY SPACE



Strategy+ worked closely with Clemson to develop space calculation methodologies to fit the needs of Clemson goals.

Learning Space

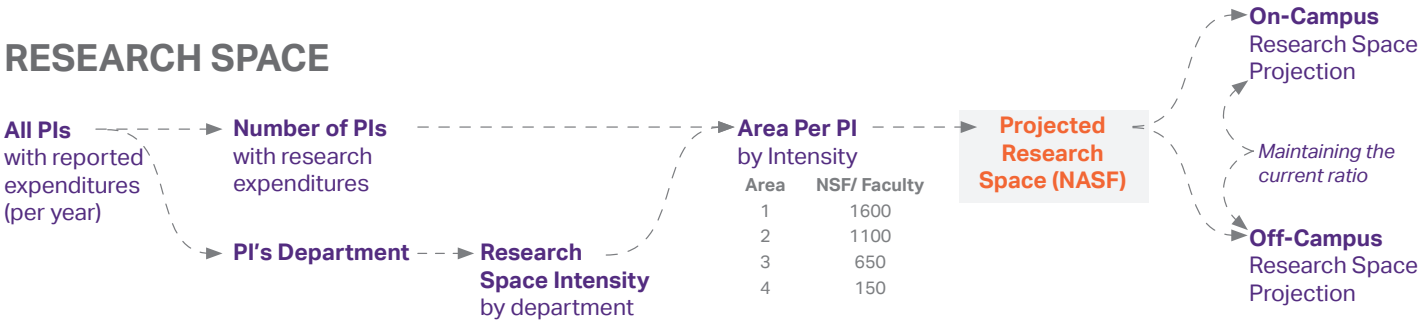
This calculation uses enrollment and program intensity data. Each program intensity has a SF / user multiplier for undergraduate, masters and PhD. The multiplier was adjusted from agreed national standards in collaboration with Clemson Stakeholders. To calculate, program enrollment is multiplied by adjusted base area / FTE.

Non-Scheduled Study Space

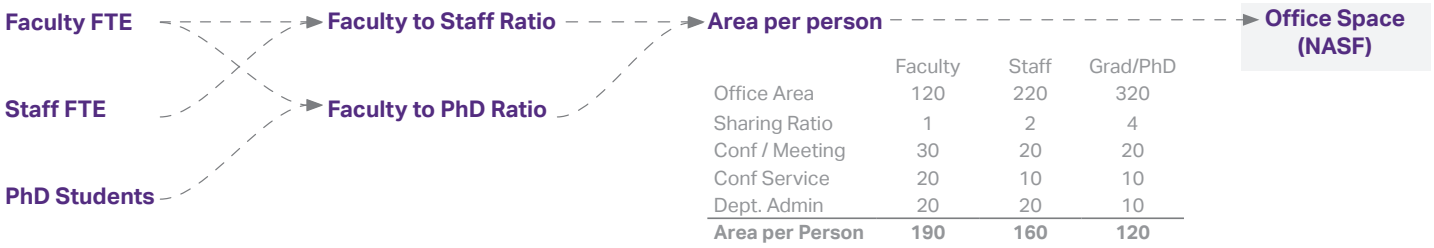
This category examines study areas, breakout space, and other rooms identified for non-credit / contact hour study. The calculation uses the sum total enrollment of undergraduates and graduates and assumes 1 hour of non-scheduled learning needed is equal to 1 credit hour. This yields total non-scheduled time needed. This number is then divided by 40 (hours per week) and multiplied by the baseline study space needed per student to arrive at the total non-scheduled study space required.

SPACE CALCULATIONS

RESEARCH SPACE



OFFICE SPACE



	Faculty	Staff	Grad/PhD
Office Area	120	220	320
Sharing Ratio	1	2	4
Conf / Meeting	30	20	20
Conf Service	20	10	10
Dept. Admin	20	20	10
Area per Person	**190**	**160**	**120**

Research Space

This calculation utilizes the number of principal investigators and associated expenditures by PI and department. Similar to learning space calculations, research space is divided into 4 intensity space types. PI count by department is multiplied by its associated intensity base area per FTE. This calculation yields total research space. The ratio of PIs engaged in off-campus research to on-campus research was used to determine the on-campus only research space requirements.

Office Space

This calculation assigns SCHC space standards square footage to faculty and staff. The primary data used for this is faculty and staff full-time equivalents, which takes into account part-time as well as full-time employeesl. Assigning the standard 120 SF office size to each full-time equivalent yields total projected office space as well as associated meeting and service space.

SPACE STANDARDS

Supply

RESEARCH

93.8%
research space effectiveness, based on FCI to account for suitability and quality

LEARNING

58% utilization for centrally scheduled classes

25.3% utilization for departmentally scheduled classes
classroom utilization for existing space, based on course scheduling within a 40 hour week

OFFICES

quantity not size
of offices for faculty, staff, student services, and administration

Demand

3%
of scheduled instruction hours are online and do not require physical classroom space

1 credit hour : 1hour
of non-schedule learning, including library, breakout, and other learning resources

For each of the space type calculations, Strategy+ worked closely with Clemson leadership and stakeholders to curate modifiers to reflect more accurately the effective space use of each type: learning, research, non-scheduled study, and office.

For research space, a modifier of 93.8% is used to reflect the effective research space available on campus. This assumption is based on metrics produced from the FCI and building year to account of suitability and quality.

Offices assumed quantity not size of existing office areas. Office space calculated primarily on counts of faculty, staff, student services and administration.

There is a 3% modifier applied to calculated learning space to accommodate scheduled online learning. Thus, not requiring a physical classroom.

RESEARCH SPACE STANDARDS - COMPARISONS

Current Research Space Calculations

Area Per PI
by Intensity

Area	NSF/ Faculty
1	1,600
2	1,100
3	650
4	150

South Carolina - *2006*

ASF by Every $1 Million Research Expenditures

Intensity	ASF
High	11,000
Intense	9,000
Moderate	6,000
Non	4,000

North Carolina - *2006*

ASF by Every $1 Million Research Expenditures

Intensity	ASF
High	11,000
Intense	9,000
Moderate	6,000
Non	4,000

Florida - *TBD*

Department Research Space
Funding / $300

Lab Research Space
Every $300 Research Expenditure / SF

Maryland - *2006*

Module A - *Agriculture, Biological Sciences, Engineering, Fine Arts*

1000 NASF / FT Faculty in Depts with PhD as Highest Degree
500 NASF / FT Faculty in Depts with Masters as Highest Degree
100 NASF / FT Faculty in Depts with Baccalaureate as Highest Degree

Module B - *Arch, Health, Economics, Physical Sciences, Psychology*

650 NASF / FT Faculty in Depts with PhD as Highest Degree
325 NASF / FT Faculty in Depts with Masters as Highest Degree
65 NASF / FT Faculty in Depts with Baccalaureate as Highest Degree

Module C - *Humanities, Mathematics, Social Sciences*

0 NASF No Research Space for these Departments

Utah - *2011*

475 ASF / FTE
Faculty for Research Institutes

35 ASF / FTE
Faculty for Non-Research Institutes

Virginia - *2010*

800 NASF / $100,000 Expenditures
Arts, Science, Health

450 NASF / $100,000 Expenditures
Math, Language, Education, Social Sciences

10 NASF / FTE Grad
All Disciplines

Every state has calculation standards for varying learning and research space types. However, the majority of these standards were established a long time ago. Learning and research styles have evolving progressively with technology over the last decade.

These standards are a good starting point to understand the calculations but require modification to suit each institutions goals and vision. By examining and comparing state standards, Clemson can position themselves in how they want to define success on their own terms.

It is important to note that standards are not tied to expenditure success and results. These are defined metrics to aid in that success, but every state and school operates their research differently. Therefore, modification is essential in aligning work productivity and space effectiveness.

4

CAPITAL PROJECT SEQUENCING

CAPITAL PROJECT SEQUENCING

COMPREHENSIVE PERMANENT IMPROVEMENT PLAN

Year 1	Year Priority	Overall Priority	Project	Division	Bonds	Approp	M&SF	Impr. Funds	Gift/ Other	Total
	1	1	Center for Manufacturing Innovation Bldg. Reno.	Academics	-	-	4,000	-	-	4,000
	2	2	Daniel Hall Renovation & Expansion	Academics	30,000	-	15,000	-	-	45,000
	3	3	Advanced Materials Science Complex	Academics	85,000	-	-	-	25,000	110,000
	4	4	Lehotsky Hall Renovation	Academics	15,000	-	15,000	-	-	30,000
	5	5	Chapel Construction	Student Affairs	-	-	-	-	5,000	5,000
	6	6	Soccer Operations Complex	Athletics	4,000	-	-	-	4,000	8,000
			Subtotal		**134,000**	**-**	**34,000**	**-**	**34,000**	**202,000**
Year 2 - Projects expected to begin construction in FY2021 or FY2022										
	1	7	Core Campus Safety & Revitalization	Infrastructure	-	-	17,000	-	-	17,000
	2	8	Walter Cox Blvd Pedestrian Safety	Infrastructure	-	-	11,000	-	-	11,000
	3	9	Long Hall Renovation	Academics	13,000	-	13,000	-	-	26,000
	4	10	Wastewater Treatment Plant	Infrastructure	6,000	-	-	-	-	6,000
			Subtotal		**19,000**	**-**	**41,000**	**-**	**-**	**60,000**
Year 3 - Projects expected to begin construction in FY2022 or FY2023										
	1	11	Martin Hall Renovation	Academics	9,000	-	9,000	-	-	18,000
	2	12	Newman Hall Demolition and Replacement	Academics	20,000	-	-	-	-	20,000
	3	13	South Chiller Plant Expansion and Upgrades	Infrastructure	24,000	-	-	-	-	24,000
	4	14	High Rise Residence Hall Renovations (Byrnes and Lever)	Student Affairs	-	-	-	17,500	-	17,500
	5	15	Baseball/Softball Practice Facility	Athletics	-	-	-	-	6,000	6,000
			Subtotal		**53,000**	**-**	**9,000**	**17,500**	**6,000**	**85,500**
Year 4 - Projects expected to begin construction in FY2023 or FY2024										
	1	16	Tillman Hall Auditorium Renovation	Academics / SA	-	-	8,000	-	-	8,000
	2	17	Johnstone Hall Demolition	Student Affairs	-	-	-	5,000	-	5,000
	3	18	Low Rise Residence Hall Renovations (Mauldin & Smith)	Student Affairs	-	-	-	18,000	-	18,000
	4	19	McFadden Renovation	Athletics	-	-	-	-	3,000	3,000
			Subtotal		**-**	**-**	**8,000**	**23,000**	**3,000**	**34,000**
Year 5- Projects expected to begin construction in FY2024 or FY2025										
			Subtotal		**-**	**-**	**-**	**-**	**-**	**-**
			Academics		172,000	-	64,000	-	25,000	261,000
			Athletics		4,000	-	-	-	13,000	17,000
			General		30,000	-	28,000	-	-	58,000
			Student Affairs		-	-	-	40,500	5,000	45,500
			Total		**206,000**	**-**	**92,000**	**40,500**	**43,000**	**381,500**

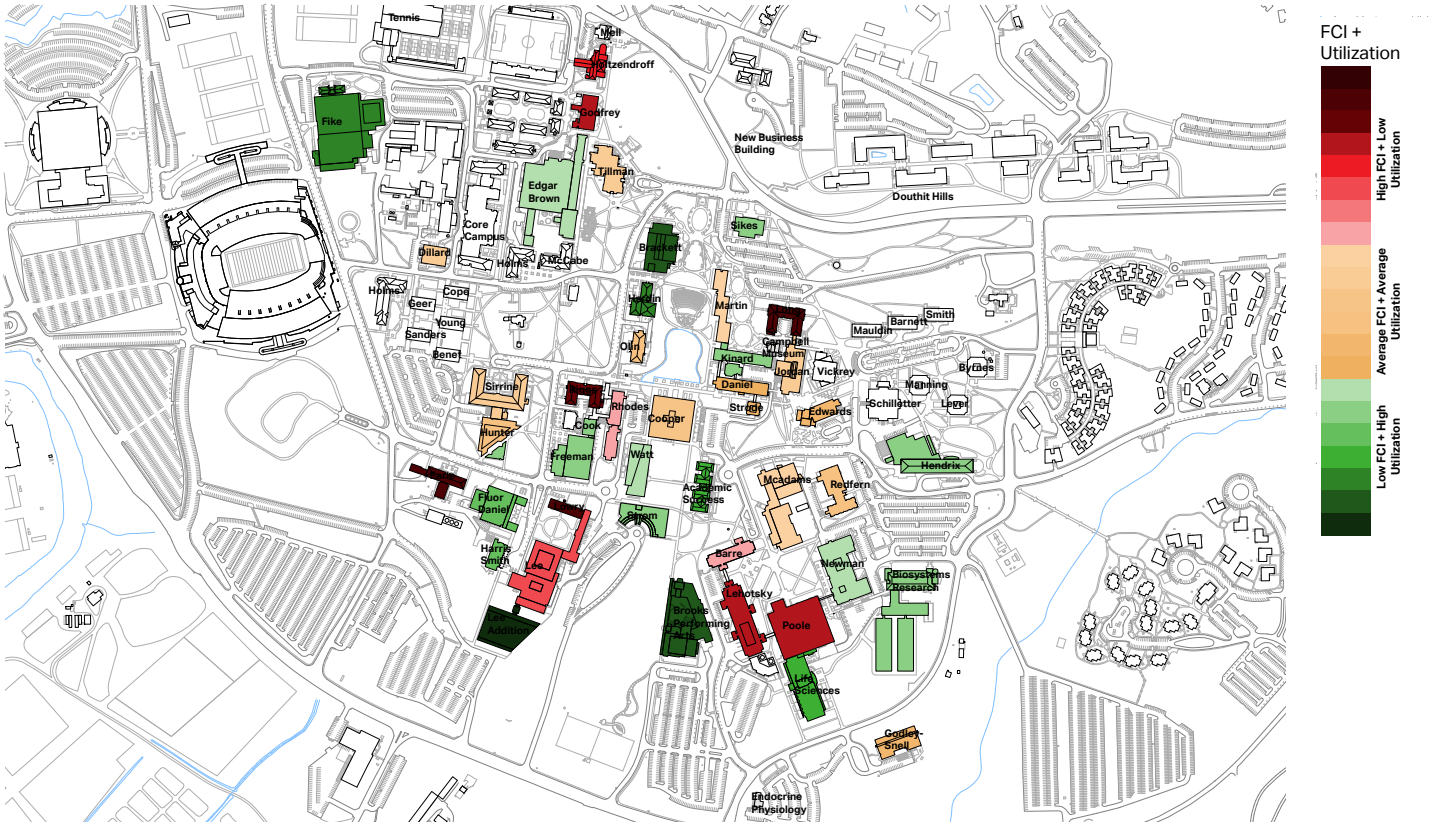
Clemson Current CPIP

The initial step to creating the 15-year capital plan for Clemson University, was to understand Clemson's current Comprehensive Permanent Improvement Plan (CPIP). The CPIP outlines new buildings and renovation projects that are either scheduled or approved for improvement. The projects listed in the CPIP are essential in tackling projected space deficits and provide a unique opportunity to leverage their renovations to improve space utilization, efficiency and productivity as well as physical condition.

