East Carolina University

Comprehensive Facilities Master Plan

SMITHGROUP | JJR

Eva Klein & Associates

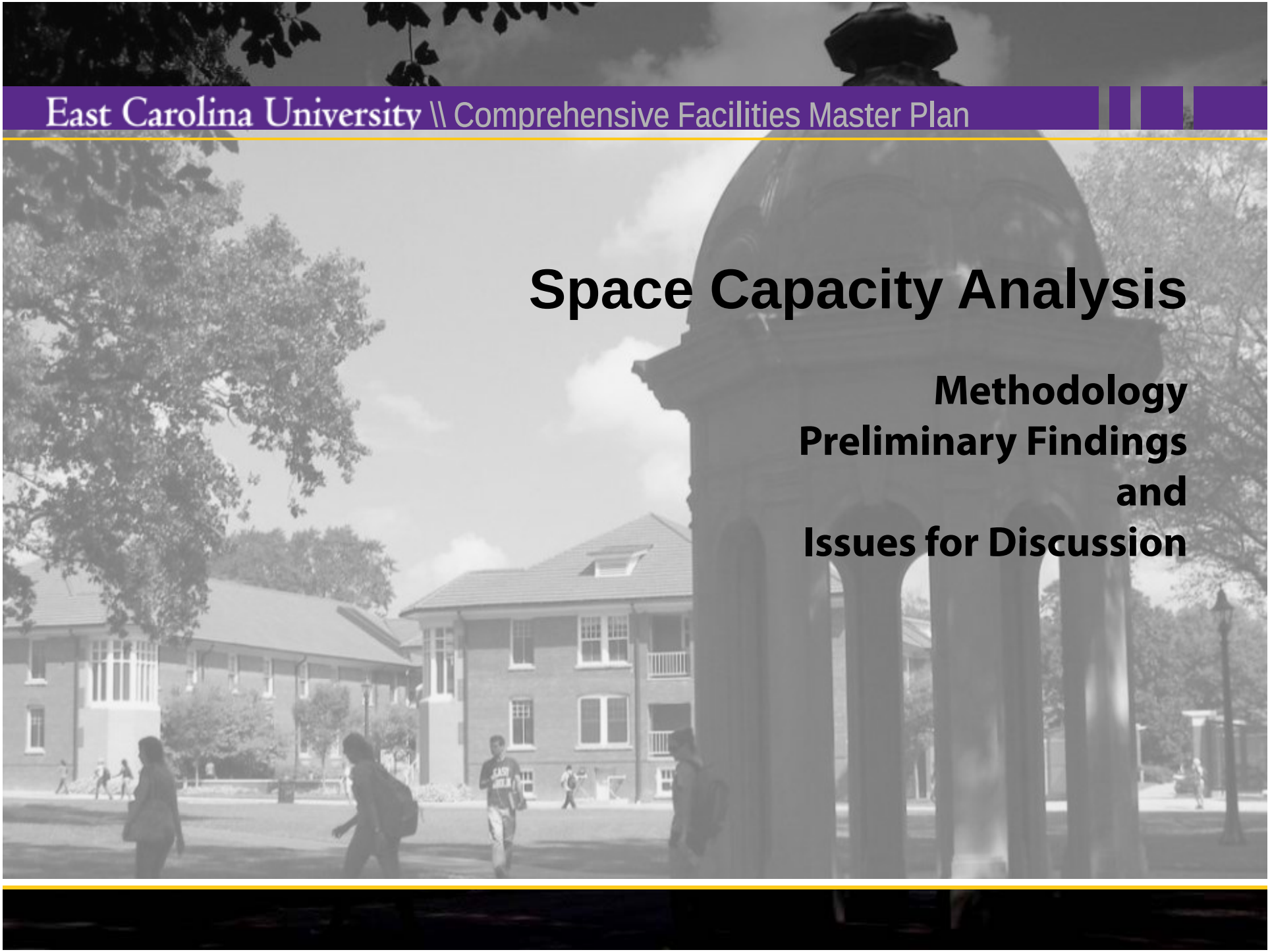
Brailsford & Dunlavey

RMF Engineers

Martin Alexiou Bryson

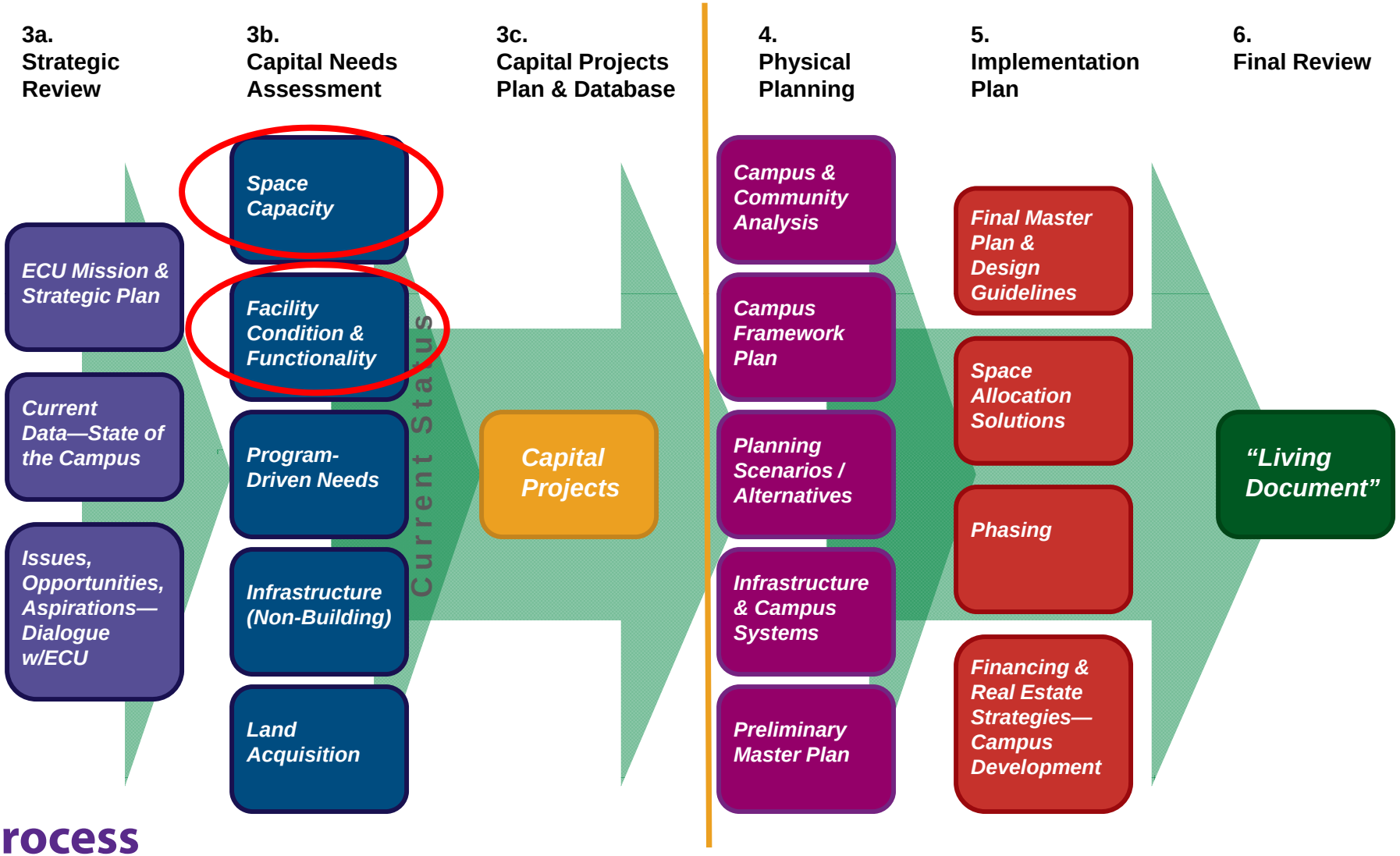
Protection Engineering Group

ISES



Space Capacity Analysis

Methodology
Preliminary Findings
and
Issues for Discussion


3a.
Strategic
Review
3b.
Capital Needs
Assessment
3c.
Capital Projects
Plan & Database
4.
Physical
Planning
5.
Implementation
Plan
6.
Final Review
ECU Mission & Strategic Plan
Current Data—State of the Campus
Issues, Opportunities, Aspirations—Dialogue w/ECU
Space Capacity
Facility Condition & Functionality
Program-Driven Needs
Infrastructure (Non-Building)
Land Acquisition
Current Status
Capital Projects
Campus & Community Analysis
Campus Framework Plan
Planning Scenarios / Alternatives
Infrastructure & Campus Systems
Preliminary Master Plan
Final Master Plan & Design Guidelines
Space Allocation Solutions
Phasing
Financing & Real Estate Strategies—Campus Development
"Living Document"

Process

Campus Space Types in EKA's SCA Scope:

- Classrooms
- Class Laboratories
- Research Laboratories
- Office Facilities
- Study Facilities (including library)
- Support Space

PEFIC or FICM Room Use Code

Refers to
Postsecondary Education Facilities Inventory Classification Manual, NCES

100 Classroom Facilities
110 Classroom
115 Classroom Service

200 Laboratory Facilities
210 Class Laboratories
215 Class Laboratories Service
220 Open Laboratory
225 Open Laboratory Service
250 Research/Non-Class Laboratory
255 Research/Non-Class Laboratory Service

300 Office Facilities
310 Office
315 Office Service
350 Conference Room
355 Conference Room Service

400 Study Facilities
410 Study Room
420 Stack
430 Open-Stack Study Room
440 Processing Room
455 Study Service

Other Space Types Being Addressed by SG Team—"Special Purpose"

