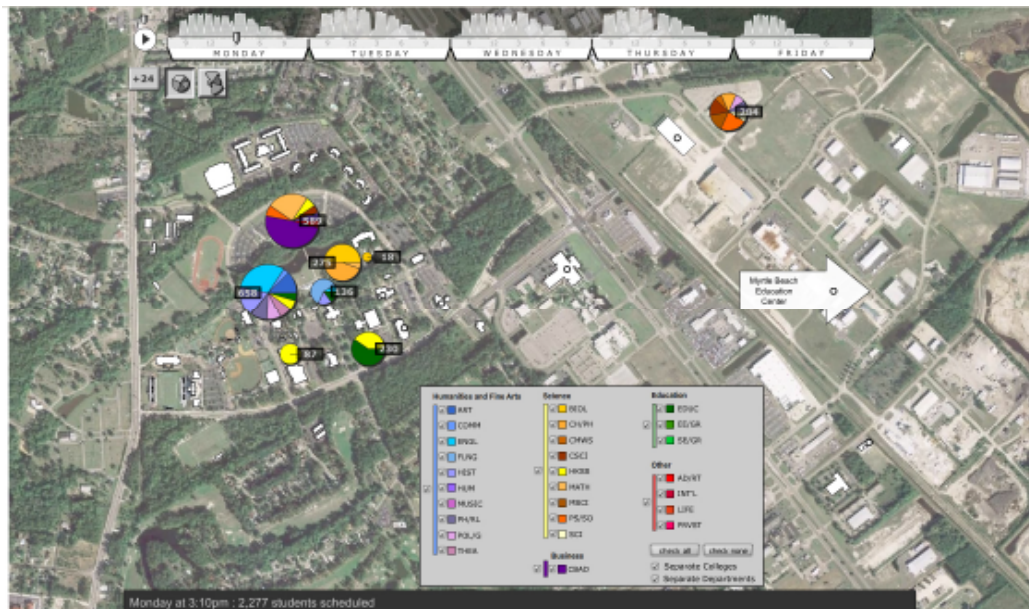


date 15 September 2010  
 to Coastal Carolina University Master Plan Committee and Steering Committee  
 from Sasaki Associates, Inc.  
 project name Coastal Carolina University Master Plan  
 project # 94657.00  
 subject Academic and Space Programming

This memorandum documents existing space use and projects space needs for enrollments of 12,500 and 18,500. The assumptions and factors on which the analysis is based are presented below and include space type, amount of space, utilization, class schedule, and projected growth.

At an enrollment of 12,500, the analysis shows the need for 336,000 gross square feet (gsf) of academic and student life space, 1,270 beds of residential use, and 34 acres of recreation fields. Additionally, due to the inefficiencies and connectivity issues associated with classes scheduled on the East Campus, Sasaki recommends 69,385 gsf of academic space to replace space at the Coastal Science Center. At an enrollment of 18,500, the analysis shows the need for 873,000 gsf of academic and student life space, 1,380 beds of residential use, and 47 acres of recreation fields.

The quantitative analysis confirms issues raised in interviews with faculty, staff, and administrative leaders. In particular, interviewees noted the need for student life space – a "living room" for the campus – and for classroom space to accommodate recent growth.



*Classroom utilization Monday afternoons, 3 PM*

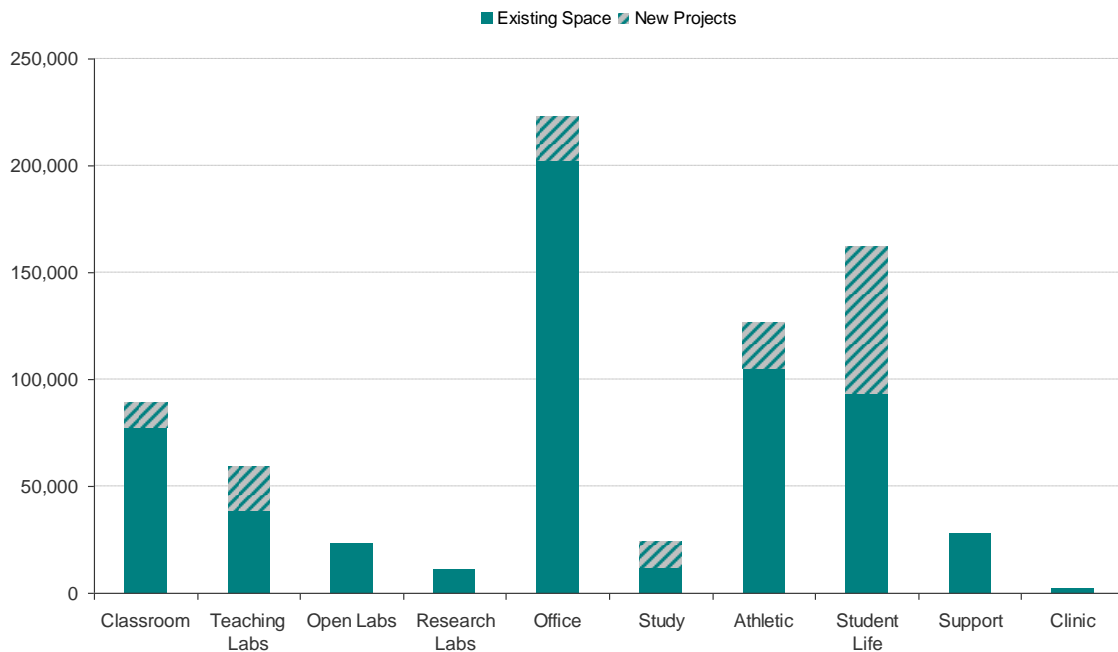
**1. Buildings Excluded from Analysis**

- The Public Safety House – 4,000 ASF – is currently classified as student life meeting space, but likely will be repurposed.
- Georgetown Higher Education Center – 4,557 ASF – is leased space the university is not renewing.
- Myrtle Beach Education Center – 16,948 ASF – is an off-site location.
- Waccamaw Education Center – 11,168 ASF – is also an off-site location.
- Total space excluded from this analysis: 36,673 ASF.

**2. Existing and planned space**

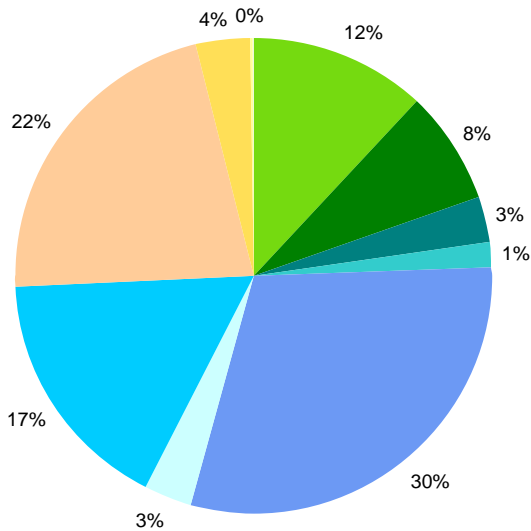
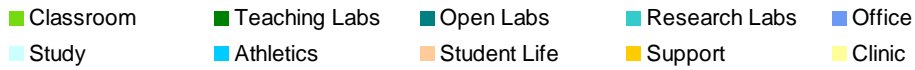
- The inventory of existing space contains about 592K ASF of academic and student life space, excluding residential facilities. A complete inventory of existing residential space is not available, but is estimated at 700K ASF. This gives a total of 1.29M ASF of existing space.
- There is 155.4K ASF of new space currently being planned and designed. Assuming a 65% GSF to ASF efficiency factor, this new space is:

Proposed Structure	GSF	ASF
Swain Science annex	39,060	25,565
Library addition	18,680	12,142
Student Recreation and Convocation Center	130,000	84,500
Dining Hall Addition	5,400	3,510
Classroom/Office building	46,000	29,670

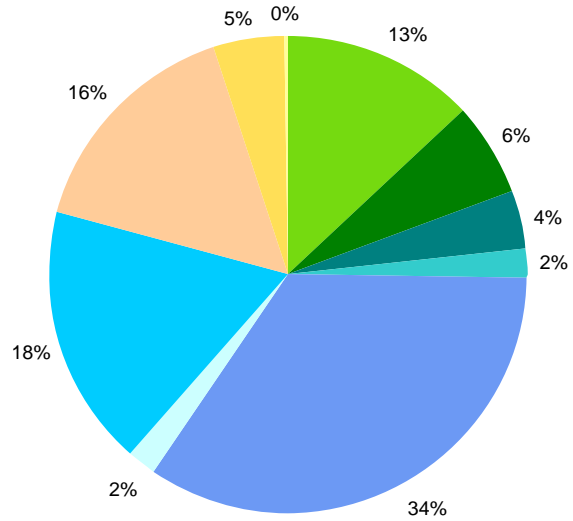


### 3. Distribution of existing and planned space

- Academic space, which includes classrooms, teaching labs, research labs, and offices, currently represents 60% of all non-residential space and will represent 54% with the addition of proposed new space.
- Residential space (not shown) is estimated to be more than 50 percent of the total existing space.



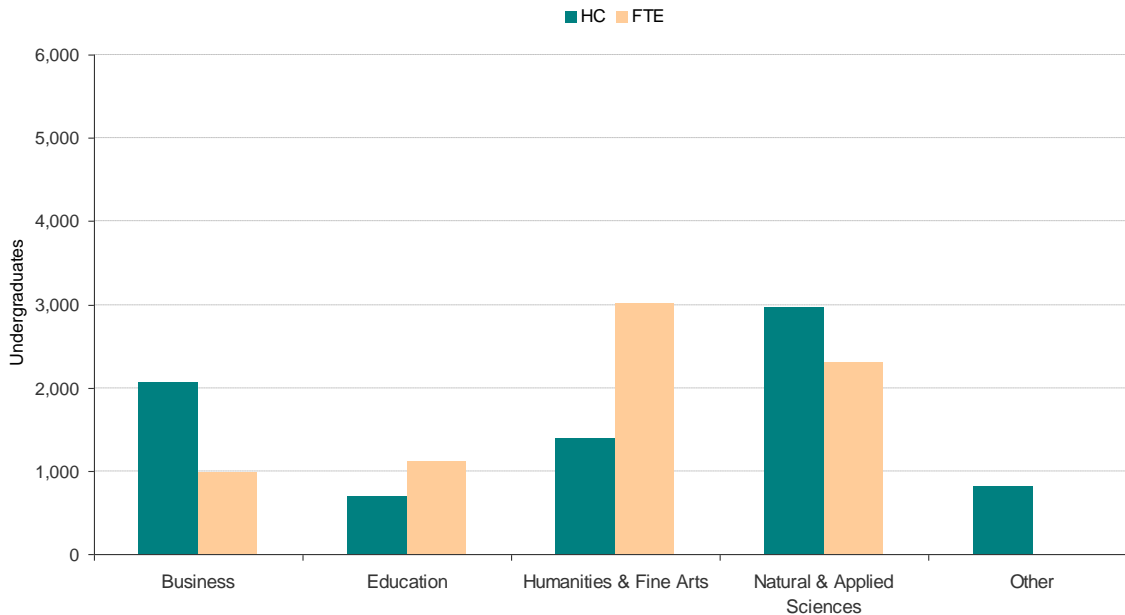
**Existing**



**Existing and Planned**

**4. Fall 2009 Undergraduate Student Headcount and FTE**

- The university had a Fall 2009 undergraduate headcount enrollment of 7,920 and an FTE enrollment of 7,410 Full Time Equivalents.
- Humanities & Fine Arts and Natural & Applied Sciences produce the most FTEs, primarily because of core course requirements.