Renovation projects on the CPIP with direct implications on the 15-year capital plan are: Tillman Auditorium, Lehotsky Hall, Martin Hall, Daniel Hall, and Long Hall

These renovation projects provide the opportunity to accommodate space deficits, enhance utilization as well as creating new long term program synergies, collaborations and learning and research pedagogies and activities.

FACILITY CONDITION + UTILIZATION



FCI and Utilization by Building on Campus

Beyond buildings on the current CPIP, there are other buildings suitable for renovation and improvement that will help to diminish Clemson's deficiency of space through improved utilization. In developing the 15-year capital plan, the team investigated the potential for reprogramming existing buildings to create better co-locations of departments and programs. Metrics and goals of enhanced program adjacency, improved utilization, and suitability are factored together to calculate the priorities of the capital plan.

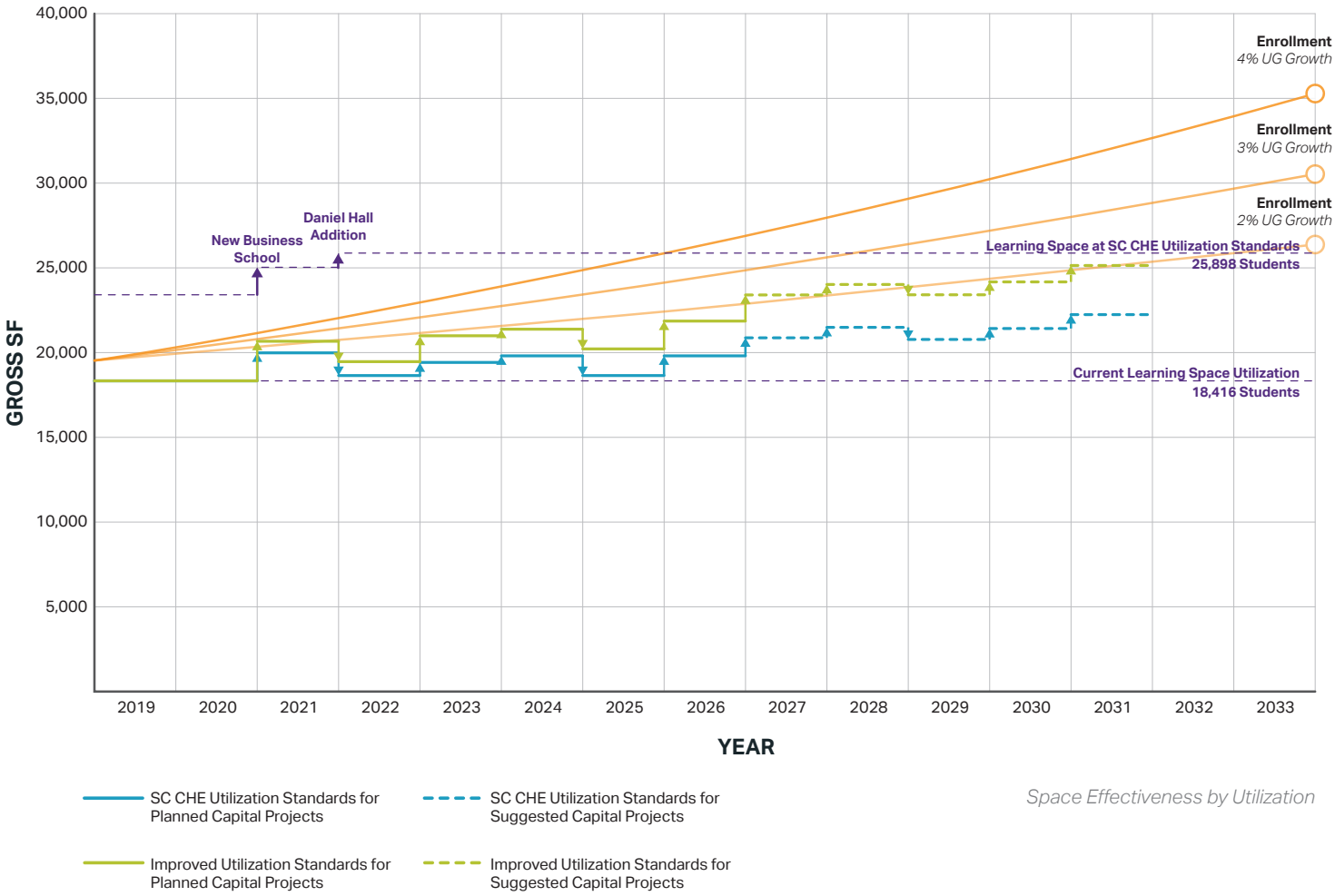
The diagram above highlights the FCI and utilization of each documented building on campus. The facilities condition index data was received from Clemson Facilities Team. The building utilization data was received from the Office of Strategy & Analytics. The diagram helps illustrate which buildings have priority and potential for renovation. The priority needs are those with a high FCI and a low utilization.

INCREASED UTILIZATION

Utilization is a key metric in understanding how effectively current space is being used. Utilization data metrics are measured through course scheduling and room bookings through a typical 40-hour week. The Office of Strategy and Analytics and Registrar's office provided data to Strategy+ to assess campus and building utilization.

Currently, Clemson operates around 50% average utilization. This yields a capacity of 18,416 students. The target utilization by South Carolina Council of Higher Education is suggested at 67%. If Clemson, improves its utilization to SC standards, it can reduce its space capacity deficit without renovating or building new space.

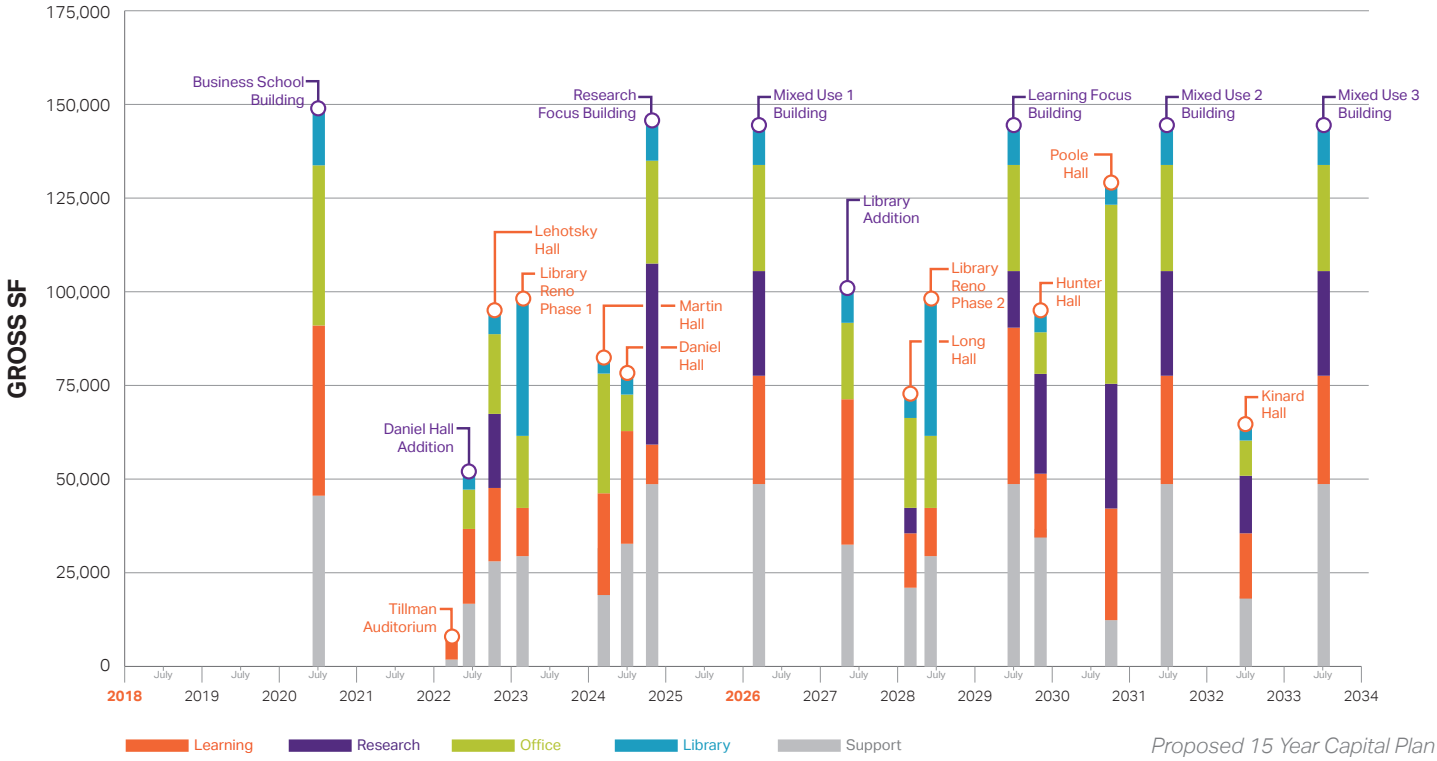
The assumption placed for the capital plan scheduling is a utilization of 67% for all new buildings and renovations. If, 67% utilization is achieved across campus including the next two new buildings of Business School and Daniel Hall Addition, Clemson can accommodate approximately 25,898 students.



Space Effectiveness by Utilization

KEEPING UP WITH DEMAND

Year on Year Surplus / Deficit by Space Type



Proposed 15 Year Capital Plan

The space projetions for Clemson's 15-year caiptal plan are separated into 5 categories.

- Learning
- Research
- Non-scheduled study
- Office
- Support

If no changes are made to the campus, in 2033 it is projected that Clemson will have a 1,066,184 SF deficit. It is recommended when undertaking capital investments that Clemson aims to keep the deficit and surplus targets within +/- 5%.

The table and chart above illustrate the project sequencing for the 15-year capital plan. The orange labels represent renovation projects and the purple labels represents new construction. The graph at the top illustrates the deficit and surplus effects of the capital plan sequencing. Each new renovation and construction assumes an increase in effective space use to 67% utilization.

This capital plan was developed through the collaboration of Strategy+, the Office of Academic Affairs and the University Planning and Design department.

"AECOM is developing a tool with Clemson to prioritize capital projects and programs. The product is a matrix of combining learning, research and spatial needs of each priority program."

CLEMSON QUESTIONNAIRE

TABLE OF CONTENTS :
PART 2 - PRIORITY PROGRAM

06. IDENTIFYING PROGRAMS **39**

CREATING THE LIST 40
QUESTIONNAIRE AND INPUTS 41

07. SCORECARD METRICS **43**

WHAT ARE THE METRICS 44
WHAT ARE THE INPUTS 45
HOW ARE THEY SCORED 46

08. QUADRANT DIAGRAM **49**

METHODOLOGY 50
HOW DOES IT WORK 51

09. PROGRAM MOVES **53**

WHAT ARE THE MOVES 54
CO-LOCATION OPPORTUNITIES 56

10. RESULTS **57**

PRIOIRTY PROGRAM 58
15 YEAR CAPITAL PLAN 60

Tillman - 49,650 SF
UG - Elementary Education
UG - Psychology
G - Teaching and Learning
G - Literacy
G - Athletic Leadership
G - Learning Sciences
G - Educ Systems Improvement Sci
G - Special Education
Brackett - 70,932 SF
UG - Criminal Justice
UG - Psychology
UG - Economics
UG - Management
UG - Sports Communication
UG - Accounting
G - Environ Engr and Earth Sci
G - Athletic Leadership
G - Educ Systems Improvement Sci
G - Accounting
Martin - 48,064 SF
UG - Psychology
Kinard Lab - 40,480 SF
UG - Industrial Enginering
UG - Criminal Justice
UG - Biochemistry
UG - Genetics
KINARD NEEDS MORE GRAD LABS.
Long Hall - 46,377 SF
UG - Biological Sciences
UG - Microbiology
UG - Criminal Justice
G - Biological Sciences
Vickery - 15,396 SF
UG - Animal and Vet Science
UG - Elementary Education
G - Teaching and Learning
Hardin - 19,866 SF
UG - Industrial Engineering
Rhodes Eng - 34,244 SF
G - Biomedical Engineering
Rhodes Annex - 12,706 SF
G - Biomedical Engineering
Sirrine - 106,546 SF
UG - PreBusiness
UG - Management
UG - Marketing
UG - Financial Management
UG - Accounting
UG - Economics
G - Accounting
G - Business
Riggs - 46,734 SF
UG - Financial Management
UG - Accounting
UG - Mechanical Engineering
UG - Construction Science and Management
G - Engr, Comp, and Appl Sci ND
G - Accounting
G - Chemical Engineering
G - Risk Engineering
G - Biomedical Engineering
Daniel Hall - 40,857 SF
UG - Sports Communication
UG - World Cinema
UG - Nursing
UG - Computer Science
UG - Financial Management
UG - Agribusiness
UG - Computer Info Systems
UG - Economics
G - Applied Health Research and Eval
G - Clinical and Transl Res
G - Literacy
G - Nursing
G - Learning Sciences
G - Nursing Practice
G - Special Education
Academic Success - 20,101 SF
UG - World Cinema
Watt - 36,989 SF
UG - Nursing
UG - Management
UG - Elementary Education
UG - Marketing
UG - World Cinema
G - Teaching and Learning
G - Risk Engineering
G - Nursing
G - Nursing Practice
G - Athletic Leadership
G - Envi Engr and Earth Sci
G - Applied Health Research and Eval
G - Educ Systems Improvement Sci
G - Clinical and Transl Res
Lowry Hall - 38,278 SF
UG - Construction Science and Management
UG - Architecture
G - Risk Engineering
G - Public Administration
G - Parks, Rec, Tourism Management
Lee - 71,638 SF
UG - Construction Science and Management
UG - Architecture
Lee Addition / Lee III - 36,139 SF
UG - Architecture
Barre - 25,306 SF
UG - Computer Science
UG - Computer Info Systems
G - Wildlife and Fish Bio
Poole - 129,349 SF
UG - Agribusiness
UG - Biochemistry
UG - Animal and Vet Services
UG - Genetics
UG - Plant and Environ Sciences
G - Public Administration
G - Parks, Rec, Tourism Management
G - Plant and Environ Sciences
G - Wildlife and Fish Biology
Godfrey
Tillman
McCabe
Sikes
Olin
Cooper
Watt
Strom
Fluor Daniel
Hunter
Mcadams
Redfern
Newman
Schilletter
Mauldin
Barnett
Douthit
Brooks Performing Arts
Endocrine Physiology
Godley Snell
New Business Building
Museum
Jordan
Edwards
Lehotsky
Newman
Sunoco Lab
Dupont Lab
Meat Lab
PSYCH EXP
EEES
Bio and Chem Cluster
RENOVATE LONG - OFFICES + DRY LABS FOR SCIENCE NO WET LABS
LONG → SERRINE
SHORT TERM HOME FOR LONG PEOPLE
IF RESEARCH STAYS.
G-MECH ENG
MAINLY GRAD EC
POSSIBLE NEW COMP. SCI. / CCIT BUILDING?
Civil + EEES (Mixed-USC)
OFFICES + LAB (BARRE)