Special Purpose Facilities Assessment: Team Responsibilities by Space Types			
Space Type		Team Firm	Comments
Room Use Codes & Sub-Codes	Description		
520/523/525	Athletic or Physical Education; Athletic Facilities Spectator Seating; and Athletic or Physical Education Service	Brailsford & Dunlavey	Analysis takes into account both academic program requirements and student/campus life/athletic program requirements. Actual building projects also may include 610/615 Assembly space needs and 670/675 Recreation space needs, etc.
530/535	Food Service Facilities	Brailsford & Dunlavey	May be stand-alone or incorporated into other facilities, e.g. Residential or Student Union
500 (all except 520/523/525--Athletics/Phys Educ)	Specialized facilities that support or are integral to academic programs	Smith Group	These could be highly diverse, program-driven, special use facilities. Examples: Performing Arts Center; Animal Holding Facility; Media Production
600 (all)	Student Activities; and Campus Life Facilities	Brailsford & Dunlavey	There is some connection between the Recreation portion of this series and the 520 Athletic space.
700 (all)	Campus Support and Operations Facilities	Smith Group	Specific facility requirements will be based on consultations with ECU Facilities leadership
800 (all)	Health Care Facilities (Clinical)	Smith Group	Will include all clinical requirements; with respect to clinical research, will be coordinated with SCA analysis of research lab requirements
900 (all)	Residential Facilities	Brailsford & Dunlavey	Actual residential building projects may include other space types, such as 410-Study Rooms; 530/535-Food Services; 570/575-Recreation etc.

Space Capacity Analysis --Definition

- *How much space, of certain space types, based on space standards or guidelines applied to use / user metrics, does ECU require?*
  - *"Utilization" applies only to Classrooms and Class Labs*
- *Compare "predicted" or "required" space with "actual" space*
- *The SCA is done in two timeframes:*
  - *Present—2009*
  - *Master Plan Time Horizon—2025*
  - *Therefore, requires assumptions to project:*
    - *Instructional Load (Weekly Student Contact Hours—F2F and DE*
    - *Research growth*
    - *Faculty and staff growth*
    - *Library collection growth*

Space Planning Standard– 110 Classroom and 115 Classroom Service

$$\text{Space Factor} = \frac{\text{NASF per Student Station}}{\text{Station Occupancy X Average Weekly Room Hours}}$$

Required NASF of Classroom Space = Space Factor X Weekly Student Contact Hours

UNC Planning Standard

$$\text{Space Factor} = \frac{\text{18 NASF}}{\text{65\% X 35 Hours}} = 0.79$$

Data:
Weekly Student Contact Hours (scheduled in rooms coded 110/115)

Projections of F2F enrollment growth to 2025 from ECU
35.2% for all but Medicine
191.7% for Medicine

Space Planning Standard– 210 Class Laboratories and 215 Class Laboratory Service

$$\text{Space Factor} = \frac{\text{NASF per Student Station}}{\text{Station Occupancy X Average Weekly Room Hours}}$$

Required NASF of Classroom Space = Space Factor X Weekly Student Contact Hours

UNC Planning Standard

Space Factor =	Station Occupancy Ratio (SOR)	75%
	Average Weekly Room Hours	20 Hours

Intensity Category	NASF Per Station Allowance	Space Factor
Intensive	70	4.67
Moderately Intensive	50	3.33
Non-Intensive	25	1.67

Space Planning Standard– 220/225 Open Laboratory and Open Laboratory Service

Initial Approach:

Required Open Laboratory Space = FTE Students X 4.5 NASF

Where FTE Students = 100% of On-Campus FTEs + 50% of DE FTEs (by College)

Second Approach

Required Open Laboratory Space = 40% of 210/215 Class Laboratory Space

Space Planning Standard– 250 Research/Non-Class Laboratory and 255 Research/Non-Class Laboratory Service

Level of Intensity	NASF per $1 Million of Research Expenditures
Intensive	9,000
Moderately Intensive	6,000
Non-Intensive	4,000

Required Research Space = Sum of NASF Space Allowances x $ of Research for each Category

Data:
3 Year Average of 110 Research Grant Expenditures—for those grants that use Research Lab space

Projections of Research growth from ECU:
- 9% per year
- Results in about 400% of today's lab-based research in 2025

Space Planning Standard– 310 Office + 315 Office Support + 350 Conference + 355 Conference Support

Space Allowances for 310 Offices (for personnel to whom office space is assigned)

225 NASF for Administrative FTEs
120 NASF for Faculty FTEs
160 NASF for Professional
90 NASF for Technical/Clerical FTEs

Additional Space Allowances for Student Employees
60 NASF for Graduate Assistants (FTEs, 50% of Headcount)
25 NASF for Temporary Student Employees (FTEs, converted from expenditures)