**5. 12,500 Headcount Enrollment – Undergraduate**

- The Provost’s office provided headcount and credit hour projections for Fall 2020. These projections envisioned a headcount enrollment of 11,523 with enrollment breakdowns across the four colleges. The projections do not include assignments for undeclared students (labeled in the chart below as “Other”). Sasaki therefore carried existing “other” enrollments forward to create a scenario for 12,500 headcount enrollment.
- While all disciplines will add students, the proportion of Business and Natural & Applied Sciences students is projected to decline while Education and Humanities & Fine Arts will increase:

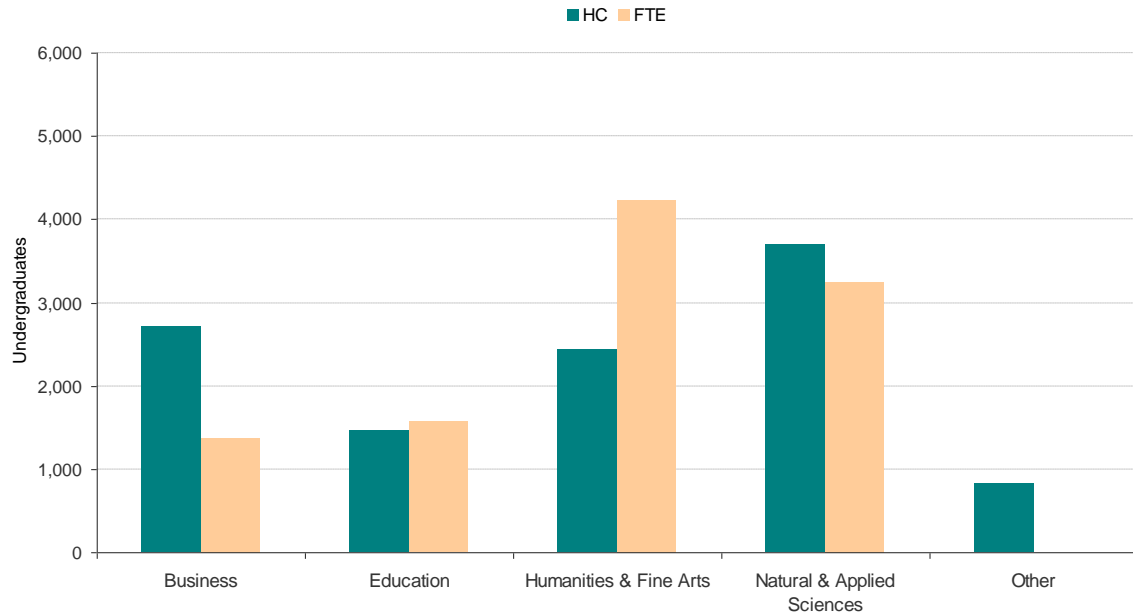
	Today	12,500
BUS	29.0%	26.3%
EDU	9.7%	14.2%
HFA	19.5%	23.7%
NAS	41.8%	35.9%

- No specific information was provided for FTE projections. Instead, the provided information on projected credit hours was used to determine the proposed percentage breakdown of FTE enrollments by college. The existing ratios of headcount –to-FTE students for undergraduate and graduate students was then applied to the relevant components of the 12,500 headcount enrollment figure to determine a total FTE projection of 11,138 undergraduate and 619 graduate students. The total undergraduate FTE figure was then pro-rated across the colleges using the credit hour percentages.
- The relevant FTE- to- HC ratios for undergraduates and graduates from the 2009 enrollment figures provided by the university are as follows:

<b>UG FTE:HC</b>	0.94
<b>Grad FTE:HC</b>	0.45

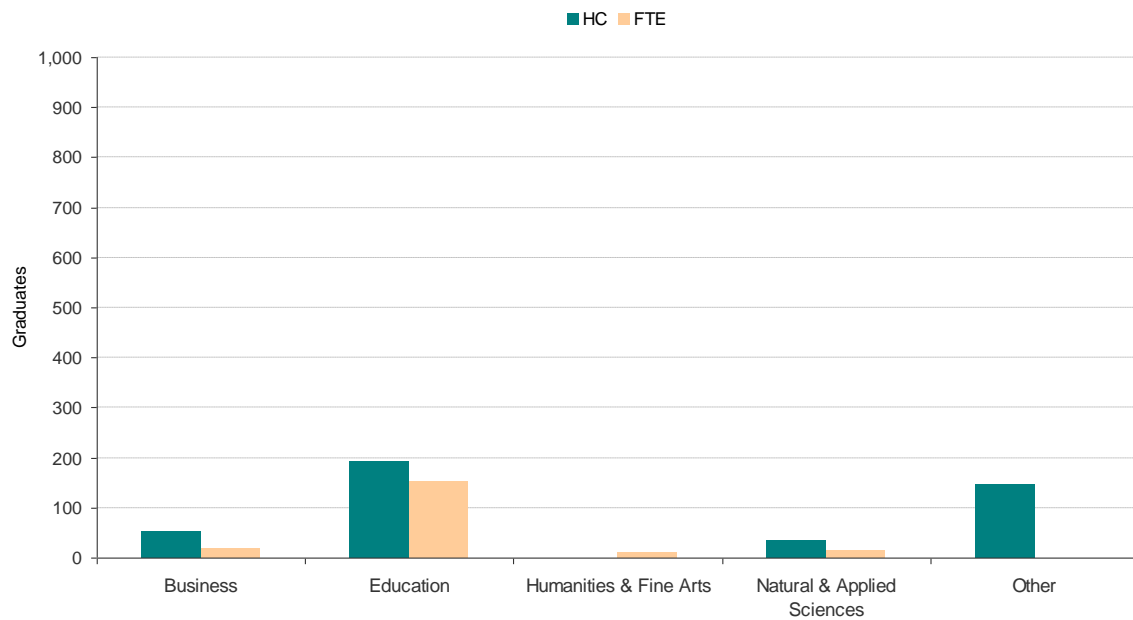
- The proposed distribution amongst the colleges as provided by the Provost's office's 2020 credit hour projections are:

	Undergrad	Grad
BUS	13%	10%
EDU	15%	77%
HFA	41%	6%
NAS	31%	7%



**6. Fall 2009 Graduate Student Headcount and FTE**

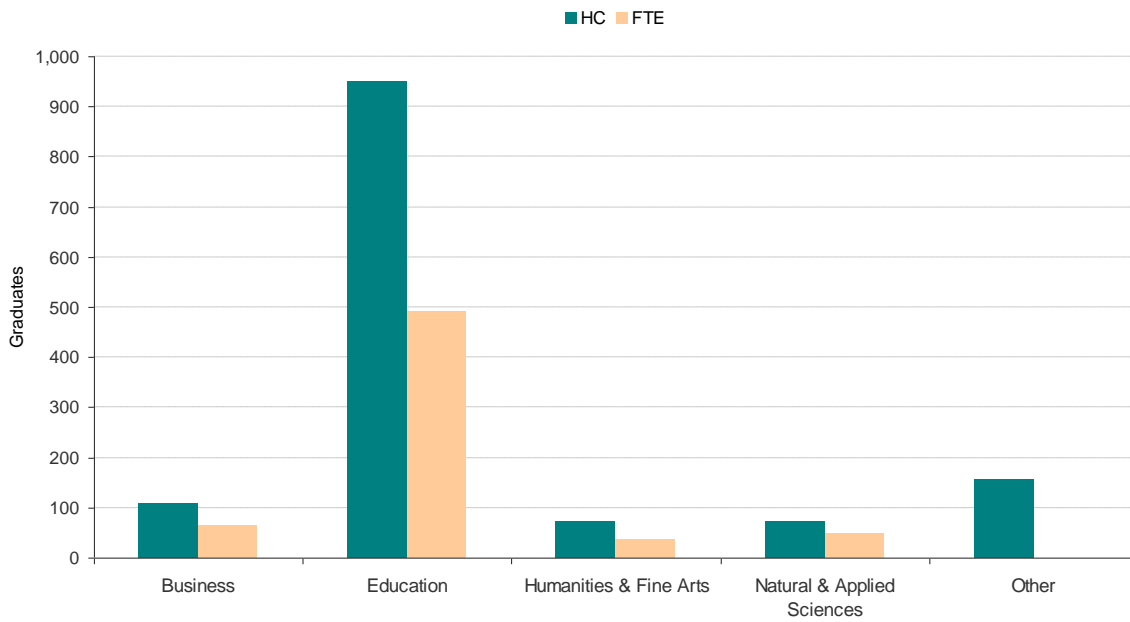
- A graduate headcount of 440 produces 200 FTEs, a ratio of 45%.
- Education produces the most FTEs



**7. 12,500 Headcount Enrollment – Graduate**

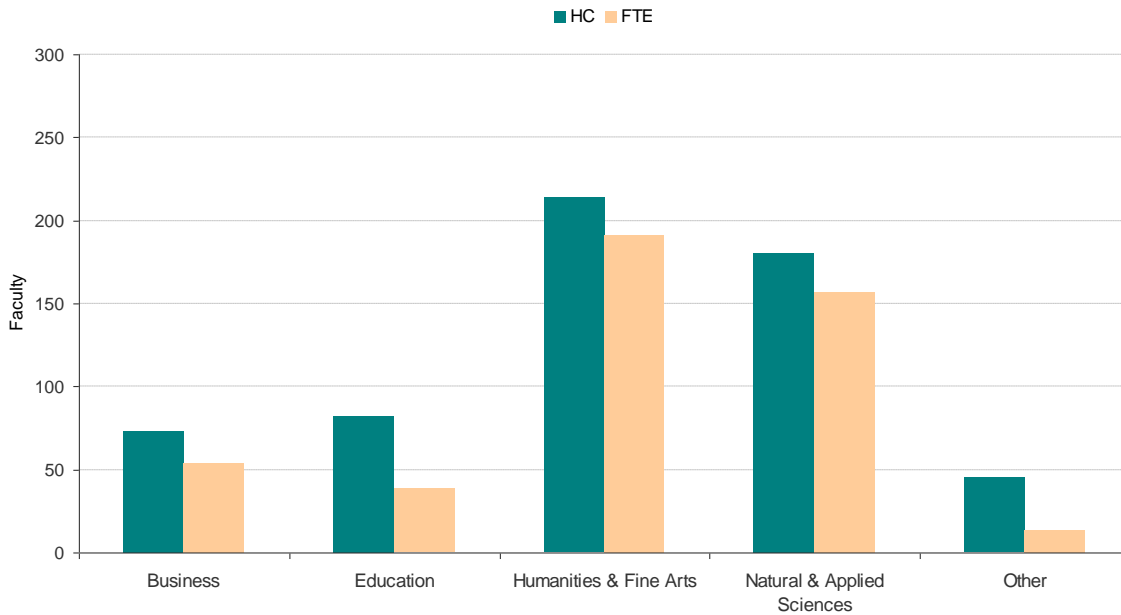
- Using the same methodology as with undergraduates, at headcount 12,500, we project 1,362 graduate students producing 619 FTEs.
- While all disciplines will add students, the proportion of Business and Natural & Applied Sciences students will shrink. As the largest graduate program, Education will represent nearly 80% of headcount graduate students. Humanities & Fine Arts will grow from zero to 6%.