6

IDENTIFYING PRIORITY PROGRAMS

IDENTIFYING PROGRAMS

CREATING A PRIORITY PROGRAM LIST

	Undergraduate Program	*Program Intensity*
1	Nursing	*3*
2	Pre-Business	*4*
3	Computer Science	*3*
4	Mechanical Engineering	*2*
5	Management	*4*
6	Marketing	*4*
7	Biological Sciences	*2*
8	Industrial Engineering	*2*
9	Criminal Justice	*4*
10	Financial Management	*4*
11	Psychology	*3*
12	Agribuisiness	*3*
13	Biochemistry	*2*
14	Architecture	*1*
15	Sports Communication	*3*
16	Construction Science and Management	*4*
17	Animal and Veterinary Sciences	*3*
18	Micriobiology	*2*
19	Computer Information Systems	*3*
20	Elementary Education	*4*
21	Elementary Education	*4*
22	Plant and Environmental Sciences	*1*
23	Accounting	*4*

	Graduate/Research Program	*Program Intensity*
1	Education	*4*
2	Teaching and Learning	*4*
3	Business Administration	*4*
4	Wildlife and Fish Biology	*3*
5	Literacy	*4*
6	Athletic Leadership	*4*
7	Public Administration	*4*
8	Parks, Recreation and Tourism Mgmt	*4*
9	Risk Engineering	*2*
10	Accounting	*4*
11	Environmental Engr and Earth Sciences	*2*
12	Biological Sciences	*2*
13	Chemical Engineering	*2*
14	Biomedical Engineering	*2*
15	Plant and Environmental Sciences	*1*
16	Nursing	*3*
17	Applied Research and Evaluation	*3*
18	Learning Sciences	*4*
19	Real Estate Development	*4*
20	Nursing Practice	*3*
21	Educ Systems Improvement Science	*4*
22	Clinical and Translation Research	*3*
23	Business	*4*
24	Special Education	*4*
25	Engr, Comp, and Applied Sci ND	*2*

***This is the initial starting list. Additional Programs were added through engagements and workshops*

After establishing the process to sequence the capital plan and address space deficits and surpluses, the following step is to sequence what programs will move into new or renovated space to accommodate program growth and better colocation.

Working closely with College Deans and Provost, a priority program list was created to understand which programs have the most need and most potential in the future growth of Clemson. The two tables above are an initial list created by largest enrollment and fastest enrollment growth by undergraduate and graduate programs.

Strategy+ then engaged with project team and stakeholders through workshops and questionnaires to identify additional valuable programs to add to the list. This process captured a holistic picture of all essential programs needs integral to each college and department. The next section describes how each of these identifies programs will be measured.

QUESTIONNAIRE AND INPUTS

In order to use data to measure the needs of each identified priority program, a series of metrics were created to measure learning, research and space needs. The list of metrics was derived from data received, ClemsonForward goals, Dean's goals, stakeholder goals, and academic data trends.

Once the metric inputs were established and finalized by the project team, they were placed in a questionnaire and distributed to each College Dean. The aim of the questionnaire was to understand how each College prioritizes each metric relating to learning, research and space. This process allowed an equal opportunity among all constituents to create a holistic prioritization methodology.

At the end of the questionnaire, the scores and ranks of each metrics were averaged to create a total weighted scorecard for each category. The questionnaire created the opportunity to allow certain metrics to have a higher weight in its consideration for how the program is prioritized.

Three separate scorecards were created and were used in the final priority methodology for Undergraduate Academics Programs, Research and Gradaute Programs, and Spatial Demand.

METRIC	OVERALL RANK	RANK DISTRIBUTION	SCORE (POINTS)	NO. OF RANKINGS
Programs the college has prioritized, as part of their strategic vision	1		15	7
Total program enrollment	2		14	7
Enrollment growth, by volumn over the last five years	3		13	6
Volume of general education enrollment offered by the department	4		12	7
Programs that are prioritized by ClemsonForward	5		12	7
Enrollment growth, by growth rate over the last five years	6		12	6
Growth of general education enrollment over the past five years	7		10	6
Net Position	8		6	7
Programs with capped enrollment the college would like to see grow	9		6	6
			100 PTS	

Questionnaire Result Template

FREEMAN HALL
211

7

SCORECARD METRICS

SCORECARD METRICS

WHAT ARE THE METRICS

Undergraduate Academic Program Metrics

1. Enrollment Growth, by volume over the last five years
2. Enrollment Growth, by growth rate over the last five years
3. Total program enrollment
4. Programs the college has prioritized, as part of their strategic vision
5. Programs with capped enrollment the college would like to see grow
6. New UG academic programs
7. The volume of general education enrollment offered by the department
8. Growth of general education enrollment over the past five years
9. Programs that are prioritized by the Provost as part of the university's vision

Research and Graduate Program Metrics

1. Total research expenditures
2. Expenditures per PI
3. Expenditure growth rate (last 5 years)
4. Alignment of research expenditures with ClemsonForward targets
5. Priority Areas of Research
6. New Areas of Research
7. PhD Production
8. Graduate enrollment growth, by volume over the last five years
9. Graduate enrollment growth, by growth rate over the last five years
10. Total graduate program enrollment
11. New graduate programs
12. Graduate programs the college has prioritized, as part of their strategic vision

Spatial Demand Metrics

1. Learning space surplus or deficit by ASF
2. Research space surplus or deficit by ASF
3. Building condition by FCI
4. Ongoing repair and maintenance costs
5. Suitability of equipment and technology

To objectively asses academic program and research priority, a collection of metrics was established to respond to the priorities of the department of university planning and design, the College Deans and Associate Deans, ClemsonForward, and the University's vision.

Metrics of Each Category for Quadrant

The priority programs are measured in three categories: Undergraduate Academics Program Metrics, Research and Graduate Program Metrics, and Spatial Demand Metrics. Each metric was identified as a valuable data point in reflecting the needs of each respective category.

Each of the listed programs was scored using each metric using data from university sources. Each metric score was then adapted with a modifier based on the priority weight that resulted from the questionnaire.

WHAT ARE THE INPUTS & SOURCES

The metrics used in the scorecard categories were derived from a number of agreed University sources. These data sources were used in their respective metric to generate the comparative program data needed. The table to the right lists all the data sources used in the metric calculations.

Undergraduate Academic Program Metrics
This category examines the priority growth needs of undergraduate learning programs. It uses data from the sources of student enrollment, student credit hours, course section fill rate, college strategic plans, room course utilization, room scheduling data, and CU strategic undergraduate enrollment plan.

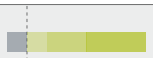
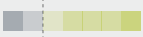
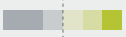
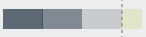
Graduate Program Metrics
This examines priority graduate research and program growth needs. These metrics use employee data, faculty instructional load, enrollment data, research expenditures data, research report card, research facility needs, college dashboards, research lab space and productivity data, and college strategic plans.

Spatial Demand Metrics
This category examines the condition and program capacity of current space. These metrics use data from research maintenance, capital project Facility Condition Index / Building Condition Assessment, Clemson Comprehensive Permanent Improvement Plan, Clemson building attribute summary, room inventory data, and campus existing space data.

DATA SOURCES

- *Employee Data – Institutional Research*
- *Student Enrollment Status*
- *Student Credit Hours Status*
- *Course Section Fill Rate*
- *Faculty Instructional Load*
- *Enrollment Data – Institutional Research*
- *FY13-FY18 Expenditures Research Data*
- *FY2019 Research Report Card*
- *Research Maintenance*
- *Capital Project – Facility Condition Index / Building Condition Assessment*
- *Clemson Comprehensive Permanent Improvement Plan*
- *Clemson Building Attribute Summary*
- *Room Inventory Data*
- *Clemson Fall 2016 Utilization*
- *College HR Dashboards*
- *College Reseah Lab Space and Research Productivity*
- *ClemsonForward Dashboards*
- *CU Strategic Undergraduate Enrollment Plan*
- *College Strategic Plans*
- *College Organization Charts*
- *South Carolina Space Standards*
- *Campus Existing Space Data*
- *Room Course Data Utilization*
- *Room Scheduling Data*

HOW ARE THEY SCORED - *LEARNING*

METRIC	OVERALL RANK	RANK DISTRIBUTION	SCORE (POINTS)	NO. OF RANKINGS
Programs the college has prioritized, as part of their strategic vision	1		15	7
Total program enrollment	2		14	7
Enrollment growth, by volumn over the last five years	3		13	6
Volume of general education enrollment offered by the department	4		12	7
Programs that are prioritized by ClemsonForward	5		12	7
Enrollment growth, by growth rate over the last five years	6		12	6
Growth of general education enrollment over the past five years	7		10	6
Net Position	8		6	7
Programs with capped enrollment the college would like to see grow	9		6	6
			100 PTS	

Questionnaire Learning Results

There is a total of nine metrics in Undergraduate Academic Program Metrics. The table above highlights the weighted score of each metric as a result of College responses from the questionnaire.

Metrics that use quantitative data are as follows.

- Total program enrollment compares total enrollment of each listed program.
- Enrollment growth by volume compares the quantity of growth over the last five years.
- Volume of general education enrollment. offered compares total volume of enrollment of general education in the program.
- Enrollment growth by growth rate compares the rate of growth and not volume.
- Growth of general education compares the volume of enrollment change over the past five years.

Metrics that use qualitative data are as follows.

- Programs the College has prioritized as part of their strategic vision highlights which programs reflect college's priority.
- Programs with capped enrollment the College could like to grow highlights those that can't grow due to restraints.

The results of each program metric are compared only with other priority programs. Therefore, the score range is defined by the results of the identified priority programs.

HOW ARE THEY SCORED - *RESEARCH*

METRIC	OVERALL RANK	RANK DISTRIBUTION	SCORE (POINTS)	NO. OF RANKINGS
Priority areas of research	1		15	7
Total research expenditures	2		14	7
Graduate programs the college has prioritized, as part of their strategic vision	3		13	7
Expenditures per PI	4		13	7
PhD production	5		11	7
Expenditure growth rate over the last five years	6		11	6
Total graduate program enrollment	7		11	7
Alignment of research expenditures with Clemson Forward targets	8		10	7
Graduate enrollment growth, by volume over the last five years	9		6	6
			100 PTS	

Questionnaire Research Results

There is a total of nine Graduate Program Metrics. The table above highlights the weighted score of each metric as a result of the questionnaire.

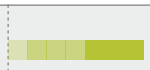
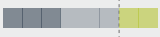
Metrics that use quantitative data are as follows.

- Total research expenditures compare the total department research expenditures in a research program .
- Expenditures per PI compares the expenditure dollar amount of each PI by program.
- PhD production compares the total headcount of PhD in their respective programs.
- Expenditure growth rate compares the department expenditure growth over the past five years by percentage.
- Total graduate program enrollment compares total headcount by program.
- Graduate enrollment growth by volume compares quantity change in last five years.

Metrics that use qualitative data are as follows.

- Priority areas of research allows Deans to place the importance of their strategic vision research goals.
- Graduate programs the College has prioritized as part of their strategic vision highlights which programs reflect College's priority.
- Alignment of research expenditures with ClemsonForward targets highlights the importance of adhering to the goals set out by ClemsonForward.

HOW ARE THEY SCORED - *SPACE*

METRIC	OVERALL RANK	RANK DISTRIBUTION	SCORE (%)	NO. OF RANKINGS
Learning space surplus or deficit (by ASF)	1		29%	7
Building condition (by FCI)	2		23%	7
Research space surplus or defict (by ASF)	3		22%	6
Suitability of equipment and technology	4		13%	7
Ongoing repair and maintenance costs	5		13%	7

Questionnaire Space Results

There is a total of 5 Spatial Demand Metrics. The table above highlights the weighted score of each metric as a result of the college responses from the questionnaire.

These metrics use data from research maintenance, Capital project Facility Condition Index / Building Condition Assessment, Clemson Comprehensive Permanent Improvement Plan, Clemson building attribute summary, room inventory data, campus existing space data.

The metrics below are measured as follows:

- Learning space surplus or deficit by ASF compares the program's current learning space with its projected space. By quantity of ASF, programs with higher deficits receive a higher score to reflect their need for growth.
- Building condition by FCI compares the condition of the buildings each program resides in, and or an average of all the buildings they are part of.
- Research space surplus or deficit by ASF compares the program's current research space with its project space. By quantity of ASF, programs with higher deficits receive a higher score to reflect their need for growth.
- Suitability of equipment and technology compares data from the room inventory data.
- Ongoing repair and maintenance costs compares the sum total of repairs a building undergoes. These buildings are linked to their respective programs and departments.

8

QUADRANT DIAGRAM

QUADRANT DIAGRAM

METHODOLOGY

Strategic Undergraduate Academic Growth

Provide a methodology to holistically asses priority academic programs based on growth trends, student success, and college prioritization

+

Graduate and Research Growth

Provide a methodology to holistically asses priority graduate programs and research based on growth trends, alignment with ClemsonForward, and college prioritization

+

Space Availability

Understand the size, quality, and suitability of space currently supporting each academic program and ensure sustainable program growth and flexibility

Prioritization and Right-Sizing of Capital Projects

A collection of metrics are used to align each college's strategic academic and research growth with the current availability of space to prioritize and right-size capital projects over the next 15 years.