Required Office Space = Sum of FTEs x Space Allowances for All Categories

Space Allowance for 315 Office Service and 350/355 Conference Rooms and Conference Room Service
Additional 50 NASF per FTE

Data:
Personnel Counts (HR, Graduate School, Budget Office)
Growth rates provided by ECU

Space Planning Standard–400 Study Facilities (410, 420, 430, 440, 455)

Very complicated because not all 420 Study Space is in the Libraries

Space Allowances:

Study (Reader) Space = 25 NASF x 20% of FTE Students + 8% of FTE Faculty

Stack (Collection) Space = 0.08 NASF per Physical Bound Volume Equivalent (PBVEs)

Library "Service" Space = 15% of Other Library Space

Required Study Space = Sum of the Above

BUT—Not all the Study (Reader) Space is in the Libraries—need additional analysis and decisions to correctly size the "library" space

Data:
Student FTEs—Current and Projected
Faculty FTEs—Current and Projected
PBVEs—Current and Projected

Student Life Facilities –

Preliminary Capital Project List

- Student Housing Master Plan
- Dining
- Student Union
- Student Recreation
- Health Sciences Campus Facility

Student Housing Master Plan

	Residence Hall	Capacity	Unit Type	Reconfiguration	New Capacity
College Hill	Scott (offline)	630	4 person suite	None	630
	College Hill Suites	490	4 person suite	None	490
	Jones	431	Traditional	None	431
	Aycock	486	Traditional	None	486
	Tyler	472	Traditional	None	472
	Belk Replacement	495	8 person suite	Demo & Build 4 person suites	500
Central	Fleming	167	Traditional	De-densify 100%	84
	Cotten	257	Traditional	None	257
	Jarvis	134	Traditional	None	134
	Umstead	194	Traditional	None	194
West	Clement	385	Traditional	None	385
	Greene	385	Traditional	Convert to suites	254
	White	387	Traditional	Convert to suites	255
	Fletcher	414	Traditional	None	414
	Garrett	311	Traditional	None	311
New	New Suite Project 1	n/a	Suites	Build 4 person suites	400
	Total	5,646			5,705

Preliminary Budget:

- New Construction: $65,000 - $70,000 per bed
- Conversion:
- $60,000 - $65,000 per bed

Dining Plan

1. Factors:

- College Hill: Belk replacement and potential addition of 400 new beds
- Central Campus: De-densifications – loss of ~80 beds
- West Campus: De-densification – loss of ~250 beds
- Health Sciences Campus: No non-apartment housing
- Limited/No expansion area at West End
- Land available near Todd
- Mixed use concept at Health Sciences Campus

		Quantity	Unit NASF	Total NASF
1	FOOD SERVICE			
1.1	Dining Hall			
1.1.1	Seating	175	15	2,625
1.1.2	Servery	175	14	2,450
	Kitchen / Food Preparation	175	7	1,225
	Ware Washing	175	3	525
	Storage (Dry & Cold)	175	3	525
1.1.3	Food Service Offices			
	Offices	2	120	240
	Total NASF			8,290
	Efficiency Factor			65.0%
	Building Core & Circulation			4,464
	TOTAL Building Envelope			12,754

2. Proposal

- Consider Expanding Todd Dining Hall

3. Sizing Assumptions

- 400 additional meal plans
- Turnover: 3.5
- Seating inefficiency: 20%
- Additional seating needed: ~140
- More seating for non-meal-plan customers
- Consider 175 new seats plus necessary infrastructure

3. Preliminary GSF and Budget

- Project Size: 12,750 GSF
- Project Budget: $8.2m

Student Union

Main Campus New Union Program

Approximate Square Footage	Space Type
6,300	Food Court (150 Seats)
3,700	Retail Dining (100 Seats)
1,550	Coffee House (60 Seats)
750	Convenience Store
1,000	Food Service / Catering Offices
15,000	Ballroom / Large Event Space
4,000	Large Event Support Space
12,300	Conference / Meeting Rooms
2,000	Logo / Apparel Store
500	Post Office
13,300	Theatre (500 Seats)
3,500	Sports Grill and Recreation Room
1,000	Entry / Lobby
1,500	TV Lounge
3,000	Information Commons
2,000	Quiet Study Lounge
2,900	Student Organizations
1,900	Student Government Association
7,000	Media
2,900	Student Union Administration
9,900	Student Services Office Suite
1,800	Career Services Center
2,750	Support Space
12,500	Swing Space
61,200	Circulation
174,250	**Total Additional Space**

1. Proposal:

- New Student Union to Replace Mendenhall

2. Preliminary GSF and Budget

- Project Size: 175,000 GSF
- Project Budget: $85 - $90m

3. Next Steps

- Program and Budget Refinement

Student Recreation

Main Campus Recreation & Wellness Expansion Program

Approximate Square Footage	Space Type
14,000	Super MAC (2 Courts)
350	MAC Support / Storage
8,500	Weight & Fitness Room
7,000	Cardio Deck
13,800	6 Multipurpose Rooms
1,100	Multipurpose Support / Storage
400	Bathrooms
17,000	Circulation
62,150	**Total Additional Space**