	Today	12,500
BUS	18.0%	9.0%
EDU	69.4%	78.9%
HFA	0.0%	6.1%
NAS	12.6%	6.1%



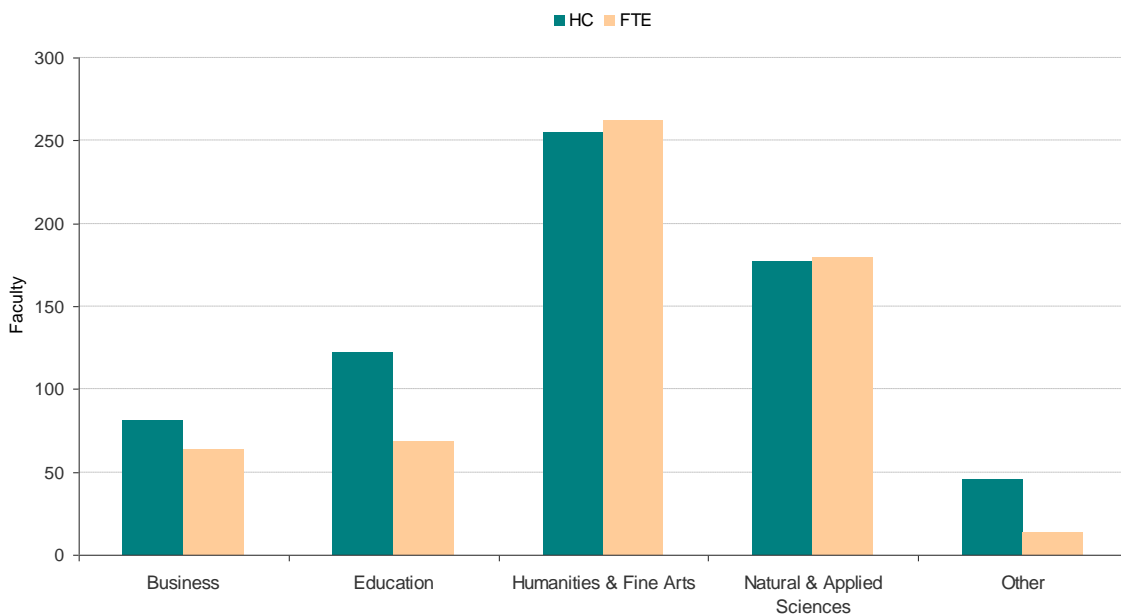
**8. Fall 2009 Faculty Headcount and FTE**

- The university provided both headcount and FTE totals for faculty as of Fall 2009. The faculty headcount is 595; the FTE total is 453. The student/faculty Ratio is 16.4.
- Humanities & Fine Arts and Natural & Applied Sciences, the two largest undergraduate disciplines, have the largest faculty headcounts.



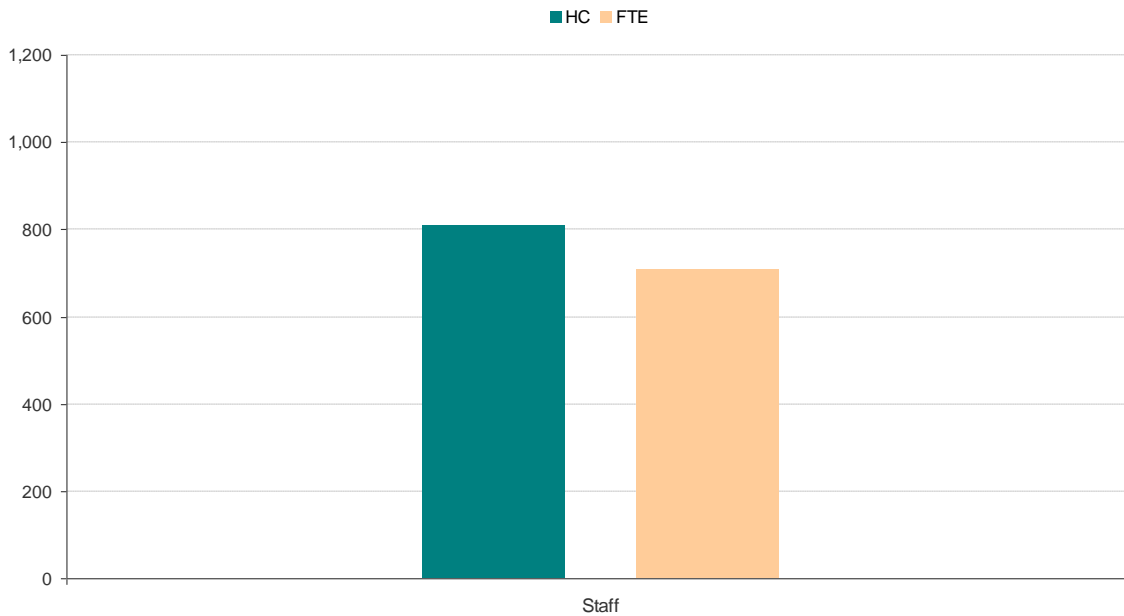
**9. 12,500 Headcount Enrollment – Faculty**

- The Provost’s office’s 2020 projections include headcount projections for full- and part-time faculty. The existing FTE-to-headcount ratios by college were applied to these totals to generate projected faculty FTE levels.
- At headcount 12,500, we therefore project a faculty headcount of 681 generating 511 FTEs.
- The student/faculty ratio will increase to 20.4.



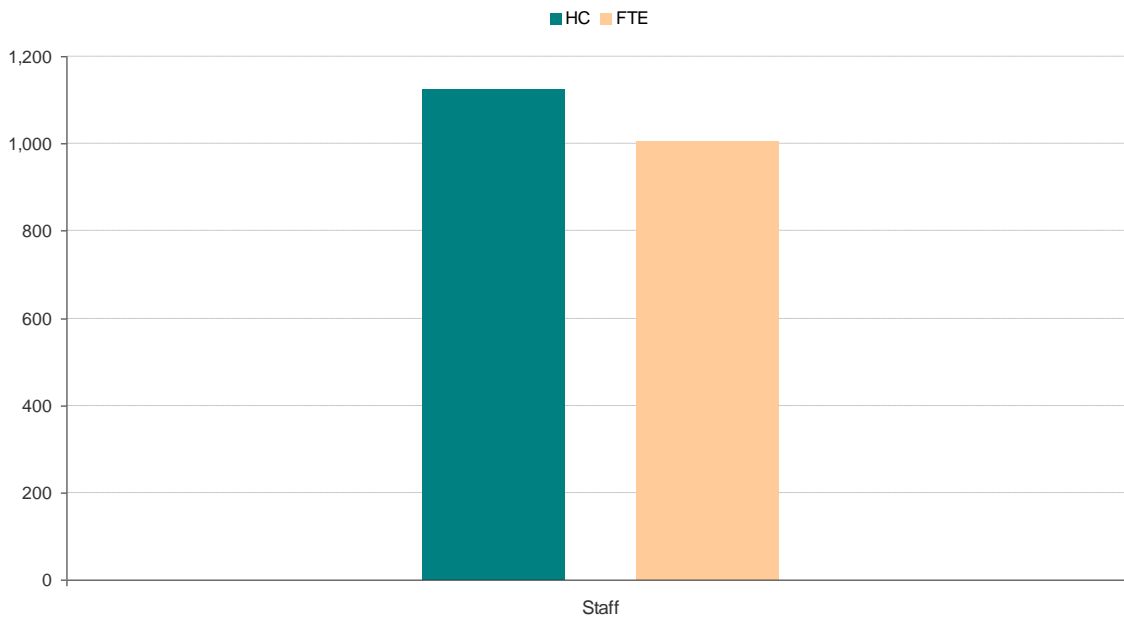
**10. Fall 2009 Staff Headcount and FTE**

- Existing information details the number of full-time (606) and part-time (202) staff. No information exists on existing staff FTE. We therefore assume part-time staff each generate .5 FTEs to calculate an existing staff FTE of 708.
- The student/staff ratio is 10.5 undergraduate FTEs to one staff FTE.



**11. 12,500 Headcount Enrollment – Staff**

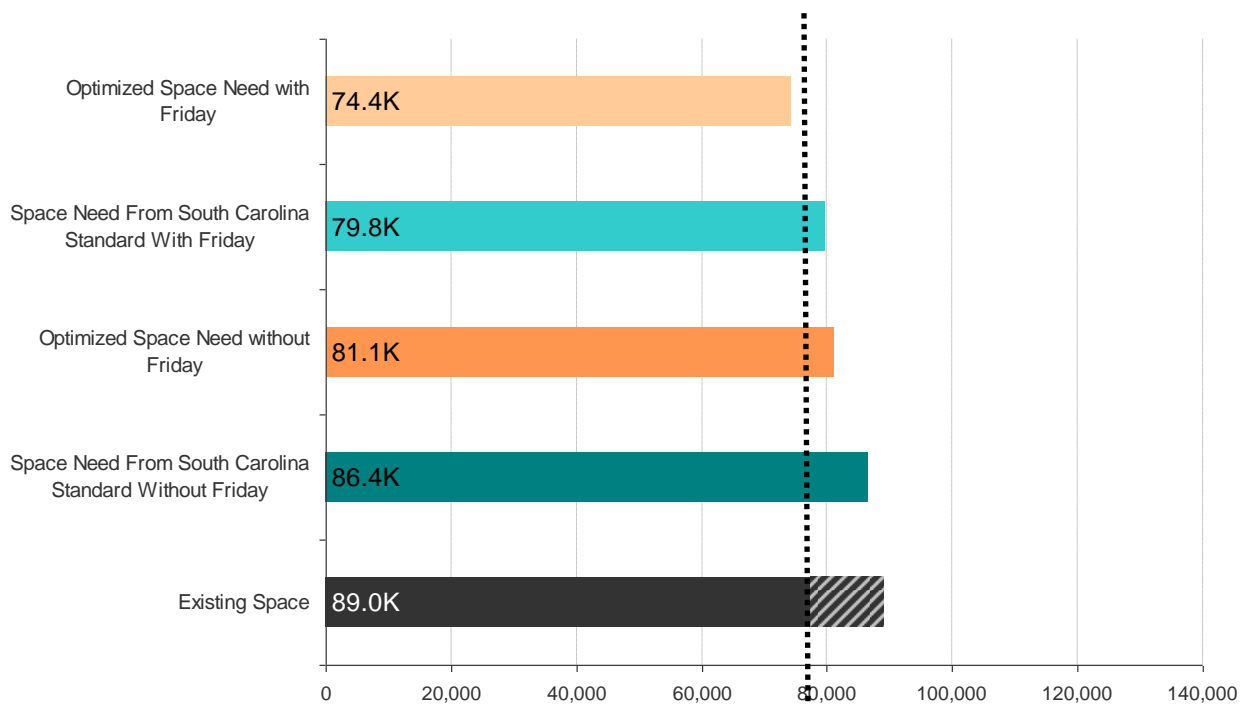
- The Provost’s office calculations for 2020 detail 885 full-time and 239 part-time staff. At headcount 12,500, we therefore project 1,124 staff and use the existing ratios to project 1,005 FTEs.
- The student/staff ratio will remain about the same at 10.4.