Quadrant Methodology Process

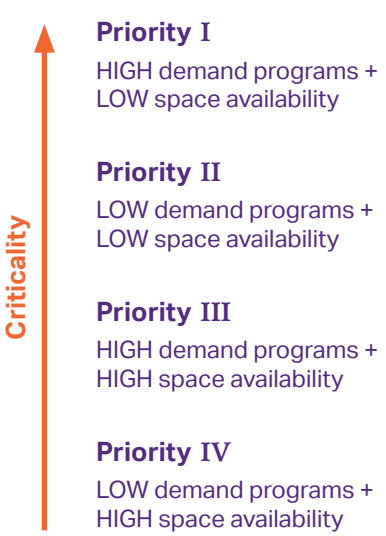
In order to align the metric categories of Strategic Undergraduate Growth, Graduate and Research Growth and Space Availability, Strategy+ created a quadrant system to populate the hierarchy of priority programs.

As undergraduate academic has separate metrics of growth from graduate and research, two quadrants have been created to reflect the program needs of each category. They will both be measured against space metrics to produce the structuring of the capital plan. The three areas of metrics combined produce a prioritization and right-sizing of capital projects.

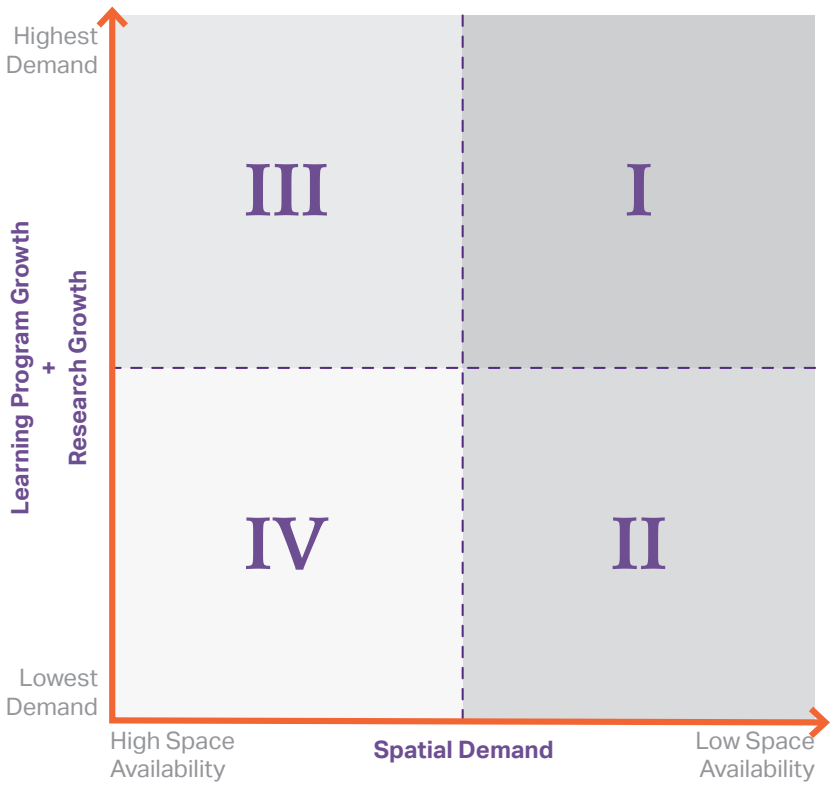
As stated above, a collection of metrics are used to align each College's strategic academic and research growth with the current availability of space to prioritize and right-size capital projects over the next 15 years.

This method was created to capture the holistic support of all colleges and best represent their future research and learning needs. The metrics in the methodology aim to reflect every aspect of a program that needs to be considered without bias. Through close collaboration of Strategy+ and Clemson, this methodology has been supported across all the Colleges.

HOW DOES IT WORK



Weighing strategic growth metrics against the spatial demand, a quadrant system is used to determine the sequencing and priority of capital projects to support academic programs.



The methodology and metric results are inputted into a quadrant system. The quadrant methodology chart is split into 4 areas.

- Priority I (Top Right)
- Priority II (Bottom Right)
- Priority III (Top Left)
- Priority IV (Bottom Left)

The Y-axis is the results of the learning program growth scores or the research growth scores. The X-axis is the results of the spatial demand scores. The higher the score on the Y-axis, the higher demand the program is based on learning and or research. The higher the score on the X-axis, the lower the availability of suitable space for the program, which indicates a higher need to be prioritized.

The end result has the identified priority programs populated across the four quadrants.

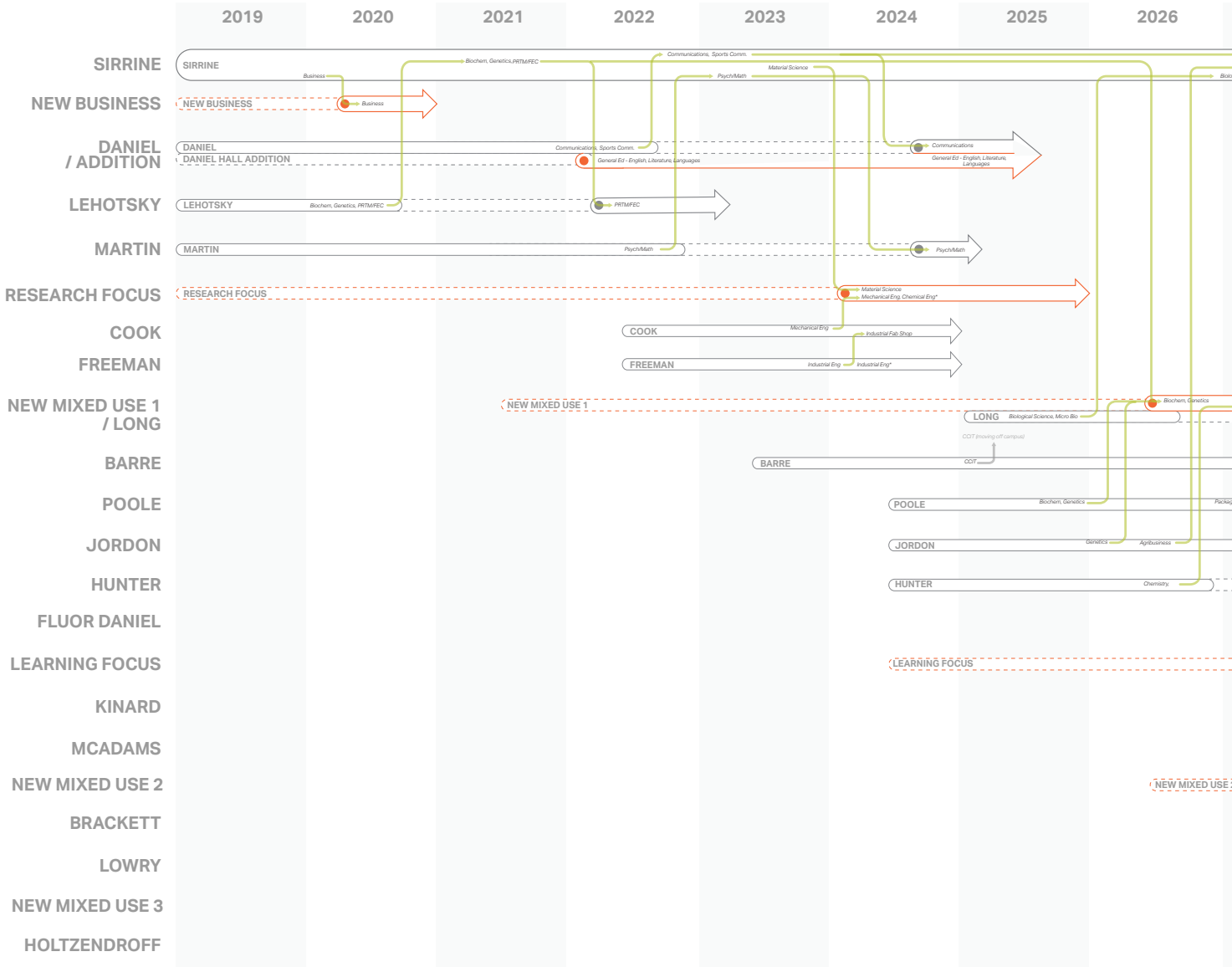
PRTM
FEC
2 MARTIN
MATH
+ PSYCH
NOV.
3 BIO
TO SEPTINÉ
SHORT TERM
CCIT
OFF CAMPUS
RAYANELLE
EXPAND
COMP. SCI (12K)
IN BARR + LIBRARY
BARR
COMP. SCI
+ PACK SCI
4 LONG
DEAN OF SCI
DRY LABS
6 HUNTOR
CHEM +
MATS SCI
RESEARCH
FLUOR
DANIEL
MECH E EXP.
MIXED USE
BLDG 2
COMP. SCI
EE
BARR
- SPORTS COM
- LANG + IM
HUM + TRAD
-
BRACKET
RELIGIOUS
STUDIES
PHILOSOPHY
LOWRY
GEN ENG
(HOLZENDORF)
+
IND ENG
GROWTH
HOLZENDORF
ELEM. ED
KINE
FUT
COS

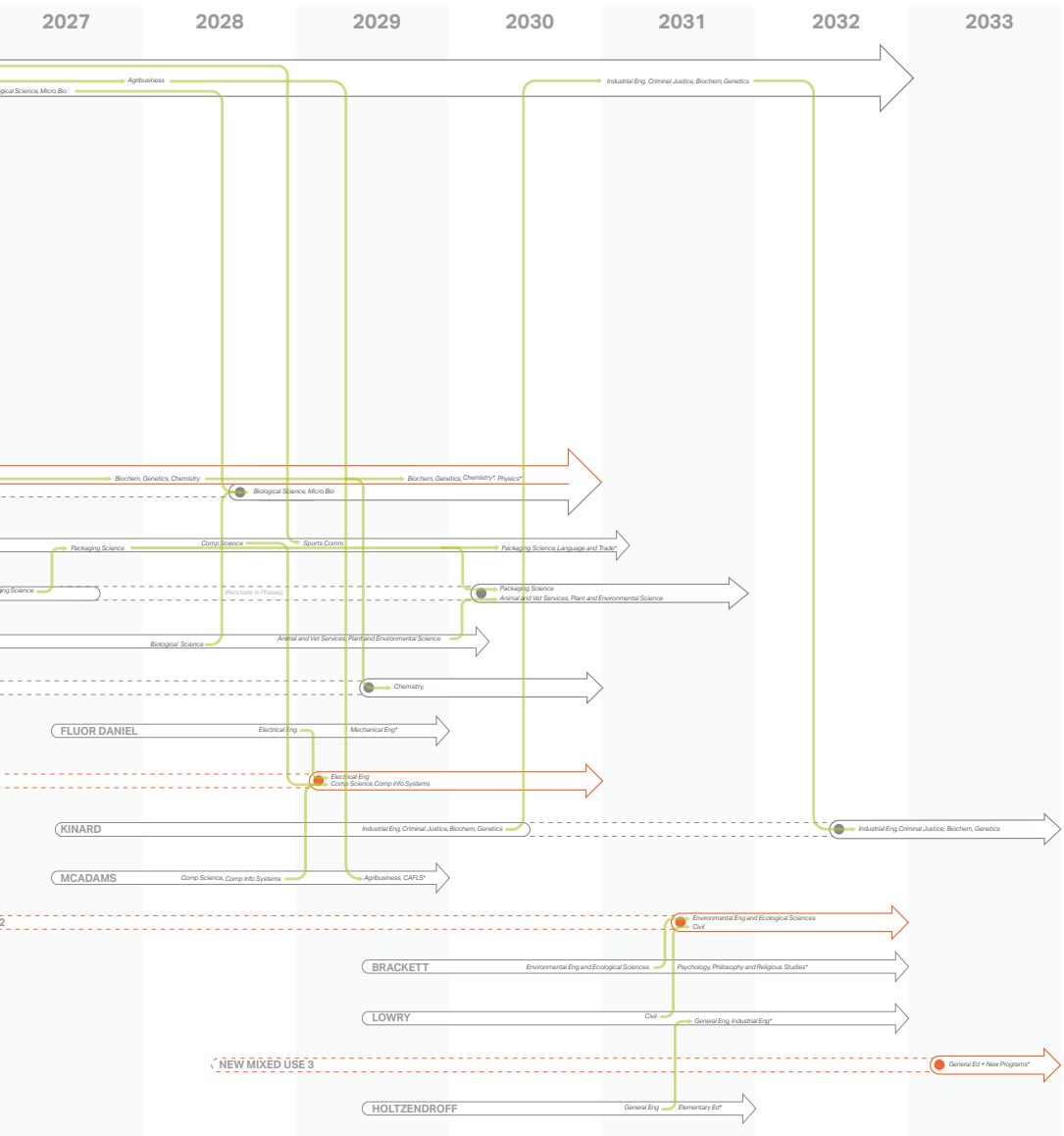
9

PROGRAM MOVES

PROGRAM MOVES

WHAT ARE THE MOVES?





LEGEND

- Doors Open (Renovation)
- Doors Open (New)
- Existing Building
- Renovation
- Existing Building (Renovated Space)
- Construction
- New Building
- Progam Moves
- * Room for Program Expansion / Growth

COLOCATON OPPORTUNITIES

Establishing the 15-year capital plan and integrating priority programs, creates an opportunity for departments to maximize colocation opportunities. As programs move to new buildings or swing spaces, colleges can progressively move distant programs to closer program proximity to heighten learning and research synergies.

The program moves diagram references the priority program needs from the learning and research quadrant chart. It is evident that Sirrine plays a very important role in the capital program moves schedule. Sirrine has the capabilities of becoming an integral transition space for many programs to temporarily move into as they await their new location.

This process of using Sirrine as a swing space, allows departments to consider how to best collocate their program synergies for the future. Many of the moves highlighted in the diagram, allow new construction buildings to become a newly focused program themed building.

These moves allow programs to synergize, as well as creating areas for programs to grow as others move out.

Further down the line, a key essential component to Clemson education are the general education courses. A new building will be dedicated to this program growth and create a more cohesive general education experience for all incoming students in 2029.