1. Proposal:

- Expansion of Existing Facility

2. Preliminary GSF and Budget

- Project Size: 62,000 GSF
- Project Budget: $29.9m

Health Sciences Campus Student Life

1. Proposal:

- Mixed-Use Facility Combining Recreation and Union Functions

2. Preliminary GSF and Budget

- Project Size: 68,000 GSF
- Project Budget: $32.4m

3. Next Steps

- Program and Budget Refinement

Health Sciences Recreation & Wellness Program

Approximate Square Footage	Space Type
600	Building Entry
1,250	Wellness Component
12,500	Two-Court Gymnasium
500	Gym Support / Storage
4,500	Weight & Fitness Room
3,000	Cardio Deck
250	Stretching Area
3,000	3 Multipurpose Rooms
600	Multipurpose Support / Storage
2,000	Men & Women's Locker Rooms
12,000	Circulation
40,200	**Total Additional Space**

Health Sciences Union Program

Approximate Square Footage	Space Type
2,100	Food Court (50 Seats)
2,450	Retail Dining (50 Seats)
500	Convenience Store
1,350	6 Meeting Rooms
1,000	Small Bookstore
1,600	Retail / ATMs
750	Informal TV Lounge
400	Computer Lab
800	Quiet Study Lounge
1,000	Administrative Space
7,000	Student Services
1,000	Support Space
8,200	Circulation
28,150	**Total Additional Space**

Space Planning Standard– 700 Support Services Facilities

Space Allowance

4% of all campus NASF, excluding the 700 series space

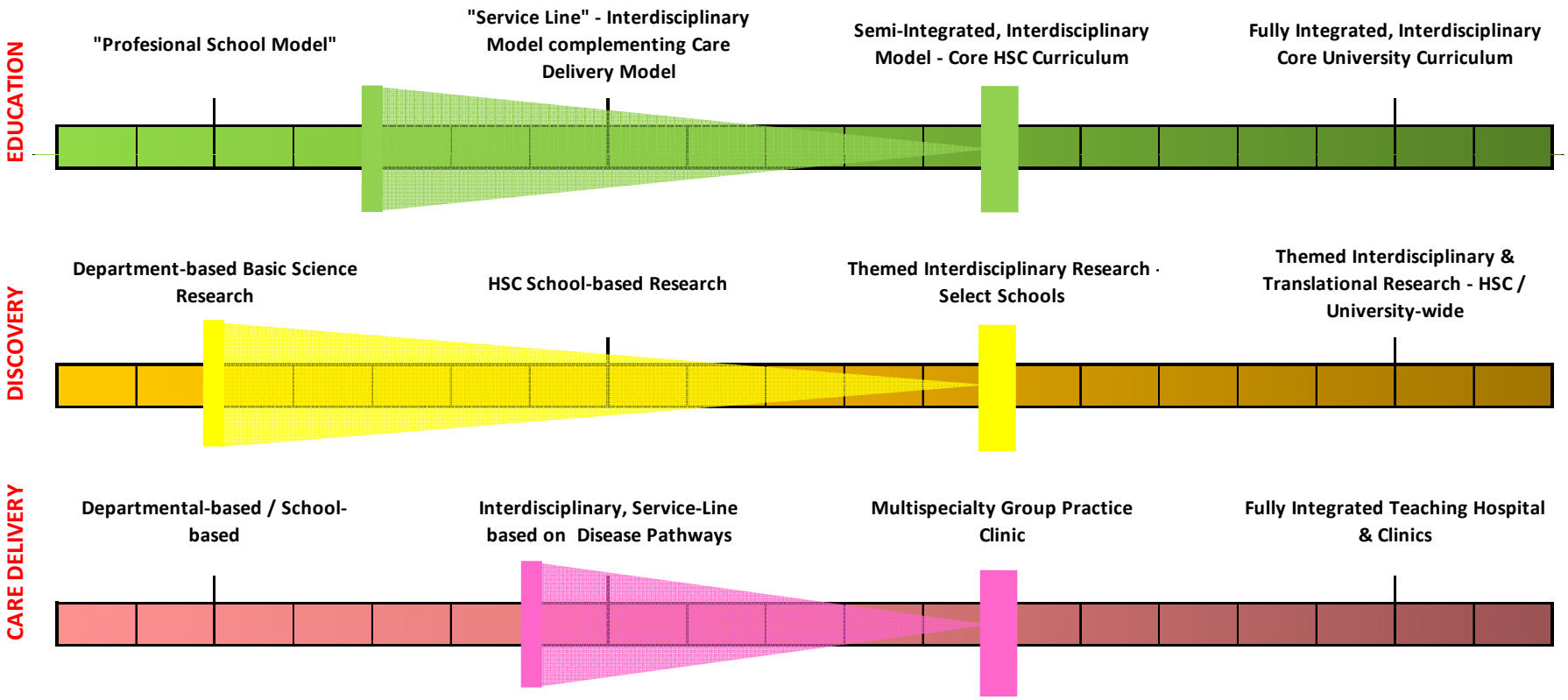
But, really need to evaluate these needs based on “Functionality”