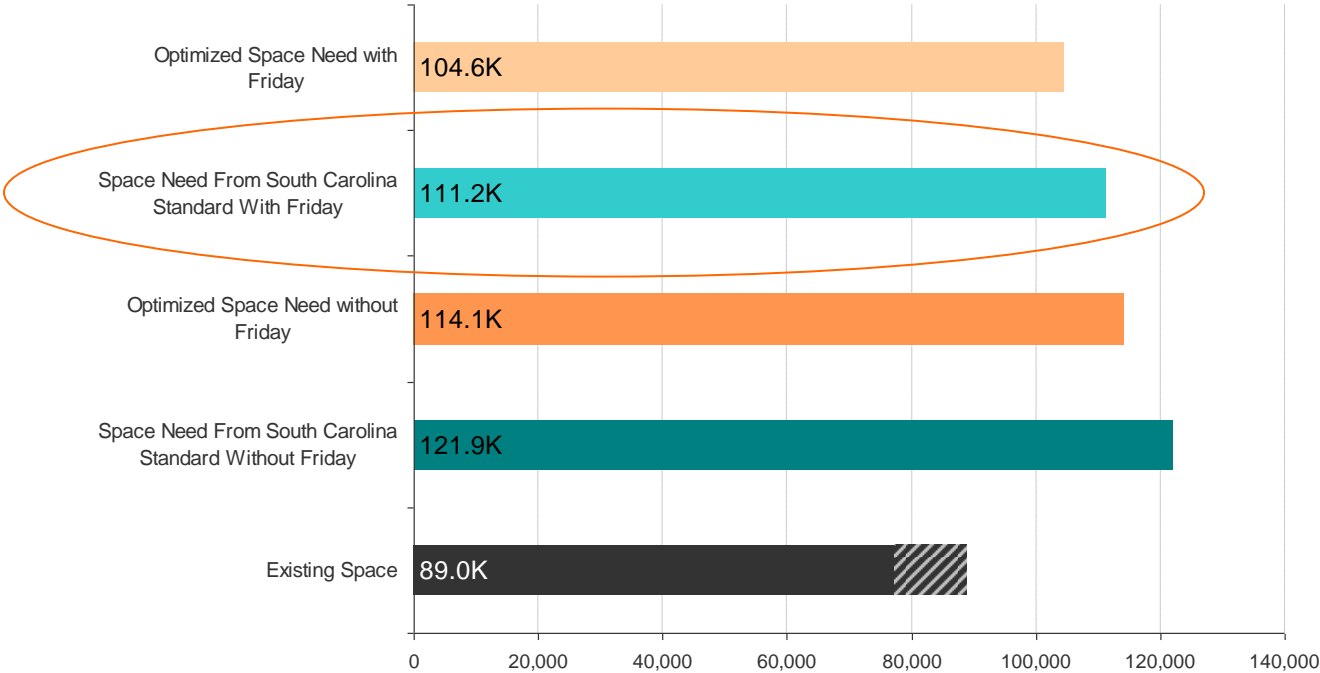
## 12. Existing Classroom Space vs. Demand (ASF)

- Classroom needs can be computed using various methodologies and compared to existing classroom supply.
- South Carolina standards assume 67% room utilization, 60% seat occupancy, and a station size of 22 ASF per student.
- These factors are applied to weekly student contact hours for a given timeframe.
- Since Fridays are currently under-scheduled, there are significant differences in space need depending on whether better Friday utilization is assumed.
- For comparative purposes with the South Carolina standards, Sasaki computes an “optimized” Space need given station size and room utilization targets. The optimized space need is determined by assigning all scheduled class meetings into rooms that can best accommodate them from a size perspective. The method is blind to questions on geography and convenience, but avoids some of the averaging errors the state standard is prone to (in practice variations in room utilization can have a huge impact in capacity; the state standard is too blunt an instrument for investigating this, assuming as it does a uniform utilization).
- In computing optimized requirements, we use a station size of 26 ASF for rooms with less than 100 seats and 18 ASF otherwise. The larger station sizes are intended to better support modern group-based, technology-rich learning.
- Planned new space, currently under design, is shown below in the black textured pattern.



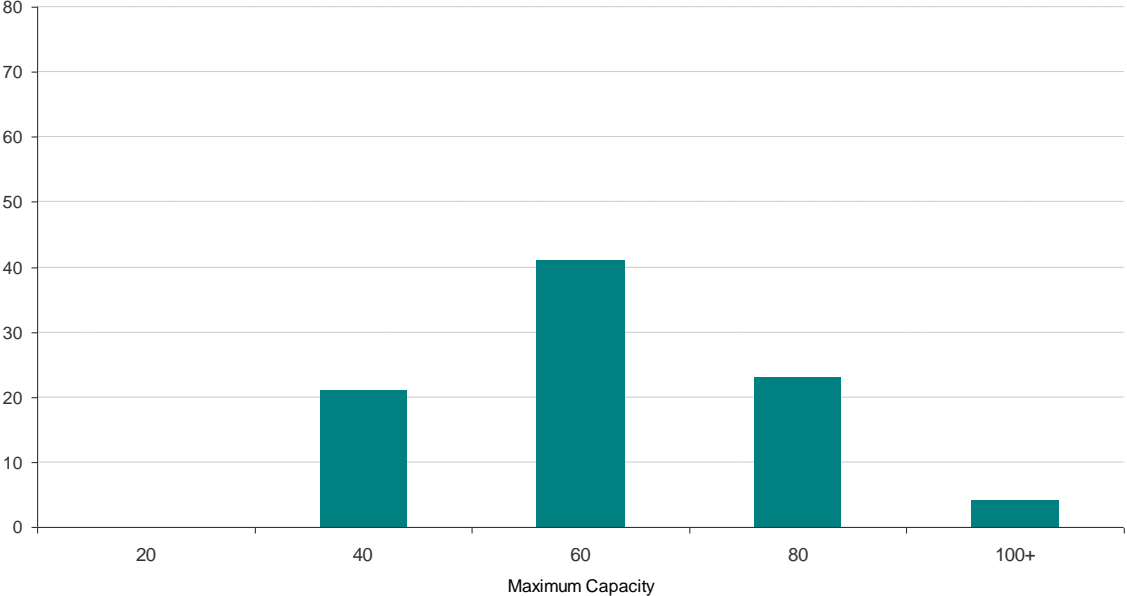
**13. Classroom Need at Headcount 12,500**

- Existing weekly student contact hours from the Fall 2009 class schedule were pro-rated by college based on projected FTE enrollments. Since no existing information exists for graduate HFA classes, need was determined by averaging similar existing programs in other colleges.
- Teaching on Friday is worth approximately \$5M in classroom capital costs.
- Sasaki recommends not exceeding the South Carolina standard, assuming the full use of Fridays.
- Projected optimized space need is based on the 2009 ratio of classroom space to undergraduate FTEs, multiplied by the future projected undergraduate FTEs.
- The incremental space need for classrooms is estimated at 12,500 headcount is 22.1K ASF.
- Planned new space, currently under design, is shown below in the black textured pattern.



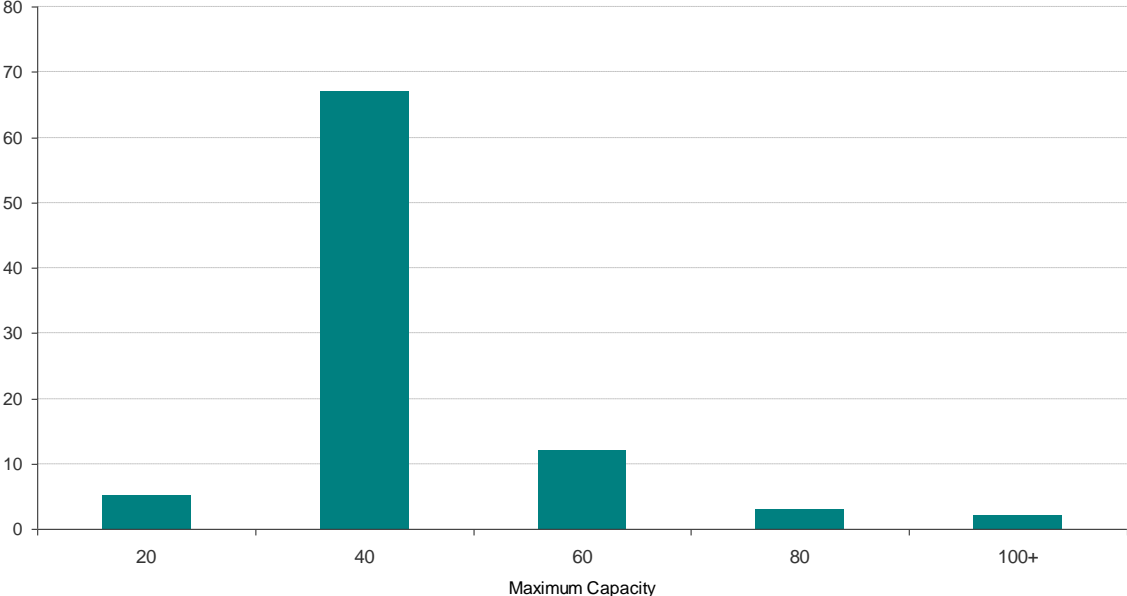
**14. Current Distribution of Classrooms**

- Many existing classrooms do not meet the South Carolina station size goals. This greatly impacts the pedagogical styles the rooms can support, and tends to work against modern strategies centered on group work and collaborative learning.



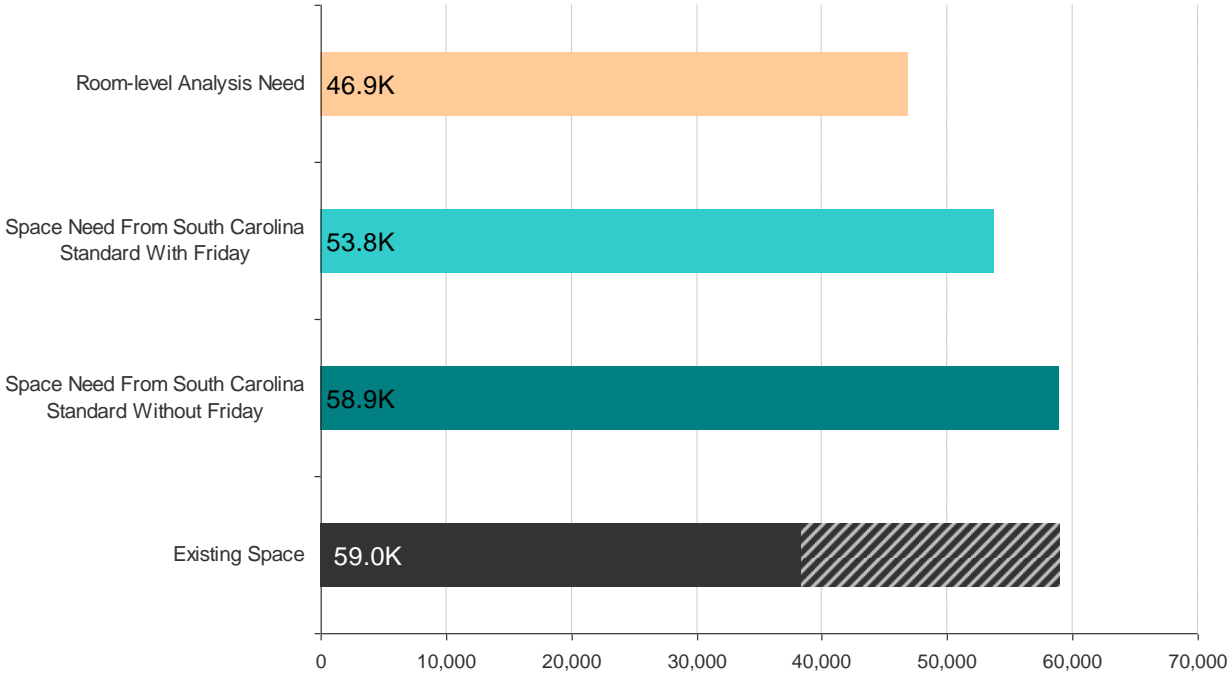
**15. Distribution at Recommended Sizes**

- Recalculating classroom capacities based on a station size of 26 ASF reveals that most rooms should actually hold a maximum of 40 students.
- Optimized space need investigations suggest that a reconfigured inventory (i.e. no changes except for the number of stations) could support the current schedule.