10

RESULTS

RESULTS

PRIORITY PROGRAMS - LEARNING

Priority I
HIGH demand programs +
LOW space availability

Priority II
LOW demand programs +
LOW space availability

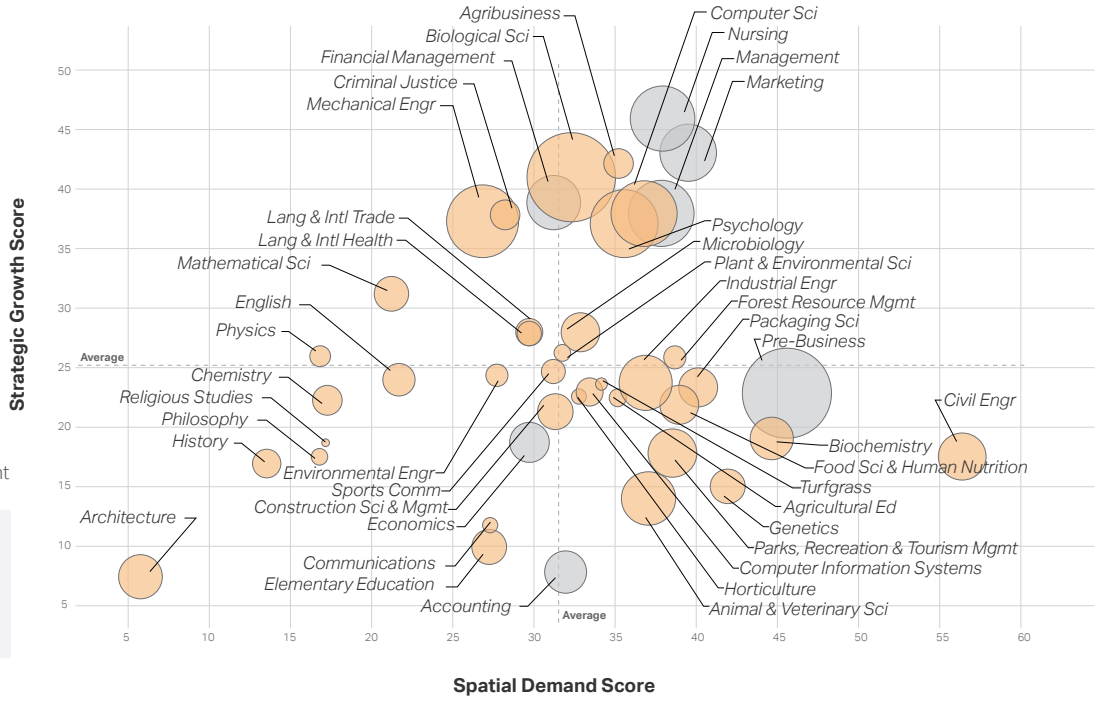
Priority III
HIGH demand programs +
HIGH space availability

Priority IV
LOW demand programs +
HIGH space availability

Size of circle = 2018 Program Enrollment

Using the weighted metrics and the established quadrant approach, each Dean-identified program is prioritized by the combination of its spatial demand and strategic growth score.

LEARNING PRIORITY QUADRANT



The results of the learning program quadrant exercise are represented above. The grey circles represent programs that already have a new space allocated (new Business building) and will not be listed below.

Priority I

Agribusiness, Biological Sci, Computer Sci, Psychology, Microbiology, Plant & Environmental Sci, Forest Resource Management

Priority II

Industrial Eng, Packaging Sci, Civil Eng, Biochemistry, Food Sci & Human Nutrition, Turfgrass, Agricultural Ed, Genetics, Parks Recreation & Tourism, Computer Information Systems, Horticulture, Animal & Veterinary Sci

Priority III

Criminal Justice, Mechanical Eng, Language & Intl Trade, Language & Intl Health, Mathematical Sci, Physics

Priority IV

Architecture, History, Philosophy, Religious Studies, Chemistry, English, Environmental Eng, Sports Communications, Communications, Elementary Education

PRIORITY PROGRAMS - GRADUATE / RESEARCH

Priority I
HIGH demand programs +
LOW space availability

Priority II
LOW demand programs +
LOW space availability

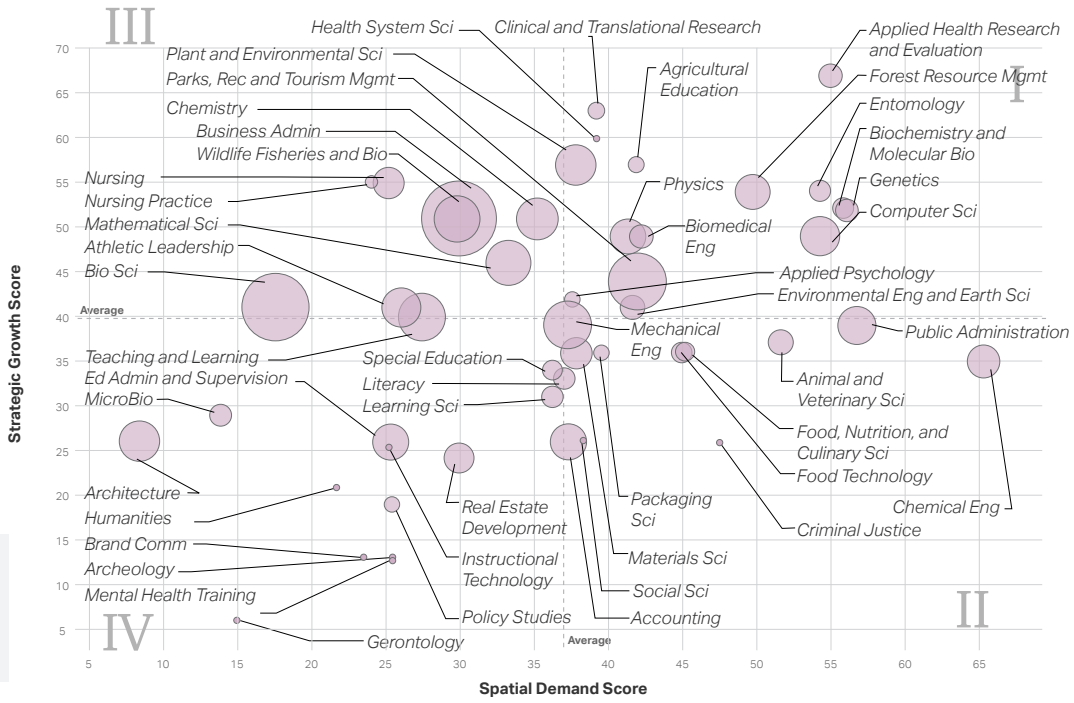
Priority III
HIGH demand programs +
HIGH space availability

Priority IV
LOW demand programs +
HIGH space availability

Size of circle = 2018 Program Enrollment

Using the weighted metrics and the established quadrant approach, each Dean-identified program is prioritized by the combination of its spatial demand and strategic growth score.

RESEARCH PRIORITY QUADRANT



The results of the research program quadrant exercise are represented above.

Priority I
Health Sys Sci, Clinical & Translational Research, Agricultural Ed, Physics, Biomedical Eng, Parks Rec and Tourism Mgmt, Applied Psychology, Environmental Eng and Earth Sci, Applied Health Research & Evaluation, Forest Resource Mgmt, Entomology, Biochem and Molecular Bio, Genetics, Computer Sci, Plant & Environ Sci

Priority II
Mech Eng, Public Admin, Chemical Eng, Animal & Veterinary Sci, Food Nutrition & Culinary Sci, Food Tech, Criminal Justice, Packaging Sci, Materials Sci, Social Sci, Accounting

Priority III
Chemistry, Business Admin, Wildlife Fisheries & Bio, Nursing, Nursing Practice, Mathematical Sci, Athletic Leadership, Bio Sci, Teaching & Learning

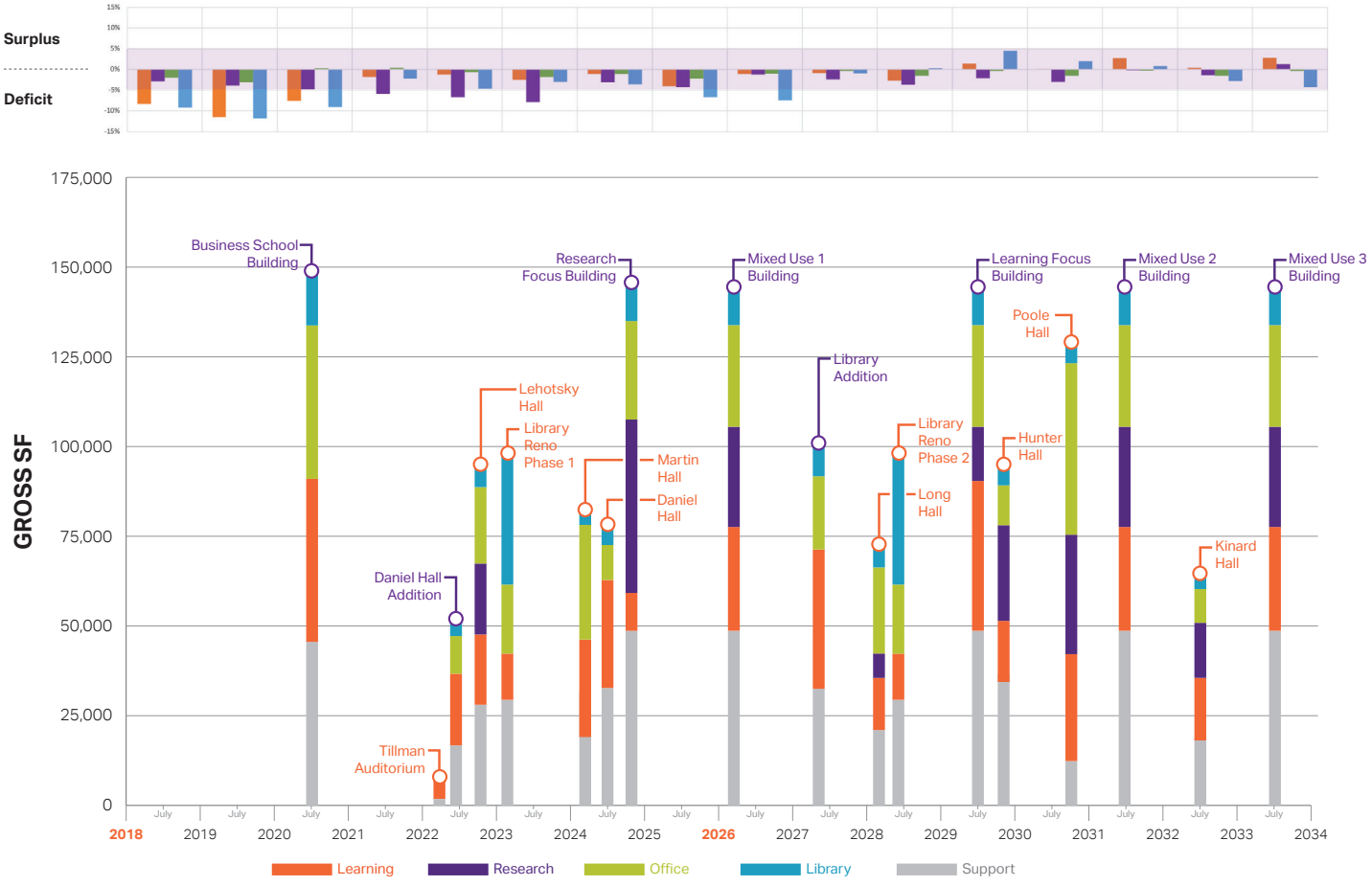
Priority IV
Special Ed, Literacy, Learning Sci, Real Estate, Instruc Tech, Policy Studies, Gerontology, Mental Health, Archeology, Brand Comm, Humanities, Arch, MicroBio, Ed Admin & Supervision

15 YEAR CAPITAL PLAN

Strategy+ and Clemson University worked closely together to establish a 15-year capital plan to accommodate the future goals and needs of the University. The product above, through months of workshops, engagements, interviews and site visits, addresses the issues of future space deficit and program moves aligned with the goals of ClemsonForward.

The capital plan projects shown above are each dissected by their space contributions in learning, research, office, library and support. Space projections for the entire University are also dissected into these space categories. Using these two comparative points, the sequencing of capital projects addresses the right sizing of the University deficits by 2026 and its growth by 2034, while maintaining the space surplus deficit within a 5% range.

The 15-year capital plan is also paired with the priority program moves diagram. As each renovation or new construction opens, a sequencing of program moves is planned to facilitate the colocation of departments. Ultimately, this series of planned relocations will create academic clusters focused on uniting College departments together and grouping interdisciplinary synergies identified during the prioritization exercise.



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APPENDIX

BUILDING PROGRAM PROFILES

RESEARCH FOCUS

Space

Learning	25,000 sqft.
Intensity 1	1,000 sqft.
Intensity 2	9,000 sqft.
Intensity 3	5,500 sqft.
Intensity 4	9,500 sqft.
Research	35,000 sqft.
Intensity 1	2,498 sqft.
Intensity 2	21,759 sqft.
Intensity 3	9,337 sqft.
Intensity 4	1,406 sqft.
Office	15,000 sqft.
Non Scheduled Learning	5,000 sqft.
Support	7,200 sqft.
Total ASF	87,200 sqft.
Gross Area	130,800 sqft.

Programs

Intensity 2
Mechanical Enigineering
Chemical Engineering
Material Science

MIXED USE 1

Space

Learning	35,000 sqft.
Intensity 1	1,400 sqft.
Intensity 2	12,600 sqft.
Intensity 3	7,700 sqft.
Intensity 4	13,300 sqft.
Research	25,000 sqft.
Intensity 1	1,785 sqft.
Intensity 2	15,542 sqft.
Intensity 3	6,669 sqft.
Intensity 4	1,005 sqft.
Office	20,000 sqft.
Non Scheduled Learning	5,000 sqft.
Support	7,650 sqft.
Total ASF	92,650 sqft.
Gross Area	138,975 sqft.

Programs

Intensity 2
Biochemistry
Chemistry

Intensity 3
Genetics
Physics

MIXED USE 2

Space

Learning	35,000 sqft.
Intensity 1	1,400 sqft.
Intensity 2	12,600 sqft.
Intensity 3	7,700 sqft.
Intensity 4	13,300 sqft.
Research	25,000 sqft.
Intensity 1	1,785 sqft.
Intensity 2	15,542 sqft.
Intensity 3	6,669 sqft.
Intensity 4	1,005 sqft.
Office	20,000 sqft.
Non Scheduled Learning	5,000 sqft.
Support	7,650 sqft.
Total ASF	92,650 sqft.
Gross Area	138,975 sqft.