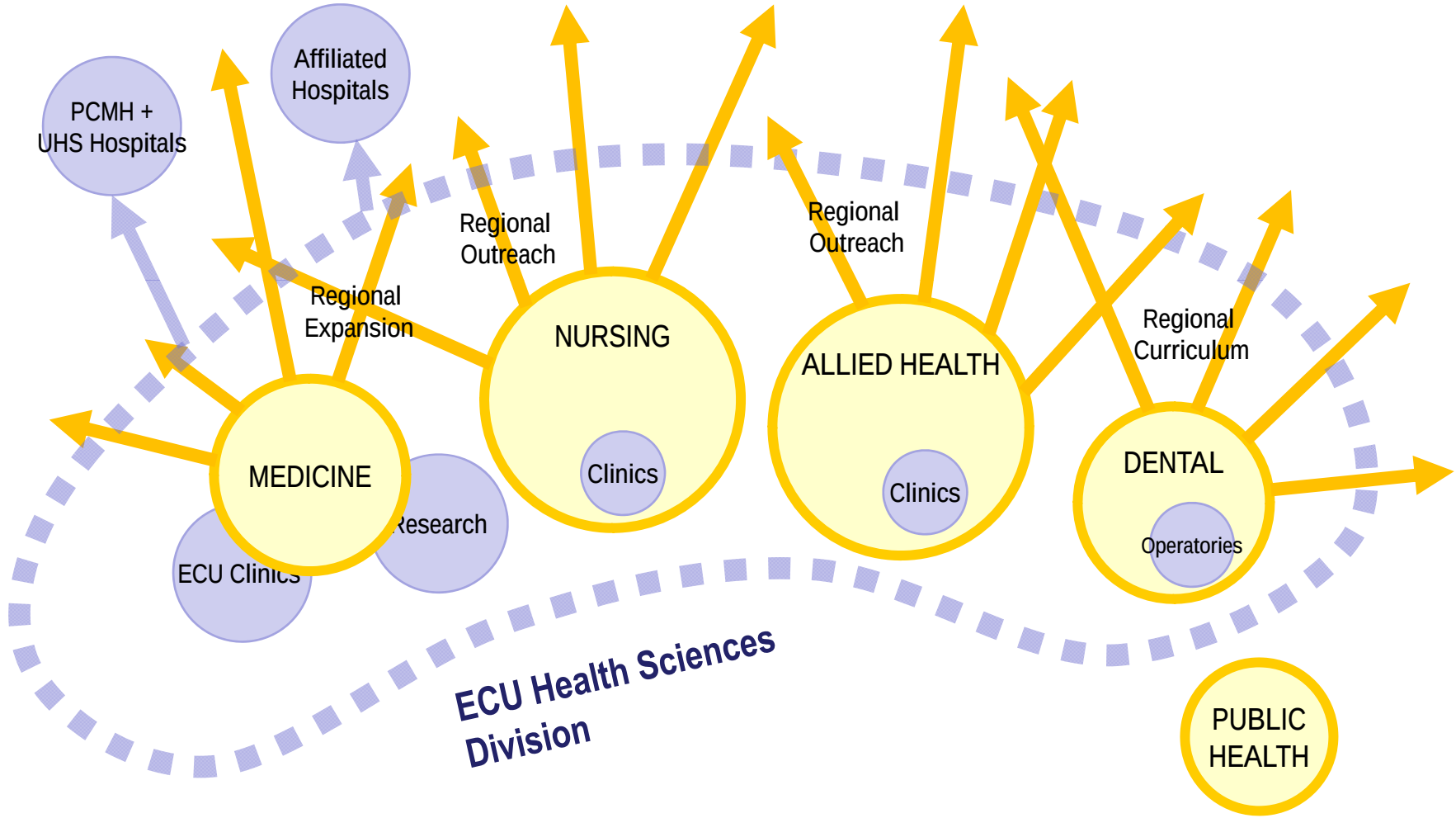
SCA calculation is just a “check” figure

