

date 27 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 Parking Program

EXISTING PARKING SUPPLY AND DEMAND

There are just over 6,100 parking spaces on campus. Table 1 shows campus parking spaces by lot and assigned user.

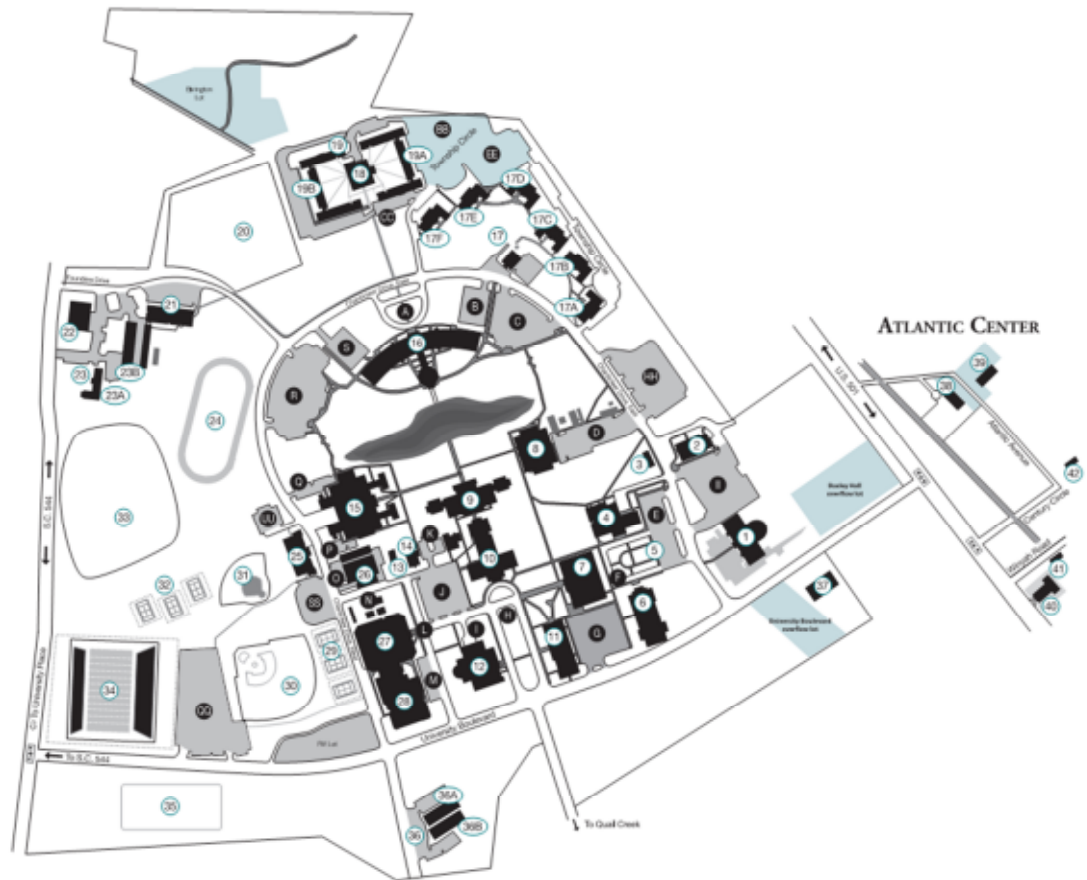


Figure 1. Campus Parking Map

Lot	Student	F/S	Disabled	Other	Total
A	21		2	4	27
B		52	4		56
C	137				137
D	44	50	6		100
E	134	23	6	1	164
G	83	49	6	15	153
I		5	4		9
J	93	58	5		156
M	30		5		35
O	5	16			21
P		17	2		19
Q		26			26
R	204		3		207
S		51	3		54
AA	63		4		67
BB	289		8		297
CC	46				46
DD	105				105
EE	241	5	7		253
HH	245				245
II	217	8	5	13	243
LL	45		3		48
NN	79	4	2		85
QQ	271		7		278
SS	46		5		51
UU	49	12			61
WW		54	3	15	72
Auxiliary @ LL	30				30
Elvington	123				123
Welcome Ctr overflow	207				207
Chanticleer Dr.	47	15	4		66
Independence Dr.	46				46
Atheneum Cir		61	2	21	84
Canterbury Ln	7		2	1	10
Tom Trout Dr.	15				15
Core Campus Total	2,922	506	98	70	3,596
University Place	1,831		62		1,893
Coastal Band Hall	22		1		23
Foundation Center	112		4		116
B&C Marine/Wetland	47		1	4	52
Coastal Science Ctr.	<u>374</u>	<u>46</u>	<u>5</u>	<u>3</u>	<u>428</u>
Total	5,308	552	171	77	6,108