Programs

Intensity 2
Environmental Enigineering
Civil Engineering

MIXED USE 3

Space

Learning	35,000 sqft.
Intensity 1	1,400 sqft.
Intensity 2	12,600 sqft.
Intensity 3	7,700 sqft.
Intensity 4	13,300 sqft.
Research	25,000 sqft.
Intensity 1	1,785 sqft.
Intensity 2	15,542 sqft.
Intensity 3	6,669 sqft.
Intensity 4	1,005 sqft.
Office	20,000 sqft.
Non Scheduled Learning	5,000 sqft.
Support	7,650 sqft.
Total ASF	92,650 sqft.
Gross Area	138,975 sqft.

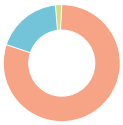
Programs

Intensity 2
Gen Ed
New Programs

DANIEL HALL

Space

Learning	32,577 sqft.
Intensity 1	1,191 sqft.
Intensity 2	11,727 sqft.
Intensity 3	7,229 sqft.
Intensity 4	12,430 sqft.
Research	0 sqft.
Intensity 1	0 sqft.
Intensity 2	0 sqft.
Intensity 3	0 sqft.
Intensity 4	0 sqft.
Office	7,960 sqft.
Non Scheduled Learning	320 sqft.
Support	0 sqft.
Total ASF	40,857 sqft.
Gross Area	61,286 sqft.



Programs

Intensity 1
Communications

LEHOTSKY

Space

Learning	15,423 sqft.
Intensity 1	564 sqft.
Intensity 2	5,552 sqft.
Intensity 3	3,423 sqft.
Intensity 4	5,885 sqft.
Research	14,138 sqft.
Intensity 1	0 sqft.
Intensity 2	0 sqft.
Intensity 3	0 sqft.
Intensity 4	0 sqft.
Office	24,327 sqft.
Non Scheduled Learning	1,651 sqft.
Support	502 sqft.
Total ASF	56,041 sqft.
Gross Area	84,062 sqft.

Programs

Intensity 4
Parks, Recreation and Tourism Management

BUILDING PROGRAM PROFILES

MARTIN HALL

Space

Learning	18,578 sqft.
Intensity 1	679 sqft.
Intensity 2	6,688 sqft.
Intensity 3	4,123 sqft.
Intensity 4	7,088 sqft.
Research	0 sqft.
Intensity 1	0 sqft.
Intensity 2	0 sqft.
Intensity 3	0 sqft.
Intensity 4	0 sqft.
Office	29,124 sqft.
Non Scheduled Learning	362 sqft.
Support	0 sqft.
Total ASF	48,064 sqft.
Gross Area	72,096 sqft.

Programs

Intensity 3
Psychology

Intensity 4
Mathematics

TILLMAN AUDITORIUM

Space

Learning	4,500 sqft.
Intensity 1	165 sqft.
Intensity 2	1,620 sqft.
Intensity 3	999 sqft.
Intensity 4	1717 sqft.
Research	0 sqft.
Intensity 1	0 sqft.
Intensity 2	0 sqft.
Intensity 3	0 sqft.
Intensity 4	0 sqft.
Office	0 sqft.
Non Scheduled Learning	0 sqft.
Support	0 sqft.
Total ASF	4,500 sqft.
Gross Area	6,750 sqft.

Programs

**Classroom space to support all academic programs*

POOLE

Space

Learning	29,784 sqft.
Intensity 1	1,089 sqft.
Intensity 2	10,722 sqft.
Intensity 3	6,610 sqft.
Intensity 4	11,364 sqft.
Research	33,619 sqft.
Intensity 1	0 sqft.
Intensity 2	0 sqft.
Intensity 3	0 sqft.
Intensity 4	0 sqft.
Office	47,679 sqft.
Non Scheduled Learning	5,451 sqft.
Support	12,816 sqft.
Total ASF	129,349 sqft.
Gross Area	194,024 sqft.

Programs

Intensity 1
Plant and Environmental Science

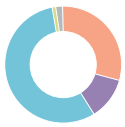
Intensity 2
Packaging Science

Intensity 3
Animal and Veterinary Science

LONG HALL

Space

Learning	13,684 sqft.
Intensity 1	500 sqft.
Intensity 2	4,926 sqft.
Intensity 3	3,037 sqft.
Intensity 4	5,221 sqft.
Research	5,368 sqft.
Intensity 1	0 sqft.
Intensity 2	0 sqft.
Intensity 3	0 sqft.
Intensity 4	0 sqft.
Office	26,273 sqft.
Non Scheduled Learning	296 sqft.
Support	756 sqft.
Total ASF	43,937 sqft.
Gross Area	65,906 sqft.



Programs

Intensity 2
Biological Science
Microbiology

LIBRARY

Space

Learning	4,170 sqft.
Intensity 1	152 sqft.
Intensity 2	1501 sqft.
Intensity 3	925 sqft.
Intensity 4	1591 sqft.
Research	0 sqft.
Intensity 1	0 sqft.
Intensity 2	0 sqft.
Intensity 3	0 sqft.
Intensity 4	0 sqft.
Office	9,878 sqft.
Non Scheduled Learning	23,703 sqft.
Support	6,188 sqft.
Total ASF	43,937 sqft.
Gross Area	69,566 sqft.

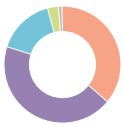
Programs

**Classroom space to support all academic programs*

HUNTER HALL

Space

Learning	20,639 sqft.
Intensity 1	754 sqft.
Intensity 2	7430 sqft.
Intensity 3	4580 sqft.
Intensity 4	7875 sqft.
Research	24,739 sqft.
Intensity 1	0 sqft.
Intensity 2	0 sqft.
Intensity 3	0 sqft.
Intensity 4	0 sqft.
Office	9,406 sqft.
Non Scheduled Learning	1,811 sqft.
Support	176 sqft.
Total ASF	56,771 sqft.
Gross Area	85,157 sqft.



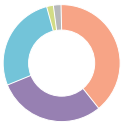
Programs

Intensity 2
Biochemistry
Chemistry

KINARD HALL

Space

Learning	15,649 sqft.
Intensity 1	572 sqft.
Intensity 2	15,633 sqft.
Intensity 3	3,473 sqft.
Intensity 4	5971 sqft.
Research	12,166 sqft.
Intensity 1	0 sqft.
Intensity 2	0 sqft.
Intensity 3	0 sqft.
Intensity 4	0 sqft.
Office	10,978 sqft.
Non Scheduled Learning	954 sqft.
Support	733 sqft.
Total ASF	40,480 sqft.
Gross Area	60,720 sqft.



Programs

Intensity 2
Biochemistry
Industrial Engineering

Intensity 3
Genetics

Intensity 4
Criminal Justice

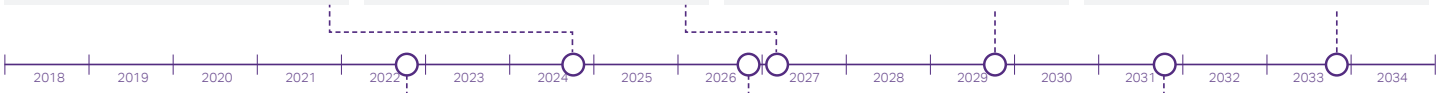
CAPITAL COST CALCULATION - NEW CONSTRUCTION

Research Focus	
Construction Start	2021
Door Open	2024
GSF	139,000 GSF
Project Cost	$113,700,000

Library Addition	
Construction Start	2024
Door Open	2027
GSF	90,000 GSF
Project Cost	$59,300,000

Learning Focus	
Construction Start	2026
Door Open	2029
GSF	139,000 GSF
Project Cost	$115,000,000

Mixed Use 3	
Construction Start	2030
Door Open	2033
GSF	139,000 GSF
Project Cost	$142,500,000



Daniel Hall Addition	
Construction Start	2020
Door Open	2022
GSF	52,000 GSF
Project Cost	$30,100,000

Mixed Use 1	
Construction Start	2023
Door Open	2026
GSF	139,000 GSF
Project Cost	$115,900,000

Mixed Use 2	
Construction Start	2028
Door Open	2031
GSF	139,000 GSF
Project Cost	$134,300,000

Note:

Total project cost estimates are based on an average cost per SF, by space type. Estimated costs include an assumed 3% escalation to the construction start date.

CAPITAL COST CALCULATION - RENOVATION

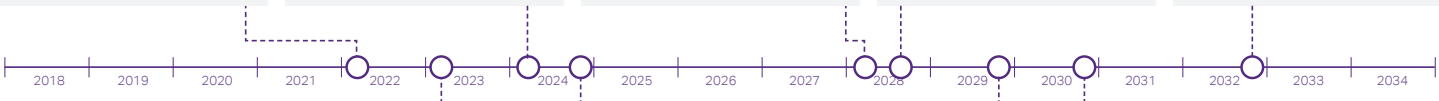
Lehotsky Hall	
Door Open	2022
GSF	84,062 GSF
Project Cost	$35,200,000 - $47,000,000

Martin Hall	
Door Open	2024
GSF	72,096 GSF
Project Cost	$24,500,000 - $32,700,000

Library (Phase 2)	
Door Open	2028
GSF	65,906 GSF
Project Cost	$28,900,000 - $38,500,000

Long Hall	
Door Open	2028
GSF	69,566 GSF
Project Cost	$30,700,000 - $40,900,000

Kinard Hall	
Door Open	2032
GSF	60,720 GSF
Project Cost	$36,400,000 - $48,500,000



Library (Phase 1)	
Door Open	2023
GSF	65,906 GSF
Project Cost	$24,900,000 - $33,200,000

Daniel Hall	
Door Open	2024
GSF	61,286 GSF
Project Cost	$21,700,000 - $28,900,000

Hunter Hall	
Door Open	2029
GSF	85,157 GSF
Project Cost	$51,400,000 - $68,600,000

Poole Hall	
Door Open	2030
GSF	194,024 GSF
Project Cost	$112,200,000 - $149,500,000

Note:

Total project cost estimates are based on an average cost per SF by space type. For significant renovations, the range represents 60% to 80% of the new construction costs. Estimated costs include an assumed 3% escalation to the construction start date.