Data:
Final calculation of all other needed campus space

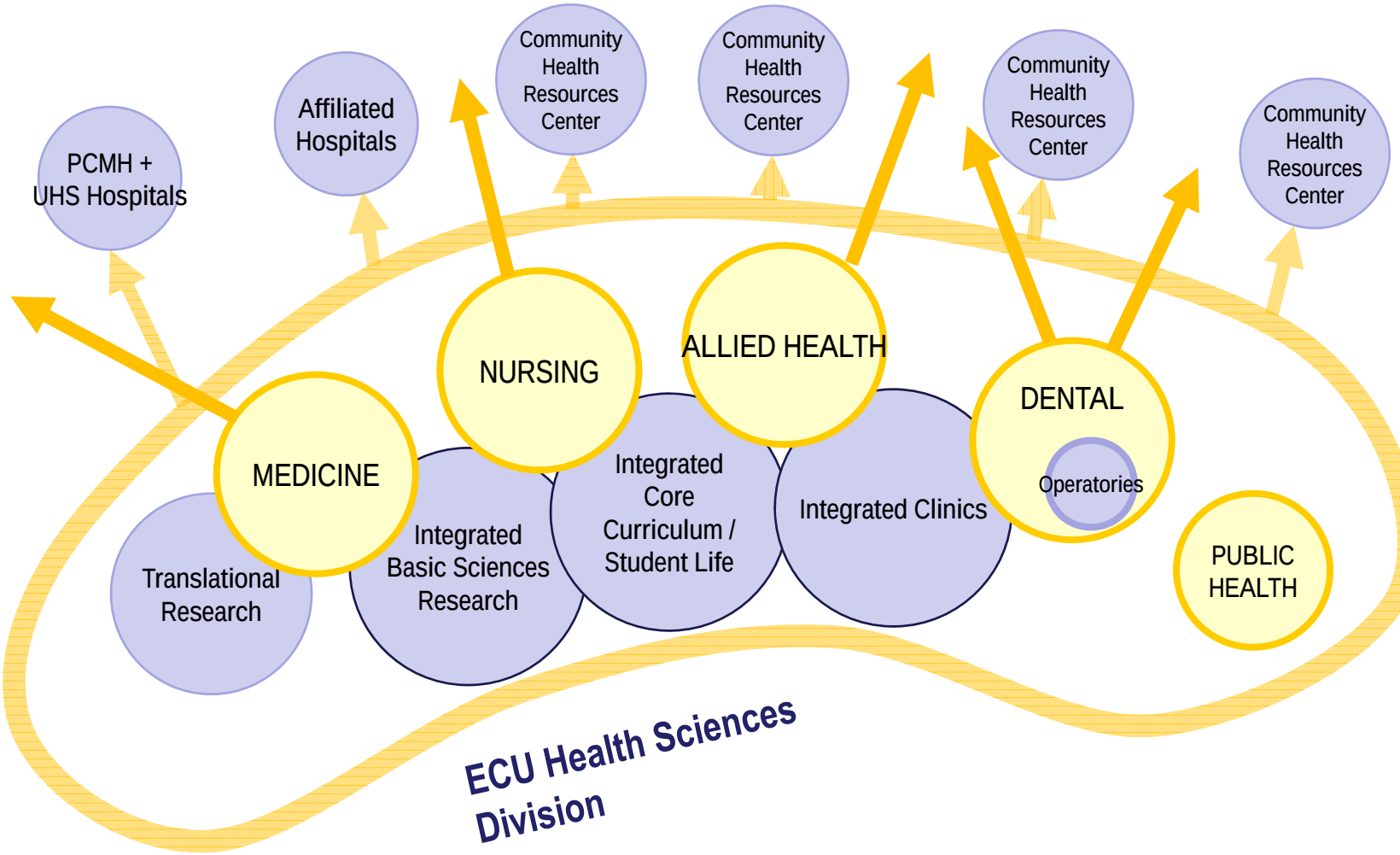
700	**Support Services Facilities**
710	Central Computer or Telecommunications
715	Central Computer or Telecommunications Service
720	Shop
725	Shop Service
730	Central Storage
735	Central Storage Service
740	Vehicle Storage
745	Vehicle Storage Service
750	Central Service
755	Central Service Support
760	Hazardous Material
765	Hazardous Material Service

Continuum-of-Integration – Current + Proposed Future State





Current State – Service Line Model based in Professional Schools



Future State – Integrated Model based in Regional Health Sciences

Space Capacity Analysis - Clinic

CLINICAL GROWTH ASSUMPTIONS	Growth Assumption	2008-2009 # Credentialed Staff	2008-2009 # Arrived Faculty Visits (Baseline)	2020 # Credentialed Staff	2020 # Arrived Faculty Visits	2025 # Credentialed Staff	2025 # Arrived Faculty Visits
Medicine							
Cardiovascular	**7%**	32	19,950	40	25,175	57	35,325
Family Medicine	**7%**	36	76,000	45	95,900	64	134,500
Internal Medicine	**3%**	53	42,475	60	47,800	69	55,500
Ob / Gyn	**5%**	16	18,750	19	22,375	24	28,500
Oncology	**3%**	19	39,375	21	44,300	25	51,375
Pediatrics	**5%**	57	36,850	68	43,500	87	56,100
Psychiatry	**3%**	25	13,700	28	15,450	33	17,900
Rehab / PT	**5%**	8	7,900	10	9,400	12	12,000
Surgery	**3%**	32	23,450	36	26,400	42	30,600
Allied Health Sciences							
Communication Sciences	**5%**	15	tbd	18	tbd	23	tbd
TOTAL		*293*	*278,450*	*345*	*330,300*	*436*	*421,800*