Table 1. CCU Parking Inventory, by Facility and User Group

Parking Allocation and Use. While there are 506 designated faculty/staff parking spaces on Main Campus, persons with faculty/staff permits are also allowed to park in

student spaces. No parking occupancy surveys have been conducted to determine definitively how many faculty/staff park in student spaces, so it is not possible to state with precision how many total spaces are typically occupied by each of the two groups. However, it is known that Main Campus lots are routinely full by 10:30 AM on weekdays. Total parking demand on Main Campus can therefore reasonably be estimated to be approximately equal to the supply of 3,428 permit spaces (not counting 168 handicap and other spaces).¹ There are currently 1,255 faculty/staff on Main Campus. If it is assumed that 75% of faculty and staff have cars parked on Main Campus at peak times, it appears that they occupy approximately 941 spaces, leaving approximately 2,487 occupied by students.

To confirm the reasonableness of the estimate that 2,487 student vehicles are parked on Main Campus during the peak period, class enrollment statistics were consulted. At the peak of class activity (Tuesday mid-morning), a total of 3,038 students are enrolled in classes. Given that some students take the shuttle from University Place, and that others carpool, walk, or bicycle, it is not unlikely that the total number of student vehicles parked on Main Campus is 82 percent of the number of students enrolled in classes.

Students comprise Main Campus residents, University Place residents and commuters. To estimate the proportion of 2,487 spaces occupied by each sub-group, reference was made to the issuance of parking permits. For the 2009-2010 academic year, permits were issued in the following numbers.

	Population	2009/2010 Permit Issuance ²	Permit/ Capita
Main Campus Resident	1,211	813	0.67
University Place Resident	1,911	641	0.34
Commuter	5,224	4,583	0.88

Table 2. Student Population and Parking Permits

To estimate how many parking spaces are occupied by each category of student permit-holder, it is further necessary to make assumptions regarding what percent of each category is actually present on campus at the time of peak parking occupancy, and to correlate the resulting parking occupancy with the 2,487 estimated total student occupancy. The results adopted are shown in Table 3.

¹ University administrators indicate both that there are some unoccupied parking spaces in the more remote lots and that there is an incidence of illegal parking. These two phenomena will tend to cancel each other out.

² Preliminary permit sales in fall 2010 appear to indicate higher permit issuance to UP residents and lower to commuter and main campus residents. Since the University's parking permit system is not designed to track actual parking demand, fluctuations in permit issuances may or may not correlate with actual need for parking. The figures provided for 2009/2010 have been used for purposes of analysis.

	Presence Factor*	Main-Campus Occupancy
Main Campus Resident	0.40	325
University Place Resident	0.30	192
Commuter	0.43	1,971
Total		2,488

*Presence Factor: percent of permit-holders parked on campus at peak occupancy (Tuesday mid-morning)

Table 3. Estimated Student Parking Occupancy by Sub-Group

FUTURE PARKING NEED

To estimate the need for parking as the University’s enrollment increases, a four-step process was employed:

1. Compare existing parking demand with population, by user group (faculty/staff, Main Campus resident student, University Place resident student, and commuter student)
 2. Estimate future population of each user group
 3. Apply existing parking demand : population ratios to future populations, to derive preliminary estimates of future parking demand
 4. Identify and apply measures to mitigate parking demand and assure availability of parking for permitted users
1. Parking Demand Ratios. On the basis of the analysis above, the ratios of existing parking usage to population are as follows.

	Population	Main-Campus Occupancy	Parked Cars/ Capita
Faculty/Staff	1,255	941	0.75
Commuter Student	5,224	1,971	0.38
Main Campus Resident Student	1,211	325	0.27
University Place Resident	1,911	192	0.10

Table 4. Parked Cars/Capita, by User Group

2. Future Population. Two growth scenarios are tested in the Master Plan: with enrollment of 12,500 and 18,500. In both, the on-campus housing percentage is projected to rise from the current level of 37 percent to 50 percent. As a result, the projected Main-Campus populations of each parking user group are as follows.