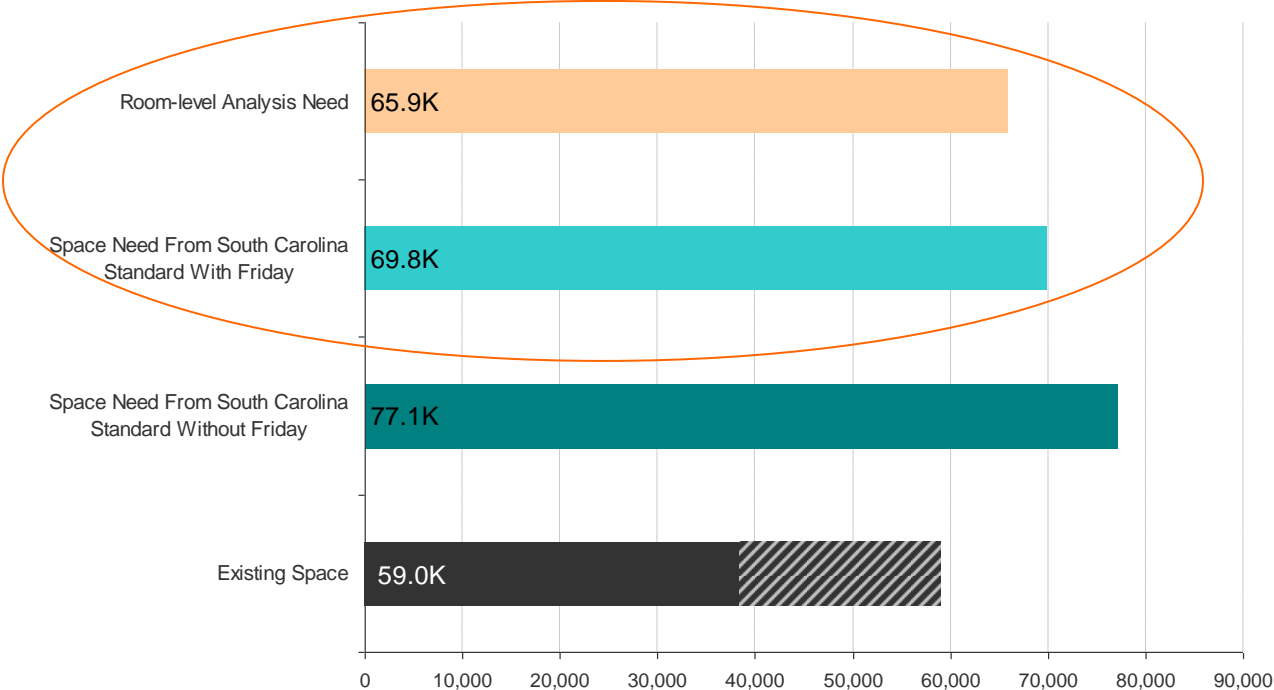
**16. Existing Teaching Lab Space vs Demand**

- The state standard methodology for computing teaching lab need is the same as for classrooms, but with different utilization (44%), seat fill (75%), and station size requirements.
- As with classrooms, there are opportunities to decrease space requirements by improved scheduling efficiency and greater utilization on Fridays.
- As with classrooms, Sasaki performed a room-level analysis of lab needs to compare with requirements generated by the state standards. The analysis is described in detail below.
- Planned new space, currently under design, is shown below in the black textured pattern.



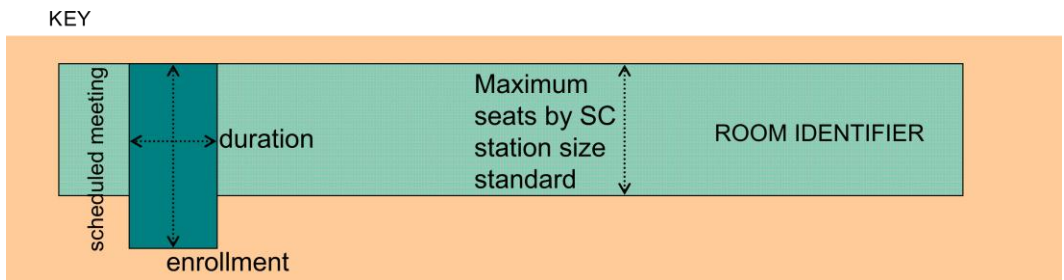
**17. Teaching Lab Need at Headcount 12,500**

- Teaching on Friday is worth approximately \$5.5M in lab capital costs.
- Sasaki recommends averaging the South Carolina standard, assuming full use of Friday, and the room level analysis for an incremental need of 8.8K ASF of teaching lab space.



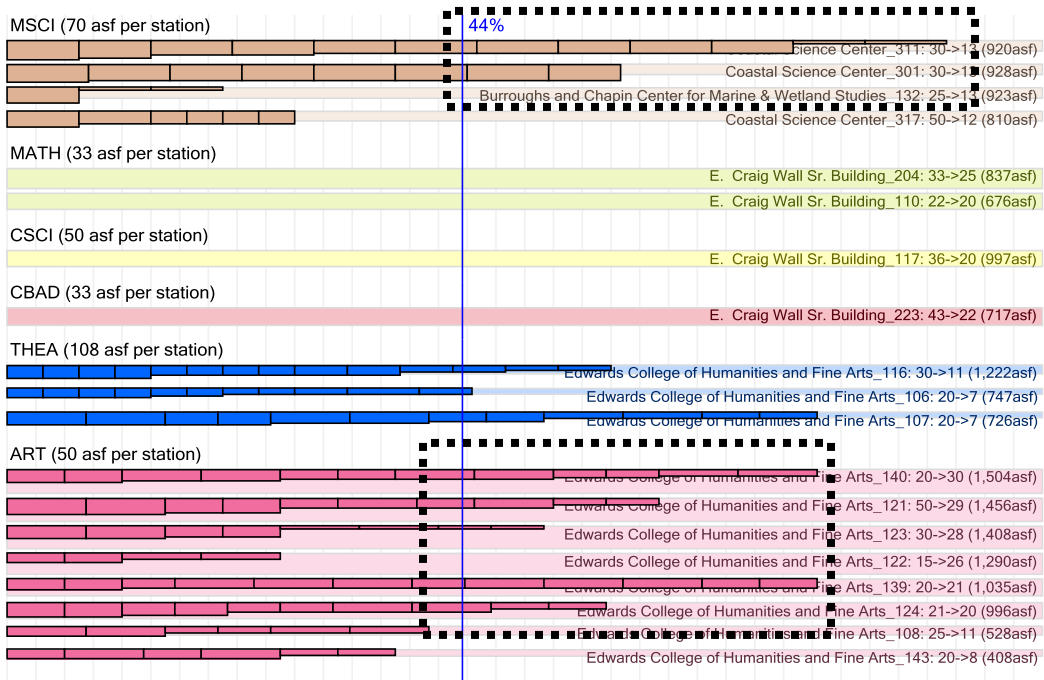
### 18. Teaching Lab Room Level Analysis

- The horizontal green bar represents a room. The height of the bar is the maximum number of seats available by the South Carolina station size standard. The vertical green box represents a scheduled course meeting, where the box height is the course enrollment and the box width is the course duration. In the example below, the course enrollment exceeds the capacity of the room.



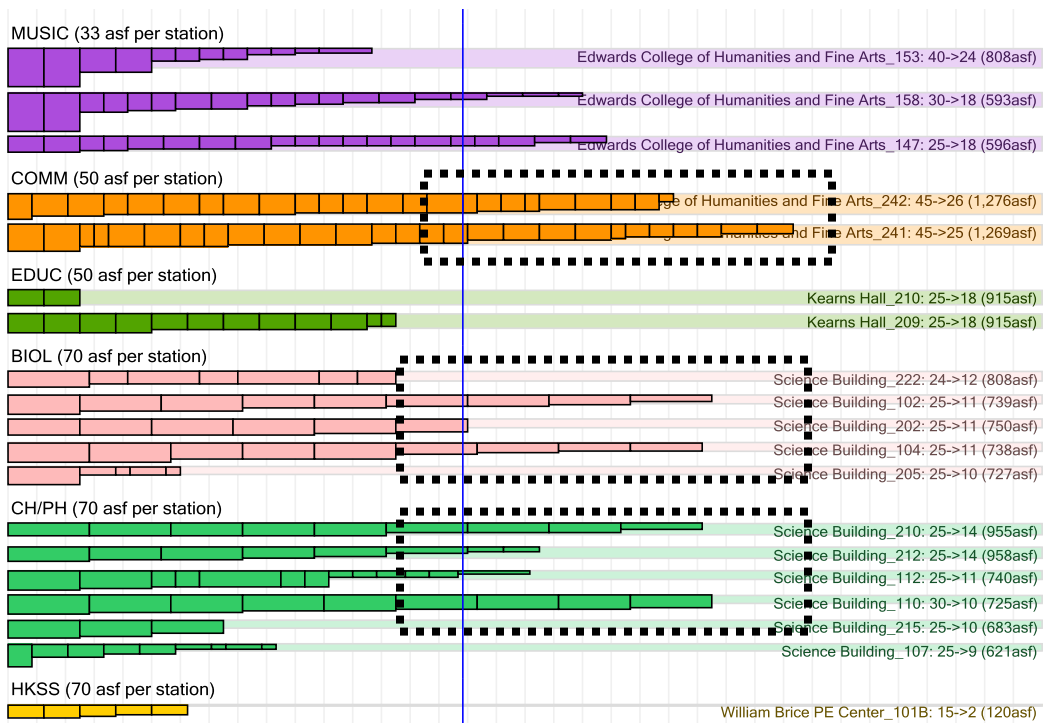
### 19. Teaching Lab Room Level Analysis

- Marine Science and Art labs are scheduled well beyond the 44% target and additional labs are recommended.
- Heavy utilization for Theatre labs is reasonable because this type of space likely requires less unscheduled activity.



**20. Teaching Lab Room Level Analysis**

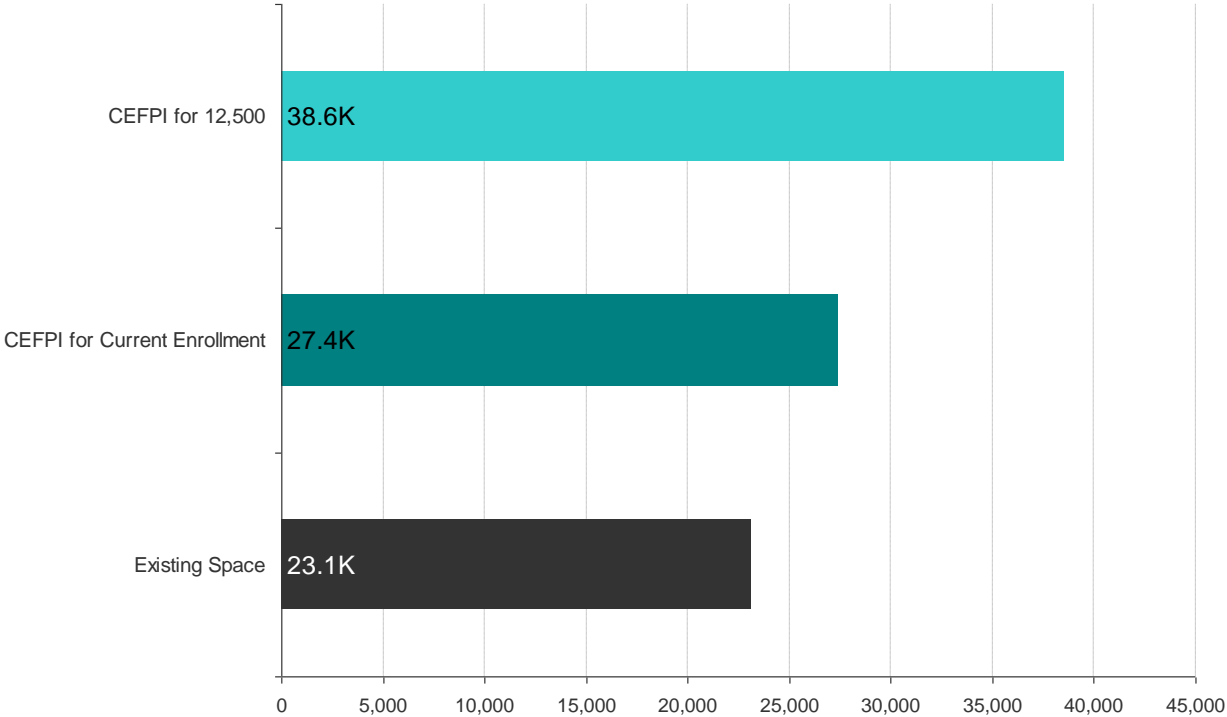
- Communication, Biology and Chemistry/Physics labs are heavily scheduled and additional labs are recommended.
- Music labs can reasonably exceed the 44% target.