Program Need	2020 # Key Rooms	2020 Area (DGSF)	2025 # Key Rooms	2025 Area (DGSF)
CLINICS	**116**	**87,400**	**142**	**107,000**
Cardiovascular (in Heart Center)	-		-	
Family Medicine (in Family Medicine)	-		-	
Internal Medicine	18		24	
Ob/Gyn	8		12	
Oncology	18		24	
Pediatrics	20		24	
Psychiatry (Off Site)	-		-	
Rehab Medicine / PT	4		4	
Surgery	12		12	
Communication Sciences	6		6	
New Program Development	12		12	
Intake Center	10		12	
Wound Care Center	4		6	
Urgent Care Center	4		6	
DIAGNOSTICS & THERAPEUTICS	**44**	**84,200**	**56**	**100,000**
OR's + GI Suite	12		14	
Instrument Processing				
General Rad	4		6	
CT, PET/CT, MRI	6		6	
Nuclear Medicine	2		2	
Ultrasound, Mammography	10		14	
EKG,EEG, ENG, ETC	8		12	
Pulmonary Function	1		1	
PT / OT Treatment, Human Movement	1		1	
CANCER CENTER	**16**	**28,300**	**20**	**30,000**
Radiation Therapy	4		4	
Infusion	12		16	
Integrative Medicine				

Program Need (continued)	2020 # Key Rooms	2020 Area (DGSF)	2025 # Key Rooms	2025 Area (DGSF)
CLINICAL SUPPORT		**21,500**		**21,500**
Clinical Lab + Anatomical Pathology				
Retail Pharmacy / DME				
Education - Patient + Student				
ADMINISTRATION & FACILITY		**14,700**		**14,700**
Admin / Business / Medical Records / PACS				
Building Support, Materials Dock				
Food Court				
CREDENTIALED FACULTY OFFICE	**251**	**113,000**	**304**	**133,650**
Cardiovascular (in Heart Center)	40		57	
Family Medicine (in Family Medicine)	45		64	
Internal Medicine	60		69	
Ob/Gyn	19		24	
Oncology	21		25	
Pediatrics	68		87	
Psychiatry (Off Site)	28		33	
Rehab Medicine / PT	10		12	
Surgery	36		42	
Communication Sciences	3		4	
Emergency	[illegible]		41	
GRAND TOTAL (DGSF)		**349,100**		**406,850**
GRAND TOTAL (BGSF) x 1.25		**436,375**		**508,563**
PARKING SPACES		2,700		[illegible]

Health Sciences – Master Program

Preliminary Surplus (Deficit) Calculations - Main Campus

Room Use Code	Space Category		Main Campus Surpluses (Deficits)	
			2009	2025
110/115	Classrooms		33,629	(20,034)
210/215	Class Laboratories		12,992	(46,423)
220/225	Open Laboratories		(3,640)	(29,216)
250/255	Research Laboratories		36,733	(94,528)
300	Office Facilities		112,137	(29,837)
400	Study Facilities		(102,050)	(207,628)
700	Support Service Facilities			
	Totals		89,800	(427,665)

400—Study

There is something wrong with either the use data (PBVEs) or Space Inventory data.

The Study deficit is not likely correct—too exaggerated.

Preliminary Surplus (Deficit) Calculations – Health Science Campus

Room Use Code	Space Category		Health Sciences Campus Surpluses (Deficits)	
			2009	2025
110/115	Classrooms		25,359	19,955
210/215	Class Laboratories		22,714	12,528
220/225	Open Laboratories		(11,618)	(24,400)
250/255	Research Laboratories		45,090	(170,201)
300	Office Facilities		(65,704)	(160,012)
400	Study Facilities		(6,162)	(20,428)
700	Support Service Facilities			
	Totals		9,679	(342,558)

300--Office

The Office Space deficit is wrong.

Personnel counts include very large number of "CSS" personnel, most of whom are not assigned offices.

Need a way to segregate these and re-run the calculation.

Preliminary Surplus (Deficit) Calculations – Total ECU

Room Use Code	Space Category		Total ECU Surpluses (Deficits)	
			2009	2025
110/115	Classrooms		58,988	(78)
210/215	Class Laboratories		35,707	(33,895)
220/225	Open Laboratories		(15,258)	(53,617)
250/255	Research Laboratories		81,823	(264,729)
300	Office Facilities		46,433	(189,849)
400	Study Facilities		(108,212)	(228,056)
700	Support Service Facilities		0	0
	Totals		99,479	(770,223)

Corrections Still Required, But:

Classroom space quantity is not the problem.

210 and 220 instructional labs are required

Significant addition of Research Lab space will be needed

Study space needs to be corrected and decisions made about its distribution outside the Library

Discussion