	12,500	18,500
Faculty/Staff	1,725	2,553
Commuter Student	6,250	9,250
Main Campus Resident Student	4,339	7,339
University Place Resident	1,911	1,911

Table 5. Future Populations at 12,500 and 18,500 Enrollment

3. Future Parking Demand. As enrollment grows, so will parking demand. Table 6 shows parking demand by user groups for the two future scenarios, based on existing cars/capita ratios from Table 4 and future populations from Table 5.

Parking needs for visitors are set arbitrarily to meet a need that is currently unmet, taking into account specific functions such as admissions, administration, Wall College and the conference space in Brooks Stadium. Handicap/Other spaces are increased in direct proportion to the growth in enrollment.

	12,500	18,500
Faculty/Staff	1,294	1,915
Commuter Students	2,385	3,530
University Place	192	192
Resident Students	1,165	1,971
Visitors	75	111
HP, Other	252	373

Table 6. Future Unmitigated Parking Need

4. Mitigation Measures. One of the Master Plan's goals is to optimize parking supplies, so as to relieve existing parking shortages (evidenced by cruising for available spaces and parking in illegal spots); and, on the other hand, to minimize or mitigate parking demand by encouraging use of alternative commuting modes. To accomplish the former, a 'cushion' was added to the calculated parking need, of ten percent, in accordance with industry standards for the ideal number of vacant spaces in a fully-utilized parking facility.

To moderate parking demand, existing University parking policies and practices were examined, and a number of potential changes identified, as follows.

- Currently, commuter student parking demand reflects the lack of policies encouraging students to use alternative modes to get to campus: carpooling, bicycling, walking and, if regional services can be improved, transit. For purposes of determining the appropriate number of parking spaces to provide for commuter students, it is assumed here that a 20 percent reduction, on a per-capita basis, can be achieved. The largest portion of this reduction could most likely come from students who live near campus walking and bicycling rather than driving.²
- Similarly, University Place residents should not be permitted to park on main campus. Currently, it is estimated that only about 10 to 15 percent drive; in the future, with improvements to the campus shuttle system and the development of a pleasant and safe walkway past the golf course, it should be possible to make University Place parking spaces the only ones that residents there are allowed to use.
- With improvements in campus amenities and campus life, it is likely that somewhat fewer Main-Campus residents will feel the need to have cars. It is assumed here that in the future, the percentage of Main-Campus residents with parking permits will decrease from 67 to 60 percent.

With these factors taken into account, the recommended levels of parking provision are shown in Table 7 for enrollment of 12,500 and 18,500.

² Some universities, including Purdue (Indiana) and Bloomsburg (Pennsylvania), have established a 'walk zone' within about a mile of campus, residents within which are not eligible for student parking permits.

	12,500	18,500
Faculty/Staff	1,423	2,106
Commuter Students	2,099	3,106
University Place	0	0
Resident Students	1,148	1,941
Visitors	83	122
HP, Other	<u>277</u>	<u>410</u>
Total	5,030	7,685

Table 7. Recommended Parking Provision for Main Campus under Enrollments of 12,500 and 18,500

PARKING DISTRIBUTION

The growth in parking need will take place in the context of the Master Plan's reconfiguration of the campus, accommodating new buildings, improved open space and circulation, decommissioning of obsolete existing buildings and the growth of the campus as a whole. Even as the need for parking increases, the Master Plan calls for the removal of some Main Campus parking spaces. Two Master Plan schemes have been developed. Table 8 shows the parking program for both schemes, under the enrollment scenarios of 12,500 and 18,500.