521 stations in 34 rooms @ 57.3 sf = 29,837 sf; 95% seat fill; avg class size of 15.9

**21. Open Labs**

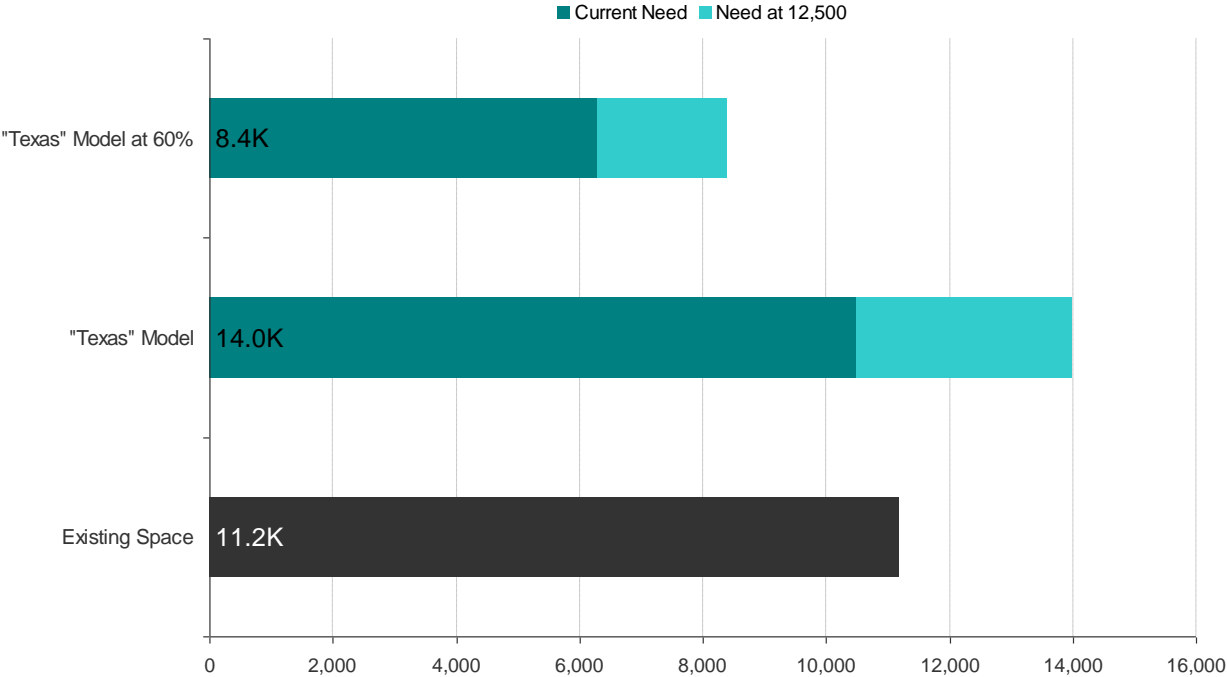
- National university space planning standards, as described the Council of Education Facility Planners International (CEFPI) recommends 3.7 ASF per FTE for universities over 3,000 FTE
- There is a deficit of open lab space for the current enrollment.
- For headcount 12,500, Sasaki recommends the CEFPI standard, requiring 15.5K ASF of incremental open lab space.
- This space should be thought of in conjunction with traditional library, study, and lounge space.





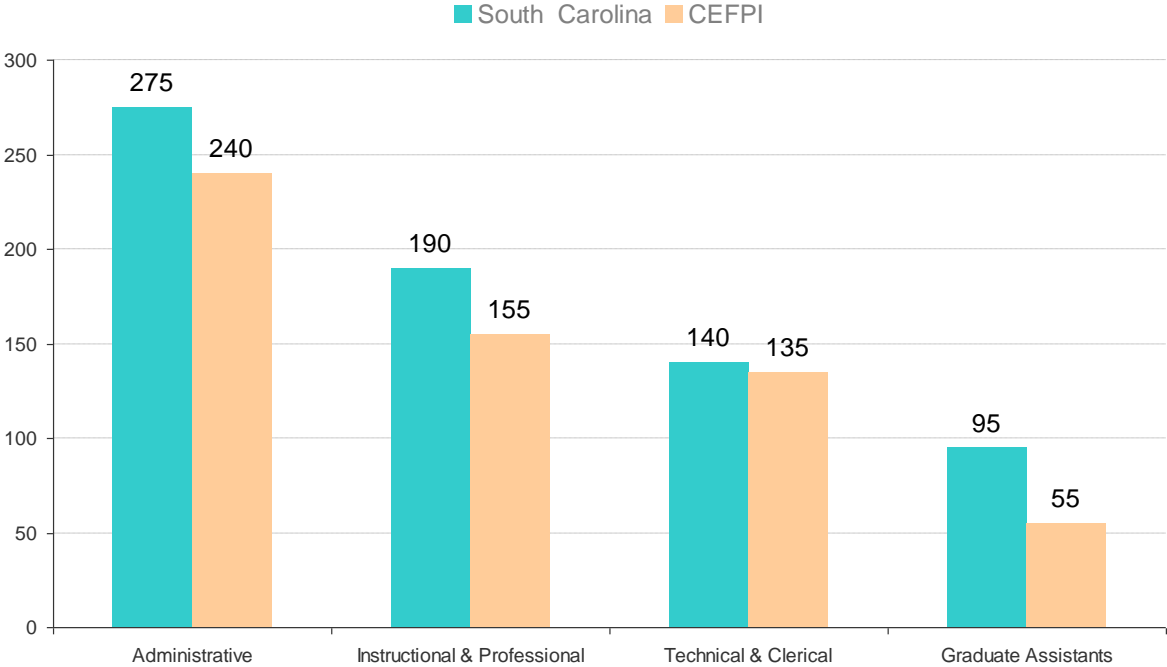
**22. Research Lab Space (ASF)**

- The University's goal is to increase research expenditures by 1/3.
- Sasaki applied the "Texas" model and found that there is presently adequate research lab space available. This model computes space need by assigning 9,000 ASF square feet of research space for every \$1 million in research expenditures (where the dollars are inflation adjusted to 1991 dollars).
- Since not all research occurs in lab space, we also computed the "Texas" model assuming only 60% of all expenditures were for lab-based research
- Sasaki does not recommend an increase in research space unless there are specific program demands.



**23. Office Space Standards**

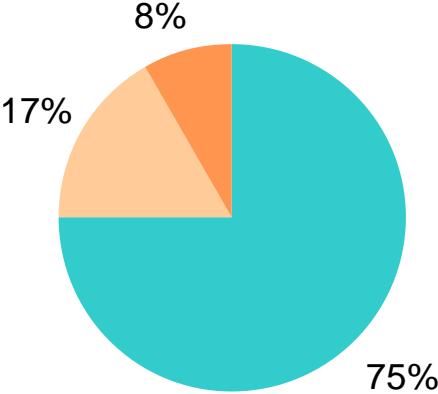
- South Carolina standards for office space are generous in comparison to CEFPI.



**24. Office Space Types**

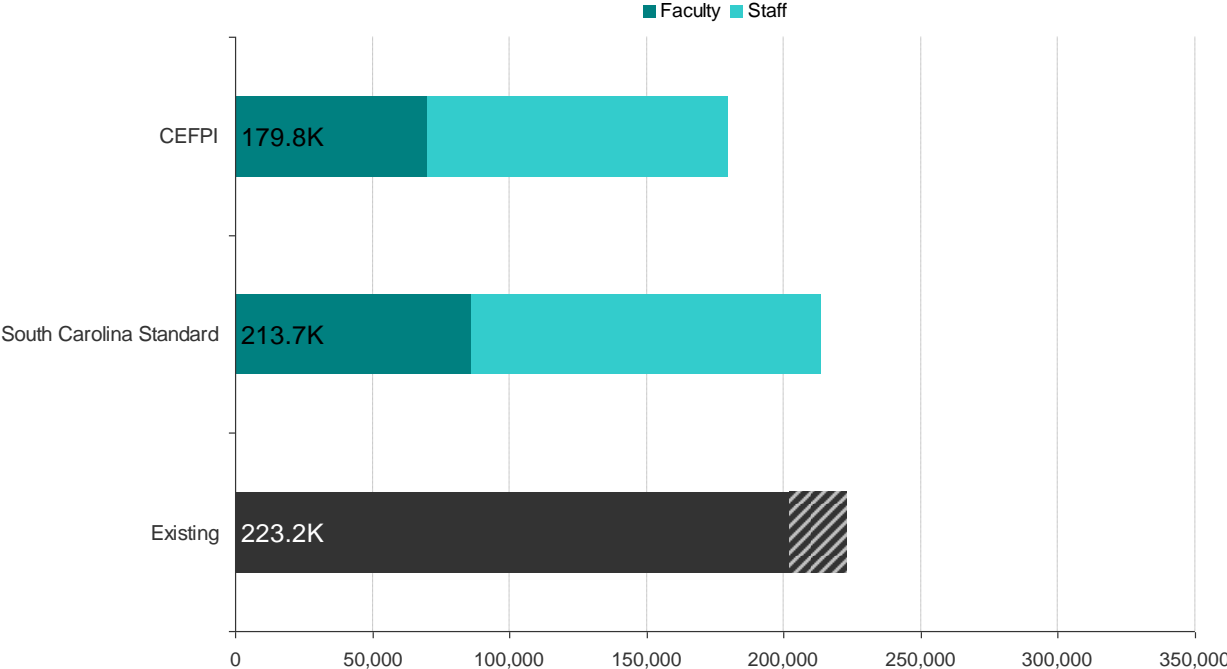
- The office space category includes actual offices, support spaces like break and copy rooms, and conference rooms.
- 75% of existing space in this category is for actual offices. The other 25% is used for office support and conference. These figures are roughly in-line with national practices.

■ Office ■ Office Support ■ Conference



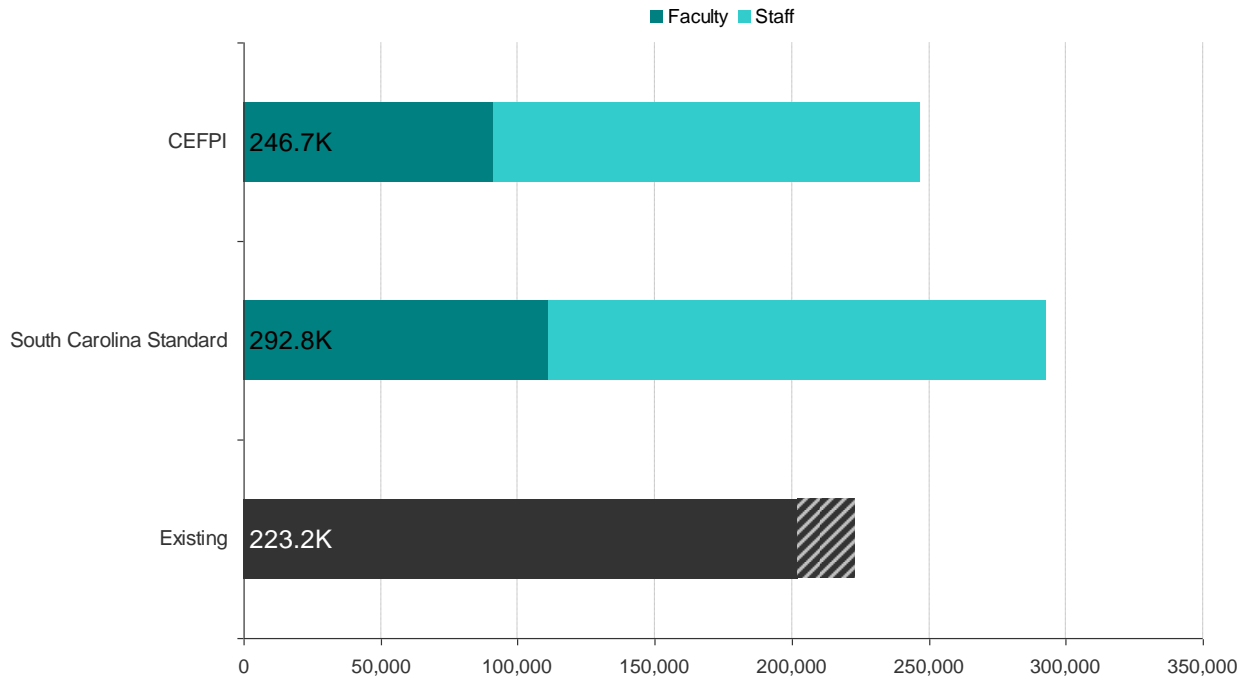
**25. Office Space Required Today**

- By CEFPI standards, there is presently no office space need beyond what is currently planned.
- Planned new space, currently under design, is shown below in the black textured pattern.