DATA MECHANICS

Program Name

Department Name

Rate of growth

Listed by Dean

Profit Loss Margin by Program

How much enrollment of Gen Ed

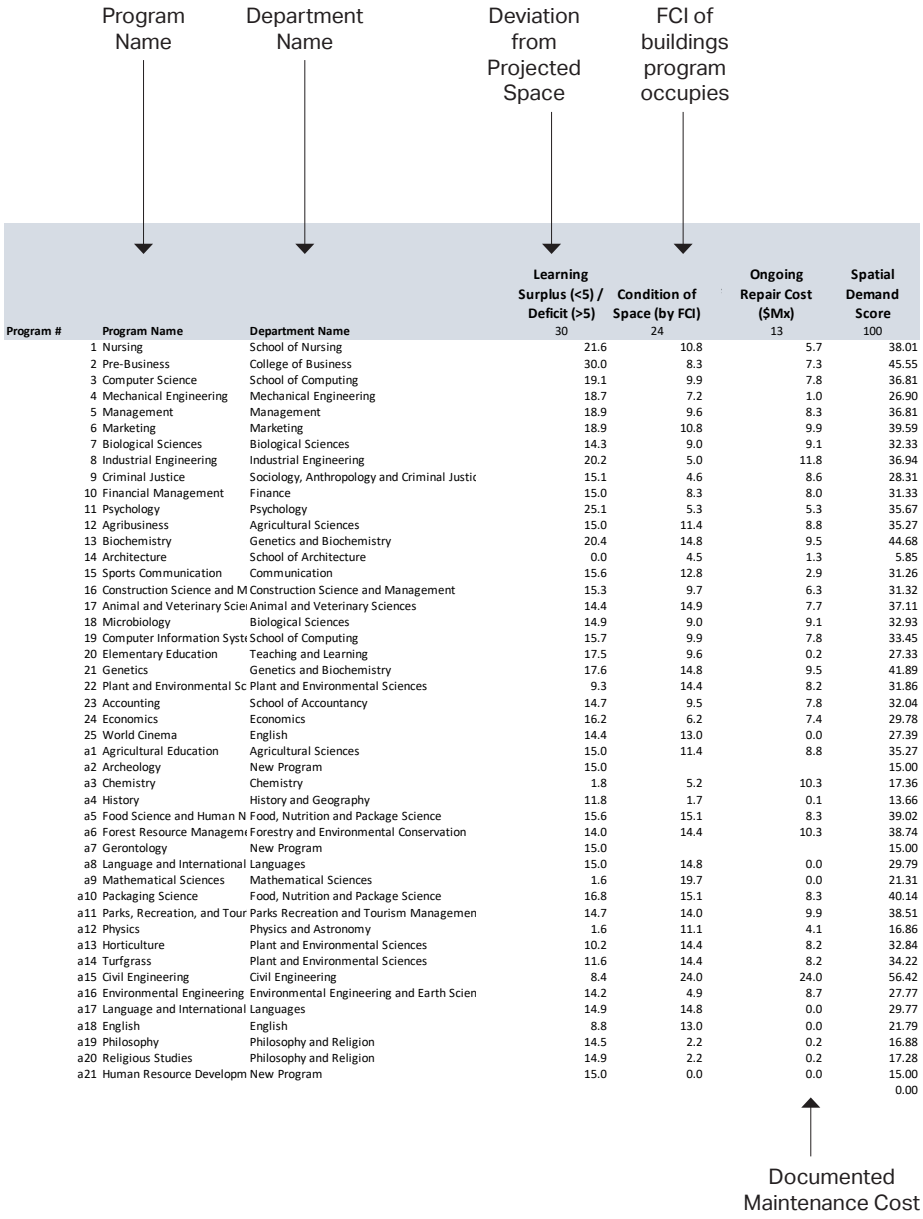
Program #	Program Name	Department Name	Enrollment growth over the last 5 years 13	Average enrollment growth rate over the last 5 years 12	Total Program Enrollment (2018) 14	Dean Prioritization 15	New Programs 6	Capped Enrollment with Intent to Grow 6	Profitability 12	General Education by Volume 12	General Education by Growth Rate 10	Strategic Growth Score 100
1	Nursing	School of Nursing	13.0	1.2	7.5	15	0	6	2.2	1.0	0.0	45.86
2	Pre-Business	College of Business	8.8	0.4	13.7	0	0	0		0.0	0	22.80
3	Computer Science	School of Computing	11.8	1.0	7.7	15	0	0	1.4	1.0	0.0	37.84
4	Mechanical Engineering	Mechanical Engineering	6.5	0.4	9.5	15	0	0	5.9	0.0	0	37.25
5	Management	Management	8.5	0.7	7.5	15	0	0	6.1	0.0	0	37.83
6	Marketing	Marketing	7.3	0.8	5.7	15	0	0	12.0	1.0	1.2	43.07
7	Biological Sciences	Biological Sciences	11.0	0.4	14.0	0	0	0	7.6	7.0	0.9	40.88
8	Industrial Engineering	Industrial Engineering	7.9	1.1	5.0	0	0	0	9.6	0.0	0	23.65
9	Criminal Justice	Sociology, Anthropology and Criminal Justic	5.8	0.0	1.6	15	0	0	4.3	3.0	8.1	37.76
10	Financial Management	Finance	5.9	0.7	5.3	15	0	0	11.9	0.0	0	38.82
11	Psychology	Psychology	4.0	0.3	8.3	15	0	0	6.1	2.0	1.4	37.10
12	Agribusiness	Agricultural Sciences	5.8	12.0	1.6	15	0	0	6.7	1.0	0.0	42.11
13	Biochemistry	Genetics and Biochemistry	5.7	1.2	3.2	0	0	6	2.9	0.0	0	19.05
14	Architecture	School of Architecture	3.4	0.6	3.4	0	0	0	0.0	0.0	0	7.39
15	Sports Communication	Communication	3.7	5.3	1.0	0	0	6	3.4	4.0	1.1	24.53
16	Construction Science and M	Construction Science and Management	3.5	1.1	2.2	0	0	6	8.4	0.0	0	21.21
17	Animal and Veterinary Scie	Animal and Veterinary Sciences	2.8	0.3	5.2	0	0	0	4.5	1.0	0.0	13.90
18	Microbiology	Biological Sciences	3.0	0.7	2.7	0	0	6	7.6	7.0	0.9	27.86
19	Computer Information Syste	School of Computing	2.7	1.5	1.4	15	0	0	1.4	1.0	0.0	22.92
20	Elementary Education	Teaching and Learning	1.4	0.4	2.1	0	0	0	6.0	0.0	0	9.88
21	Genetics	Genetics and Biochemistry	3.0	1.0	2.1	0	0	6	2.9	0.0	0	14.95
22	Plant and Environmental Sc	Plant and Environmental Sciences	2.0	0.0	0.5	15	0	0	0.0	1.0	7.7	26.13
23	Accounting	School of Accountancy	2.0	0.4	3.2	0	0	0	2.2	0.0	0	7.80
24	Economics	Economics	2.4	0.5	2.8	0	0	0	0.3	4.0	8.7	18.72
25	World Cinema	English	1.4	0.0	0.4	0	0	0	0.0	8.0	2.0	11.73
a1	Agricultural Education	Agricultural Sciences	-0.4	-0.4	0.5	15	0	0	6.7	1.0	0.0	22.42
a2	Archeology	New Program				0	6	0		0.0	0	6.00
a3	Chemistry	Chemistry	-0.4	0.0	1.6	15	0	0	0.0	6.0	0.0	22.22
a4	History	History and Geography	-2.3	-0.5	1.5	15	0	0	0.0	3.0	0.2	16.82
a5	Food Science and Human N	Food, Nutrition and Package Science	-0.9	-0.1	2.8	15	0	0	4.0	1.0	0.0	21.82
a6	Forest Resource Managem	Forestry and Environmental Conservation	1.0	0.6	1.0	15	0	0	2.2	1.0	5.0	25.79
a7	Gerontology	New Program				0	6	0		0.0	0	6.00
a8	Language and International	Languages	0.1	0.1	1.0	15	0	0	0.6	1.0	10.0	27.84
a9	Mathematical Sciences	Mathematical Sciences	0.8	0.2	2.0	15	0	0	0.0	12.0	1.1	31.09
a10	Packaging Science	Food, Nutrition and Package Science	0.4	0.1	2.7	15	0	0	4.0	1.0	0.0	23.21
a11	Parks, Recreation, and Tour	Parks Recreation and Tourism Managemen	-2.5	-0.3	4.4	15	0	0	1.0	0.0	0	17.72
a12	Physics	Physics and Astronomy	-0.5	-0.3	0.8	15	0	0	0.0	10.0	0.9	25.84
a13	Horticulture	Plant and Environmental Sciences	-0.8	-0.7	0.4	15	0	0	0.0	1.0	7.7	22.52
a14	Turfgrass	Plant and Environmental Sciences	-0.2	-0.2	0.3	15	0	0	0.0	1.0	7.7	23.53
a15	Civil Engineering	Civil Engineering	-2.2	-0.3	3.7	15	0	0	1.3	0.0	0	17.48
a16	Environmental Engineering	Environmental Engineering and Earth Scien	0.0	0.0	0.9	15	0	0	0.0	3.0	5.4	24.28
a17	Language and International	Languages	0.0	0.0	1.3	15	0	0	0.6	1.0	10.0	27.90
a18	English	English	-2.5	-0.5	1.9	15	0	0	0.0	8.0	2.0	23.92
a19	Philosophy	Philosophy and Religion	-0.7	-0.4	0.5	15	0	0	0.0	3.0	0.0	17.49
a20	Religious Studies	Philosophy and Religion	0.5	0.0	0.1	15	0	0	0.0	3.0	0.0	18.59
a21	Human Resource Developm	New Program				0	6	0		0.0	0	6.00

How much enrollment growth by quantity

Total Volume of Current Program Enrollment

Rate of Growth in Gen Ed

DATA MECHANICS



Program #	Program Name	Department Name	Learning Surplus (<5) / Deficit (>5) 30	Condition of Space (by FCI) 24	Ongoing Repair Cost ($Mx) 13	Spatial Demand Score 100
1	Nursing	School of Nursing	21.6	10.8	5.7	38.01
2	Pre-Business	College of Business	30.0	8.3	7.3	45.55
3	Computer Science	School of Computing	19.1	9.9	7.8	36.81
4	Mechanical Engineering	Mechanical Engineering	18.7	7.2	1.0	26.90
5	Management	Management	18.9	9.6	8.3	36.81
6	Marketing	Marketing	18.9	10.8	9.9	39.59
7	Biological Sciences	Biological Sciences	14.3	9.0	9.1	32.33
8	Industrial Engineering	Industrial Engineering	20.2	5.0	11.8	36.94
9	Criminal Justice	Sociology, Anthropology and Criminal Justic	15.1	4.6	8.6	28.31
10	Financial Management	Finance	15.0	8.3	8.0	31.33
11	Psychology	Psychology	25.1	5.3	5.3	35.67
12	Agribusiness	Agricultural Sciences	15.0	11.4	8.8	35.27
13	Biochemistry	Genetics and Biochemistry	20.4	14.8	9.5	44.68
14	Architecture	School of Architecture	0.0	4.5	1.3	5.85
15	Sports Communication	Communication	15.6	12.8	2.9	31.26
16	Construction Science and M	Construction Science and Management	15.3	9.7	6.3	31.32
17	Animal and Veterinary Scie	Animal and Veterinary Sciences	14.4	14.9	7.7	37.11
18	Microbiology	Biological Sciences	14.9	9.0	9.1	32.93
19	Computer Information Syste	School of Computing	15.7	9.9	7.8	33.45
20	Elementary Education	Teaching and Learning	17.5	9.6	0.2	27.33
21	Genetics	Genetics and Biochemistry	17.6	14.8	9.5	41.89
22	Plant and Environmental Sc	Plant and Environmental Sciences	9.3	14.4	8.2	31.86
23	Accounting	School of Accountancy	14.7	9.5	7.8	32.04
24	Economics	Economics	16.2	6.2	7.4	29.78
25	World Cinema	English	14.4	13.0	0.0	27.39
a1	Agricultural Education	Agricultural Sciences	15.0	11.4	8.8	35.27
a2	Archeology	New Program	15.0			15.00
a3	Chemistry	Chemistry	1.8	5.2	10.3	17.36
a4	History	History and Geography	11.8	1.7	0.1	13.66
a5	Food Science and Human N	Food, Nutrition and Package Science	15.6	15.1	8.3	39.02
a6	Forest Resource Managem	Forestry and Environmental Conservation	14.0	14.4	10.3	38.74
a7	Gerontology	New Program	15.0			15.00
a8	Language and International	Languages	15.0	14.8	0.0	29.79
a9	Mathematical Sciences	Mathematical Sciences	1.6	19.7	0.0	21.31
a10	Packaging Science	Food, Nutrition and Package Science	16.8	15.1	8.3	40.14
a11	Parks, Recreation, and Tour	Parks Recreation and Tourism Managemen	14.7	14.0	9.9	38.51
a12	Physics	Physics and Astronomy	1.6	11.1	4.1	16.86
a13	Horticulture	Plant and Environmental Sciences	10.2	14.4	8.2	32.84
a14	Turfgrass	Plant and Environmental Sciences	11.6	14.4	8.2	34.22
a15	Civil Engineering	Civil Engineering	8.4	24.0	24.0	56.42
a16	Environmental Engineering	Environmental Engineering and Earth Scien	14.2	4.9	8.7	27.77
a17	Language and International	Languages	14.9	14.8	0.0	29.77
a18	English	English	8.8	13.0	0.0	21.79
a19	Philosophy	Philosophy and Religion	14.5	2.2	0.2	16.88
a20	Religious Studies	Philosophy and Religion	14.9	2.2	0.2	17.28
a21	Human Resource Developm	New Program	15.0	0.0	0.0	15.00
						0.00

CAPITAL PROJECT PLANNER - SAMPLE

Existing Space	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	
Learning	595,292 SF	595,292 SF	595,292 SF	595,292 SF	595,292 SF	595,292 SF	595,292 SF	5
Research (Modified x 93.88)	606,884 SF	606,884 SF	606,884 SF	606,884 SF	606,884 SF	606,884 SF	606,884 SF	6
Research (Original)	646,446 SF	646,446 SF	646,446 SF	646,446 SF	646,446 SF	646,446 SF	646,446 SF	6
Office	830,666 SF	830,666 SF	830,666 SF	830,666 SF	830,666 SF	830,666 SF	830,666 SF	8
Non-scheduled Learning	205,593 SF	205,593 SF	205,593 SF	205,593 SF	205,593 SF	205,593 SF	205,593 SF	2
Support	709,932 SF	709,932 SF	709,932 SF	709,932 SF	709,932 SF	709,932 SF	709,932 SF	7
Projected Space								
0.98	663,903 SF	679,438 SF	695,298 SF	711,492 SF	728,032 SF	744,928 SF	762,191 SF	7
Learning	650,625 SF	665,849 SF	681,392 SF	697,262 SF	713,472 SF	730,030 SF	746,947 SF	7
Research	646,010 SF	655,960 SF	666,135 SF	676,535 SF	687,480 SF	698,490 SF	709,950 SF	7
Office	856,017 SF	864,774 SF	873,531 SF	882,836 SF	892,140 SF	901,445 SF	910,749 SF	9
Non-scheduled Learning	230,001 SF	235,590 SF	241,330 SF	247,226 SF	253,283 SF	259,505 SF	265,898 SF	2
Support	762,449 SF	775,095 SF	787,964 SF	801,235 SF	814,840 SF	828,630 SF	842,734 SF	8

New Construction Project 1	**None**	**New Business School**	**Daniel Hall Addition**	**None**	**None**	**Research Focus**	**None**	**Mixed Use**
Learning		37575	16000			25000		3500
Research						35000		2500
Office		36575	9000			15000		2000
Non-scheduled Learning		11210	7000			5000		500
Support			2880			7200		765

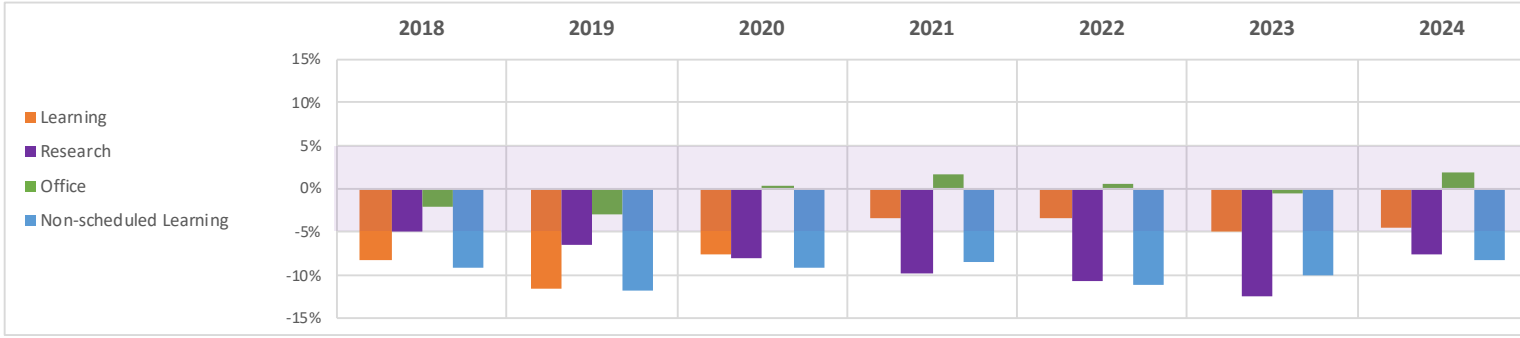
New Construction Project 2	**None**	**None**	**None**	**None**	**None**	**None**	**None**	**None**
Learning								
Research								
Office								
Non-scheduled Learning								
Support								

Renovation Project 1	**None**	**None**	**None**	**Daniel Hall**	**Martin Hall**	**None**	**None**	**None**
Effective Learning Area				13,031	7,431			
Effective Research Area								
Effective Non-Scheduled Learning A				128	145			

Renovation Project 2	**None**	**Tillman Auditorium**	**None**	**Lehotsky**	**Library Renovation (2 P**	**None**	**None**	**None**
Effective Learning Area		1,800		6,169	1,668			
Effective Research Area				990				
Effective Non-Scheduled Learning A				660	9,481			

Renovation Project 3	**None**	**None**	**None**	**None**	**None**	**None**	**None**	**None**
Effective Learning Area								
Effective Research Area								
Effective Non-Scheduled Learning A								

Overall Deficit	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Learning	-9%	-5%	-5%	-5%	-6%	-4%	-7%
Research	-4%	-5%	-6%	-7%	-8%	-3%	-4%
Office	-3%	0%	0%	-1%	-2%	-1%	-2%
Non-scheduled Learning	-12%	-9%	-9%	-11%	-9%	-10%	-13%
Support	-7%	-9%	-11%	-12%	-14%	-15%	-17%