Existing	Existing	Scheme A						Scheme B					
		Remove	12,500		Remove	18,500		Remove	12,500		Remove	18,500	
			Add	Total		Add	Total		Add	Total		Add	Total
A	27		27		27		27		27		27		27
B	56	-56	0		0		0	-56	0		0		0
C	137	-137	0		0		0	-137	0		0		0
D	100	-100	0		0		0	-100	0		0		0
E	164	-82	82	-82	0		0		164	-164	0		0
F - Spadoni Pk Cir	0		0		0		0		0		0		0
G	153		153	-153	0		0		153		153		153
H - Atheneum Cir	84	-84	0		0		0	-84	0		0		0
H1 - Canterbury Ln	10	-10	0		0		0	-10	0		0		0
I	9	-9	0		0		0		9		9		9
J	156	-39	117		117		117		156		156		156
L - Independence Dr.	46		46		46		46	-46	0		0		0
M	35		35		35		35		35		35		35
N - Tom Trout Dr.	15	-15	0		0		0		15		15		15
O	21		21	-21	0		0		21		21		21
P	19	-19	0		0		0		19		19		19
Q	26		26		26		26		26		26		26
R	207	-207	0		0		0	-207	0		0		0
S	54	-54	0		0		0	-54	0		0		0
AA	67		67		67		67		67		67		67
BB	297		297		297		297	-297	0		0		0
CC	46	-46	0		0		0		46		46		46
DD	105		105		105		105		105		105		105
EE	253		253	-25	228		228	-253	0		0		0
HH	245	-245	0		0		0		245		245		245
II	243	-243	0		0		0	-243	0		0		0
LL	48	-48	0		0		0		48		48		48
NN	85		85		85		85		85		85		85
QQ	278		278		278		278		278		278		278
SS	51		163	214	214		214		51		51		51
UU	61		61		61		61		61		61		61
WW	72	-72	0		0		0	-72	0		0		0
Auxiliary @ LL	30	-30	0		0		0		30		30		30
Elvington	123		397	520	520		520	115	238		238		238
Welcome Ctr overflow	207	-207	0		0		0	-207	0		0		0
Chanticleer Dr.	66		66		66		66	-66	0		0		0
New													
AAA			750	750		750		750	750				750
BBB			800	800		800		800	800				800
CCC			124	124		124		124	124				124
HHH			177	177		177			0				0
III					135	135			0				0
JJJ					68	68			0				0
KKK					68	68			0				0
LLL			744	744		744			0				0
MMM					80	80		80	80				80
NNN					81	81		81	81				81
OOO					122	122		122	122				122
PPP					1,125	1125			0		1,125		1125
QQQ					1,107	1107			0		1,575		1575
SSS								154	154				154
UUU								128	128				128
YYY								153	153				153
ZZZ								60	60				60
AAAA								93	93				93
BBBB								485	485				485
CCCC								95	95				95
Totals	3,596	(1,703)	3,155	5,048	(281)	2,786	7,553	(1,832)	3,240	5,004	(164)	2,700	7,540

Table 8. Displacements of Existing Parking and New Parking Facilities under Enrollments of 12,500 and 18,500

To optimally distribute the required parking supply under the two enrollment scenarios, the parking needs and priorities of the different user groups were taken into consideration. It is assumed that, as under existing conditions, faculty and staff have highest priority for parking in and near the core of Main Campus. Student parking will be located outside of Chanticleer Drive.

The allocation of parking between user groups should also advance an agenda of transportation demand management, by encouraging use of alternative modes and discouraging unnecessary automobile use, especially for short trips. In assigning parking between resident and commuter students, the university should take into account that resident students do not need immediate and everyday access to their parked vehicles. Traditionally, the lots adjacent to residence halls, *e.g.* lots BB, CC and EE, have been designated for use by resident students. This is natural, and convenient for those residents, but those spaces are also among the most proximate to the campus core, and therefore are also attractive to commuters. Resident-student parking should rightly be considered as long-term storage. It is reasonable for resident student parking to be located more at the campus periphery, as long as it is safe and accessible. Accordingly, it is recommended that the student parking closest to the campus core be allocated first to commuter students, who have a legitimate need to park within a reasonable distance from their academic destinations. Resident student parking can be located more remotely, such as at the proposed lot at the Fire Tower site, which has the advantage of being discrete and rectangular, which would make it easier to patrol, fence and light. For security purposes, the remote resident-student parking could have card-controlled access.

With the new parking array, some spaces for both faculty/staff and students will be located on East Campus. The permit pricing system should be revised to reflect the greater convenience of Main Campus versus East Campus parking spaces. A significant price incentive to use East Campus parking and use the shuttle will tend to relieve demand for Main Campus spaces.