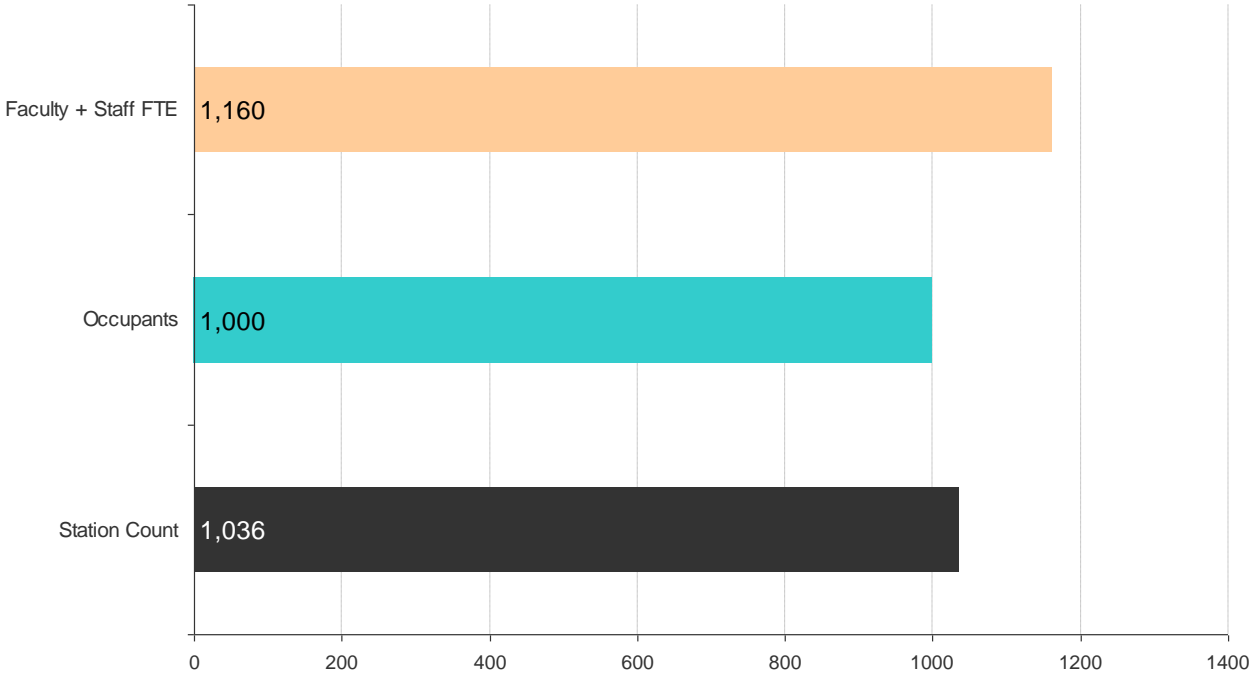
**26. Office Space Required at Headcount 12,500**

- Future office space requirements can be estimated using appropriate space standards and faculty and staff projections.



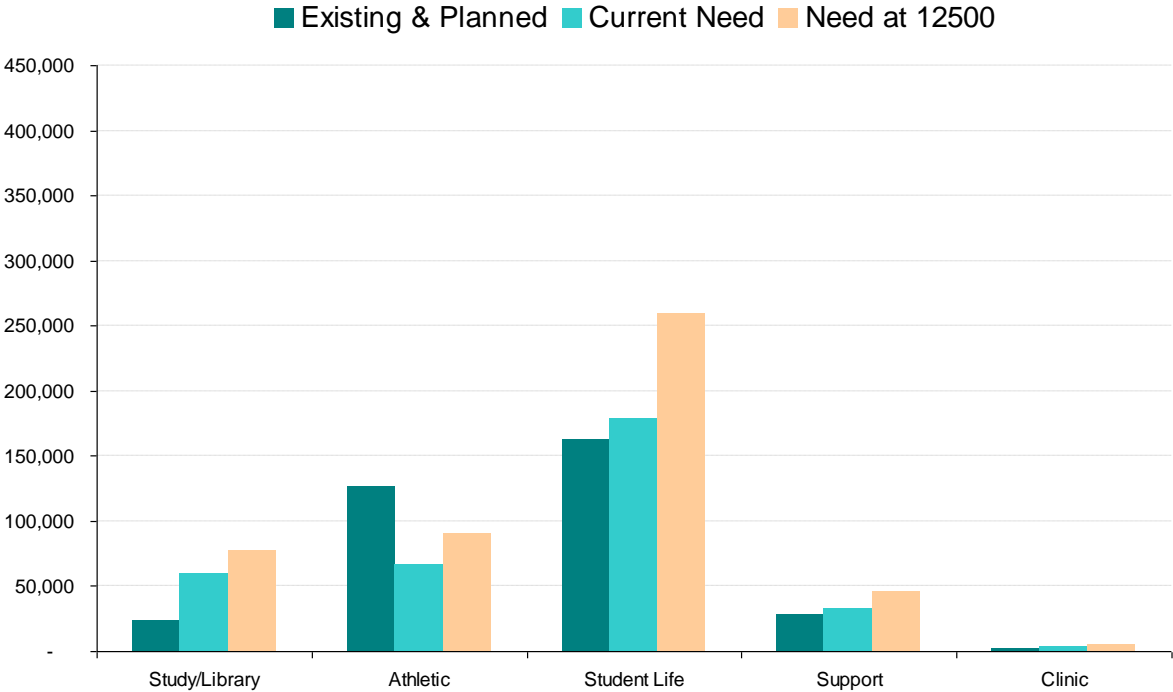
**27. Office Counts**

- Although state and national standards compute office need through overall square footage methodologies, this approach has practical limitations. If one faculty member has an office sized 10 square feet above the recommended size, that square footage cannot be given to anyone else.
- We therefore endorse a methodology which compares numbers of people and numbers of stations available.
- In Coastal's case, this analysis suggests that occupants and the count of available stations are fairly evenly matched.
- Future office space need should therefore be computed incrementally. That is, we assume no existing shortages, and apply the CEFPI standard to new staff and faculty.
- This generates an incremental office need of 55.1K ASF at 12,500 headcount enrollment.



**28. Other Space Needs by CEFPI (ASF)**

- Modern practice blurs the distinction between traditional library and student life spaces. Traditional space planning methodologies were formulated prior to the introduction of this practice, and therefore tend to be somewhat duplicative.
- Sasaki recommends incremental needs at 12,500 headcount of 96.8K ASF in study and student life space, 17.9K ASF in support space, and 2.3K ASF in health/clinic space.

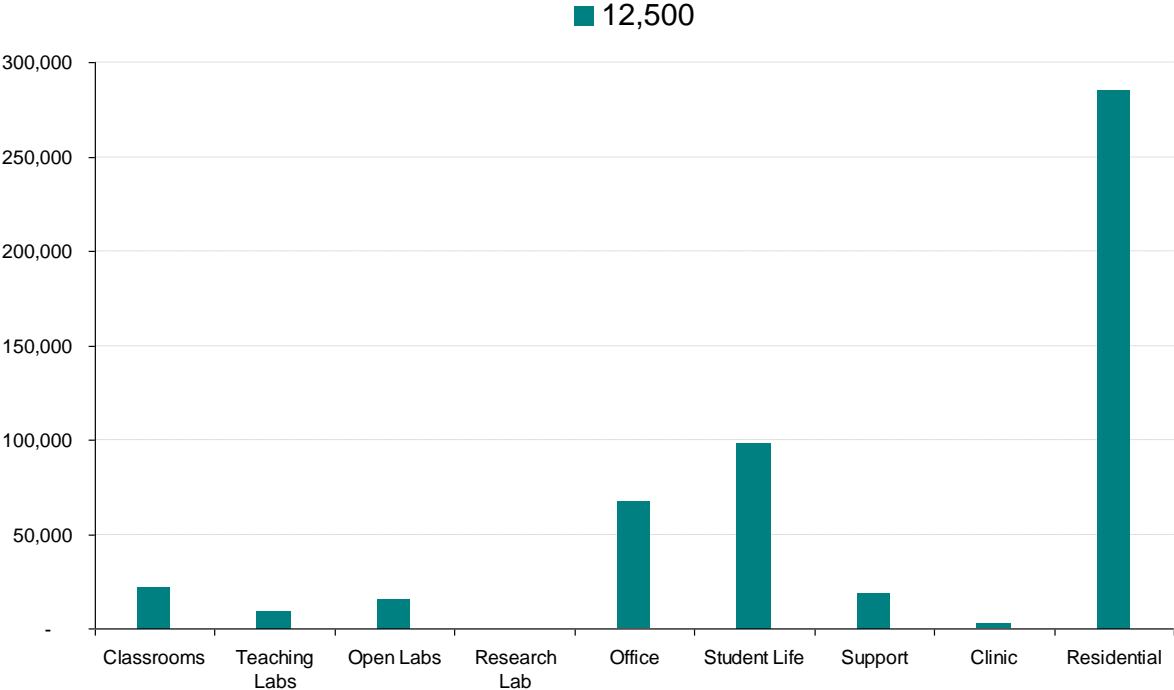


**29. Residential**

- Based on a best approximation of residents, there are currently 3,122 beds, which is 39.4% of the undergraduate headcount.
- 39.4% of an undergraduate headcount of 11,138 predicts a need for 1,269 new beds, or 285.4K ASF assuming 225 ASF per bed.

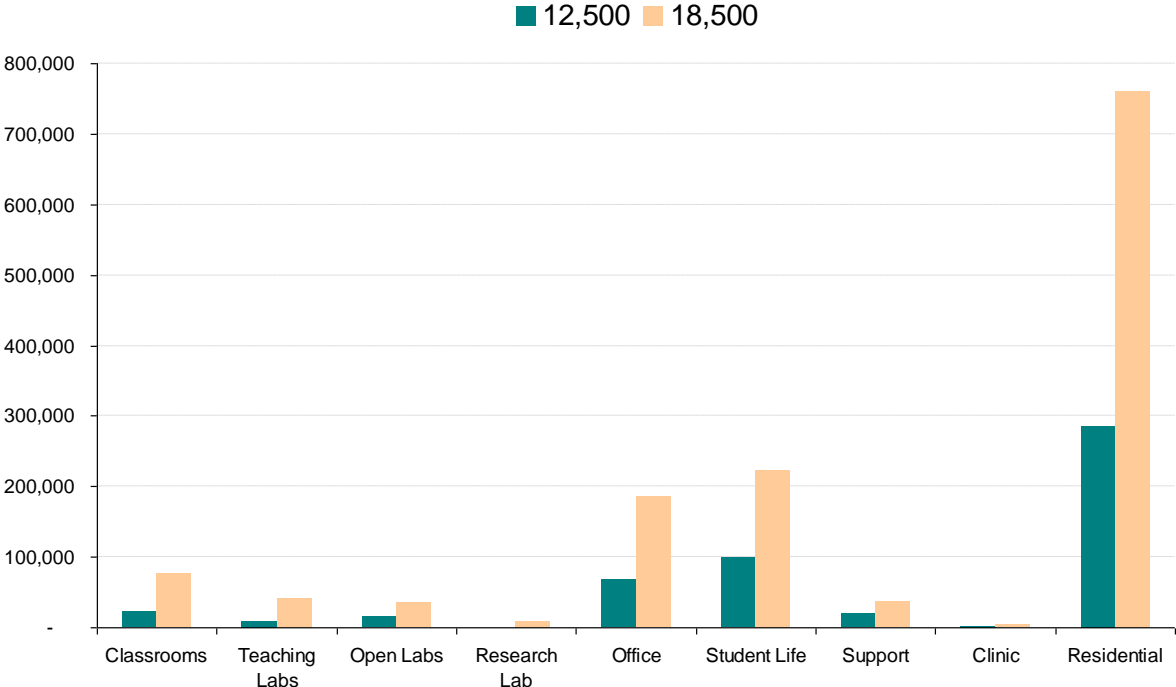
**30. Incremental Space Need at Headcount 12,500**

- Sasaki projects a total incremental need of 504K ASF or 775K GSF at 12,500 enrollment.
- For academic & student life, 219K ASF or 336K GSF.
- For residential, 285K ASF or 439K GSF.
- In addition, the university should relocate approximately 70K GSF of academic program currently on the east campus in the Coastal Science Center.
- The chart is presented in ASF.