CAPITAL PROJECT PLANNER - SAMPLE

2026	2027	2028	2029	2030	2031	2032	2033	
95,292 SF	595,292 SF	595,292 SF	595,292 SF	595,292 SF	595,292 SF	595,292 SF	595,292 SF	
06,884 SF	606,884 SF	606,884 SF	606,884 SF	606,884 SF	606,884 SF	606,884 SF	606,884 SF	*For main campus
46,446 SF	646,446 SF	646,446 SF	646,446 SF	646,446 SF	646,446 SF	646,446 SF	646,446 SF	
30,666 SF	830,666 SF	830,666 SF	830,666 SF	830,666 SF	830,666 SF	830,666 SF	830,666 SF	
05,593 SF	205,593 SF	205,593 SF	205,593 SF	205,593 SF	205,593 SF	205,593 SF	205,593 SF	*Remove Stacks
09,932 SF	709,932 SF	709,932 SF	709,932 SF	709,932 SF	709,932 SF	709,932 SF	709,932 SF	*Unusable Non-scheduled classrooms have been put into this bucket
79,832 SF	797,862 SF	816,292 SF	835,134 SF	854,401 SF	874,103 SF	894,253 SF	914,864 SF	
64,235 SF	781,905 SF	799,966 SF	818,432 SF	837,313 SF	856,621 SF	876,368 SF	896,567 SF	
21,255 SF	733,325 SF	745,795 SF	758,380 SF	771,445 SF	784,640 SF	798,220 SF	812,490 SF	
20,601 SF	930,453 SF	940,305 SF	950,157 SF	960,009 SF	969,861 SF	979,712 SF	990,112 SF	
72,467 SF	279,218 SF	286,155 SF	293,286 SF	300,615 SF	308,150 SF	315,896 SF	323,860 SF	
57,139 SF	871,968 SF	887,111 SF	902,481 SF	918,202 SF	934,167 SF	950,463 SF	967,369 SF	

	None	None	Learning Focus	None	Mixed Use	None	Mixed Use
00			35000		35000		35000
00			15000		25000		25000
00			20000		20000		20000
0			15000		5000		5000
0			7650		7650		7650

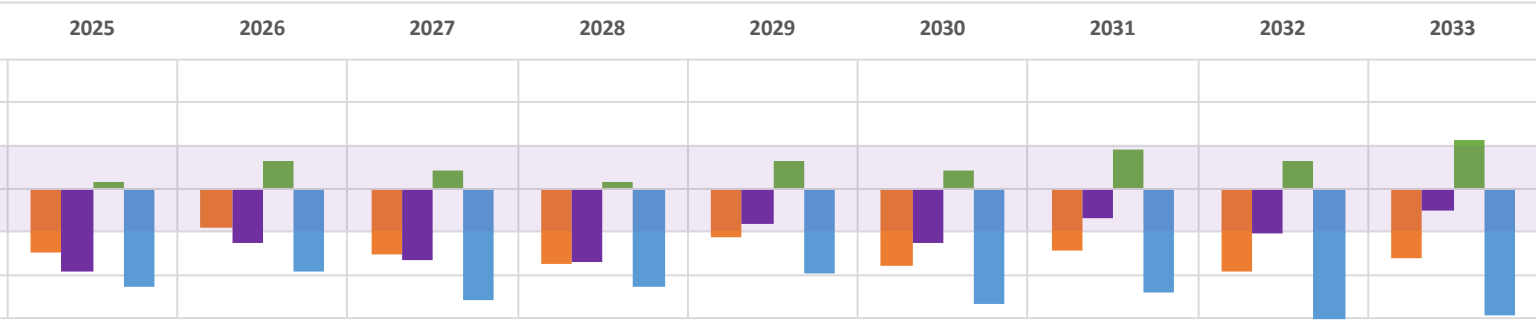
	Library Addition	None	None	None	None	None	None
	20000						
	15000						
	20000						
	4950						

None	Long Hall	Hunter Hall	None	None	Kinard Hall	None
	5,474	8,256			6,260	
	376	1,732			852	
	118	724			382	

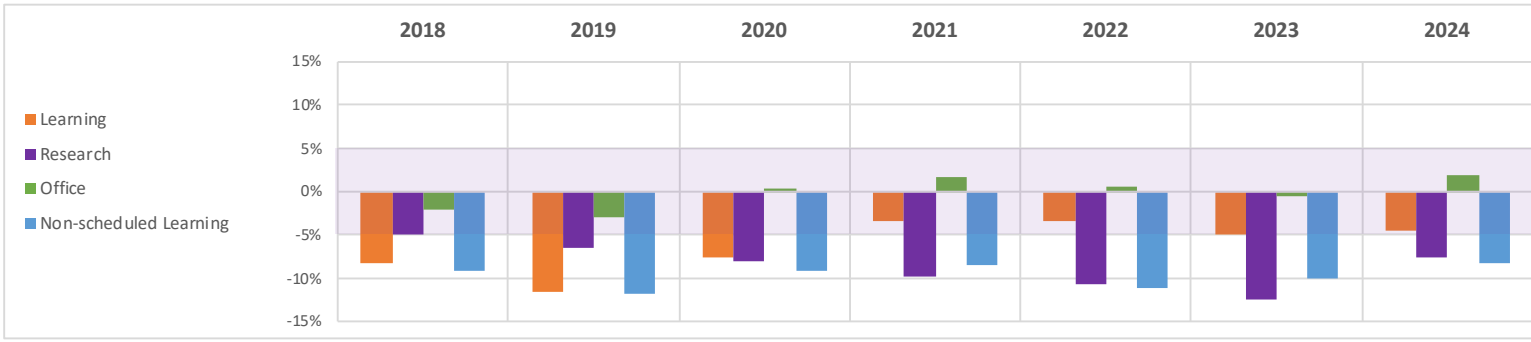
None	Library Renovation (2 Pl	None	None	None	None	None
	1,668					
	9,481					

None	None	None	Poole	None	None	None
			11,914			
			2,353			
			2,180			

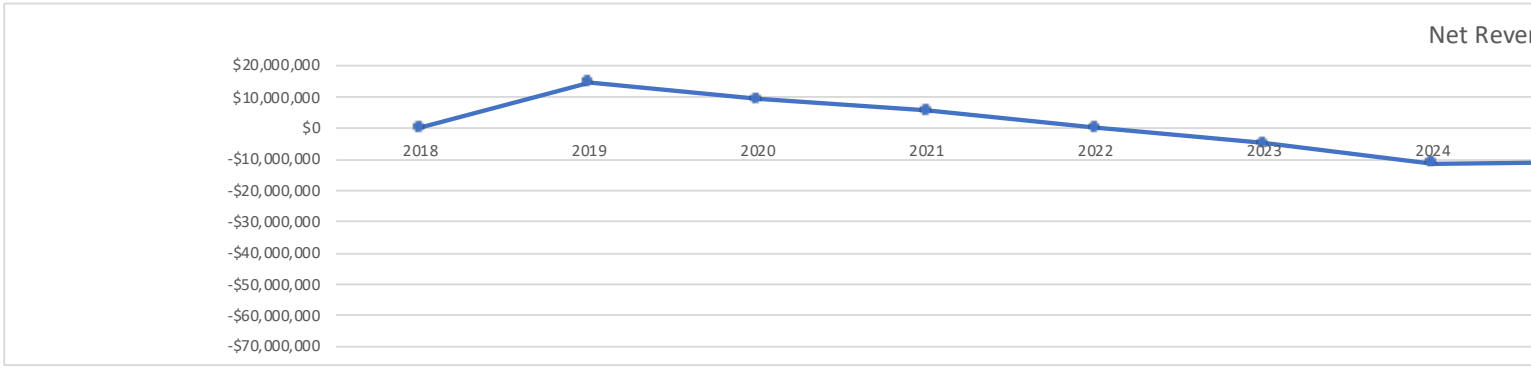
2026	2027	2028	2029	2030	2031	2032	2033
-4%	-4%	-6%	-2%	-3%	0%	-2%	0%
-1%	-2%	-4%	-2%	-3%	0%	-1%	1%
-1%	-1%	-2%	0%	-2%	0%	-2%	0%
-14%	-7%	-6%	-2%	-4%	-6%	-9%	-11%
-18%	-20%	-22%	-23%	-25%	-26%	-29%	-30%



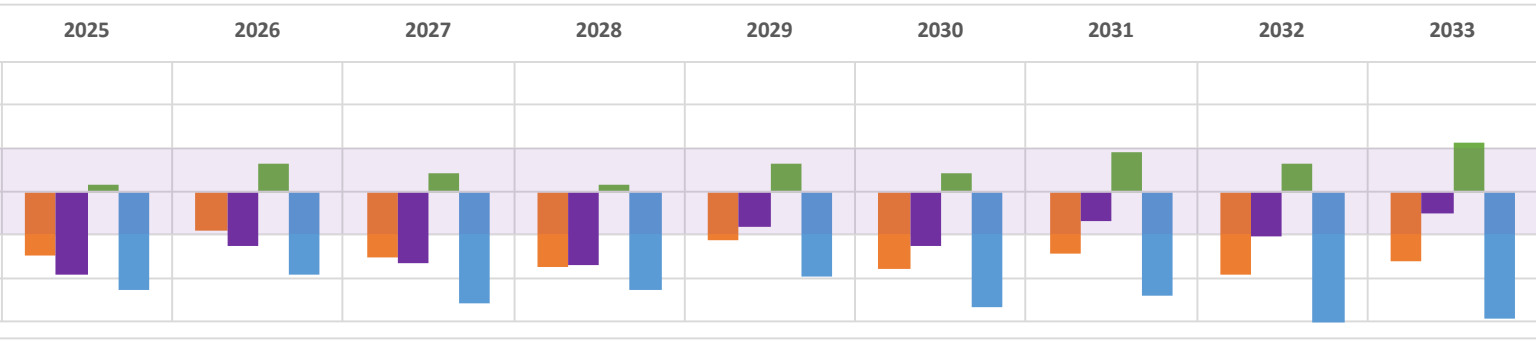
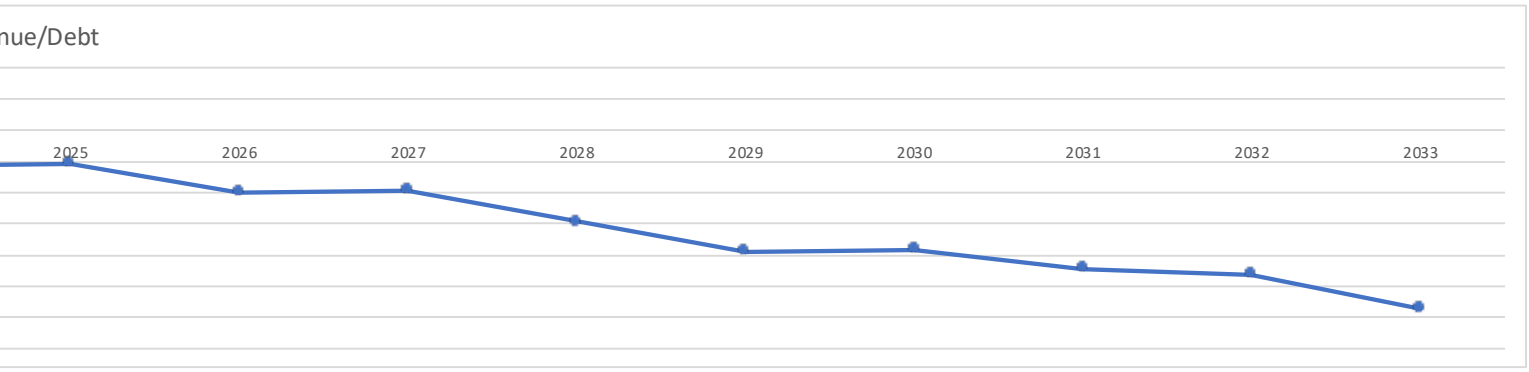
CAPITAL PROJECT PLANNER - SAMPLE



Project Costs							
Project 1 Annual Cost	$0	$0	$5,396,574	$4,235,830	$0	$0	$8,104,015
Project 2 Annual Cost	$0	$0	$0	$0	$0	$0	$0
Renovation Project 1 Annual Cost	$0	$0	$0	$0	$2,481,920	$2,919,720	$0
Renovation Project 2 Annual Cost	$0	$0	$273,359	$0	$3,404,295	$2,669,020	$0
Renovation Project 3 Annual Cost	$0	$0	$0	$0	$0	$0	$0
Total Project Annual Costs	**$0**	**$0**	**$5,669,934**	**$9,905,764**	**$15,791,980**	**$21,380,720**	**$29,484,735**
Faculty Start-up Cost	##	##	##	##	##	##	##
Compensation and Benefits	##	##	##	##	##	##	##
Additional Revenue							
Increased Enrollment Tuition Revenu	$0	$14,582,936	$15,016,772	$15,464,601	$15,926,916	$16,404,228	$16,897,067
O&M/Comp Research Revenue	$0	$0	$0	$0	$0	$0	$1,249,398
O&M/Comp Research Revenue	$0	$0	$0	$0	$0	$0	$1,249,398
Net Revenue/Debt	$0	$14,582,936	$9,346,838	$5,558,837	$134,936	-$4,976,492	-$11,338,270



CAPITAL PROJECT PLANNER - SAMPLE



$0	$7,658,545	$0	$0	$7,658,545	$0	$7,658,545	$0	$7,658,545
$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$2,817,241	$0	$7,857,501	$3,448,640	$0	$0	$2,459,019	$0
$0	$0	$0	$2,669,020	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0
$29,484,735	**$39,960,521**	**$39,960,521**	**$50,487,042**	**$61,594,228**	**$61,594,228**	**$69,252,773**	**$71,711,792**	**$79,370,337**
##	##	##	##	##	##	##	##	##
##	##	##	##	##	##	##	##	##
$17,405,985	$17,931,553	$18,474,366	$19,035,040	$19,614,216	$20,212,560	$20,830,763	$21,469,542	$22,129,646
$0	$918,905	$0	$0	$918,905	$0	$918,905	$0	
$1,249,398	$2,168,303	$2,168,303	$2,168,303	$3,087,209	$3,087,209	$4,006,114	$4,006,114	
-$10,829,352	-$19,860,665	-$19,317,852	-$29,283,699	-$38,892,803	-$38,294,459	-$44,415,896	-$46,236,135	-$57,240,691