**31. Incremental Space Need at Headcount 18,500**







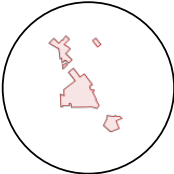



- Given a realistic 3% annual growth rate, the university can likely achieve the 12,500 enrollment target in a ten year timeframe.
- To support long-range planning, Sasaki computed space needs for a headcount enrollment of 18,500 by pro-rating enrollments and faculty and staff sizes.
- Sasaki projects a total incremental need above existing of 1.327M ASF or 2.042M GSF for 18,500.
- For academic & student life, 568K ASF or 873K GSF.
- For residential: 760K ASF or 1.169M GSF.
- The chart is presented in ASF.

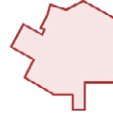
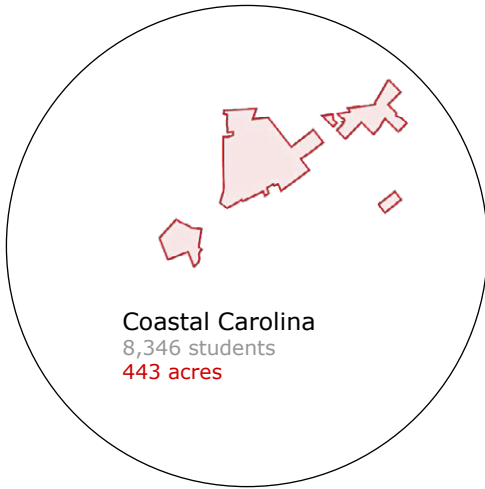




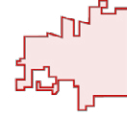
Attachment 1: Coastal Carolina University Scale Comparisons

The following same-scale comparisons juxtapose the Coastal Carolina University campus with peer institutions as well as “aspirational” institutions. Comparative institutions were selected based upon their geographic context, physical characteristics, and student populations for consistency with CCU’s planned growth and long term growth potential.

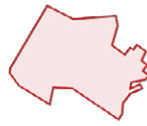
	Clemson University   19,111 students	1,400 acres
	Mississippi State U.   18,601 students	1,214 acres (4,200)
	University of Virginia   20,895 students	1,129 acres (1,682)
	University of Mississippi   15,932 students	756 acres (1,000)
	Georgia Southern   19,086 students	700 acres
	U. of West Georgia   11,500 students	644 acres
	Coastal Carolina   8,346 students	443 acres
	UNC Wilmington   12,413 students	422 acres (661)
	U. of S. Mississippi   15,293 students	334 acres (1,086)
	University of Akron   27,911 students	331 acres (218)



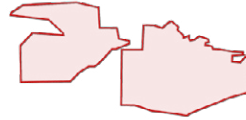
University of Akron  
Akron, OH  
27,911 students  
331 acres (218)



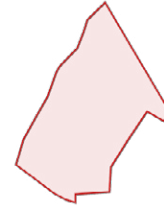
U. of Southern Mississippi  
Hattiesburg, MS  
15,293 students  
334 acres (1,086)



U. of N. Carolina Wilmington  
12,413 students  
422 acres (661)



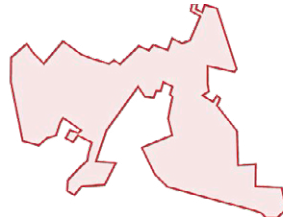
University of West Georgia  
Carrollton, GA  
11,500 students  
644 acres



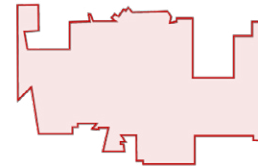
Georgia Southern  
Statesboro, GA  
19,086 students  
700 acres



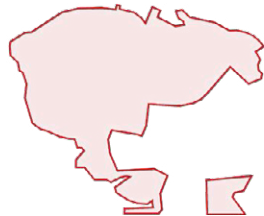
University of Mississippi  
Oxford, MS  
15,932 students  
756 acres (1,000)



University of Virginia  
Charlottesville, VA  
20,895 students  
1,129 acres (1,682)



Mississippi State University  
Mississippi State, MS  
18,601 students  
1,214 acres (4,200)



Clemson University  
Clemson, SC  
19,111 students  
1,400 acres

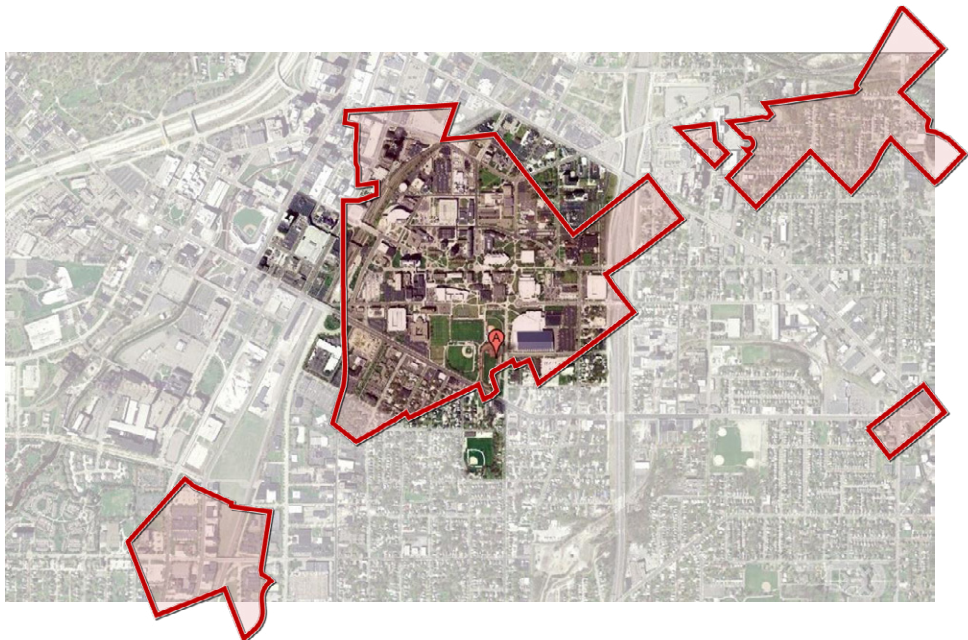
## Coastal Carolina

8,346 students  
443 acres



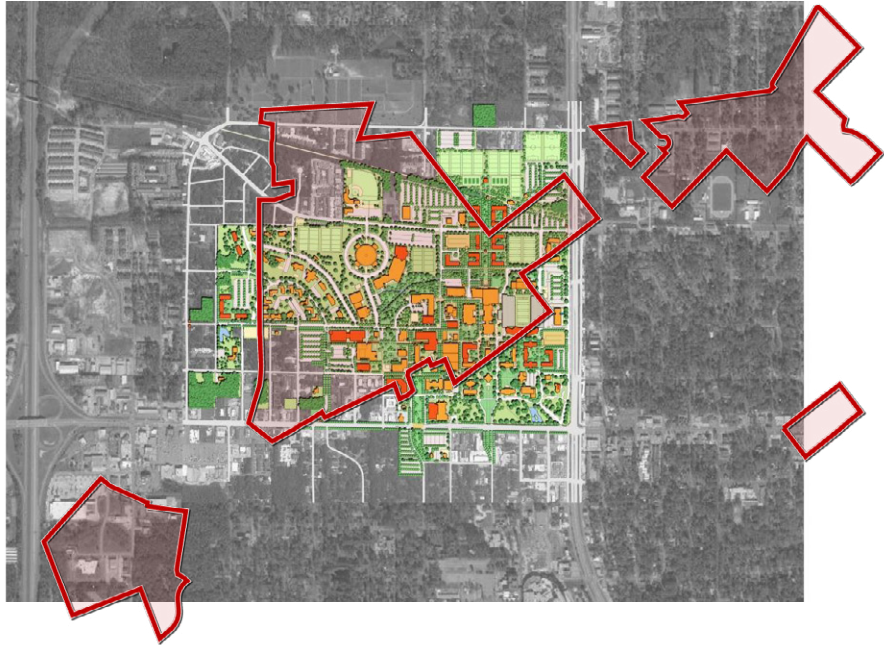
## University of Akron

Akron, OH  
27,911 students  
331 acres (218)



## University of Southern Mississippi

Hattiesburg, MS  
15,293 students  
334 acres (1,086)



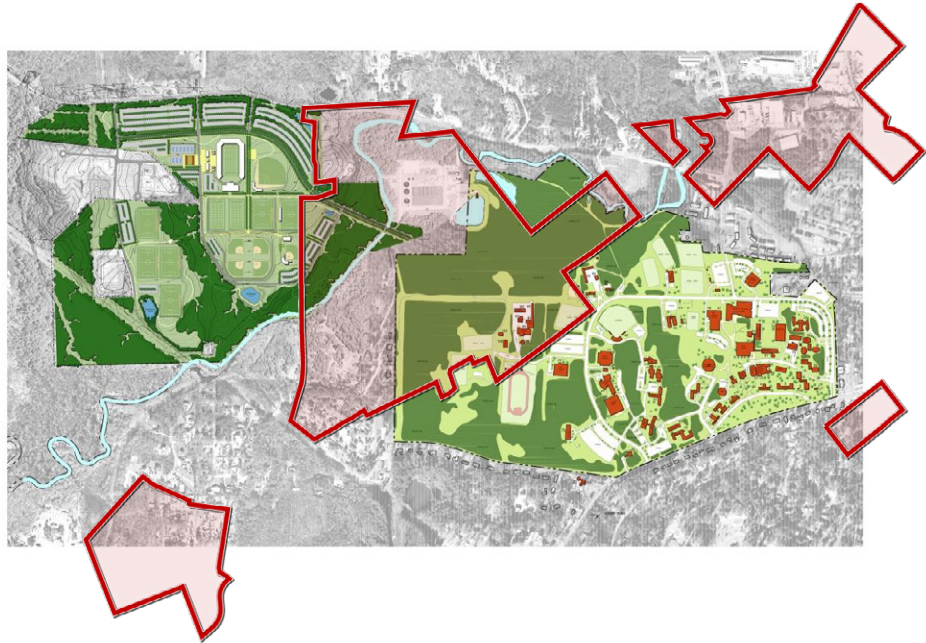
## University of North Carolina Wilmington

12,413 students  
422 acres (661)



## University of West Georgia

Carrollton, GA  
11,500 students  
644 acres



## Georgia Southern

Statesboro, GA  
19,086 students  
700 acres



## University of Mississippi

Oxford, MS  
15,932 students  
756 acres (1,000)



## University of Virginia

Charlottesville, VA  
20,895 students  
1,129 acres (1,682)



# Clemson University

Clemson, SC  
19,111 students  
1,400 acres

