Update on University of Hawai‘i at Mānoa Campus Space Utilization Study & Master Physical Plan

BOR Planning & Facilities Committee
Feb 7, 2018

Jan Gouveia, Vice President for Administration
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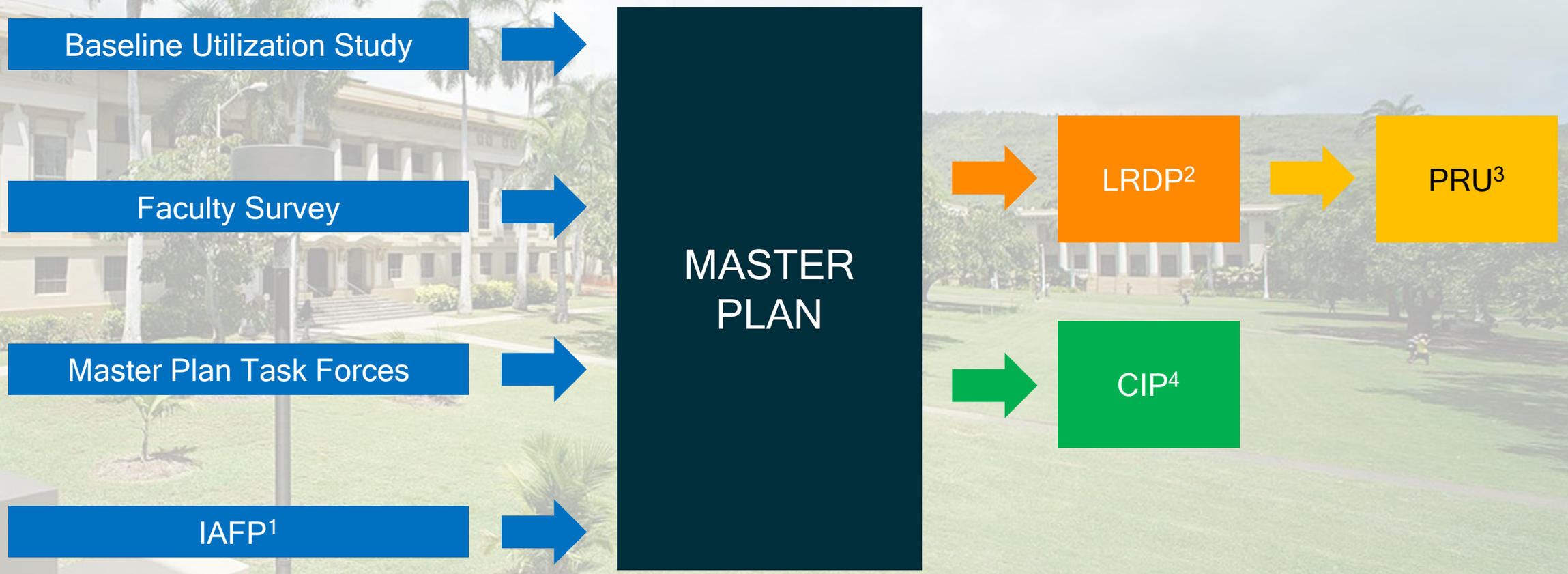
Christine Sorensen, Professor, Dept of Learning Design & Technology
Daniel Friedman, Dean, School of Architecture

Process Overview



DEFINITIONS

- IAFP[1]: Integrated Academic Facilities Plan
- LRDP[2]: Long Range Development Plan
- PRU[3]: Plan Review Use
- CIP[4]: Capital Improvement Plan

Baseline Utilization Study

DEFINITIONS

- IAFP[1]: Integrated Academic Facilities Plan
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Baseline data will support university planning processes…

Transactional	• Use as analytic tool to answer questions about space and utilization
Projects	• Support current planning and design initiatives through scenario modeling and testing
Institutional	• Develop institutional metrics to support policy development

… And Provide a Foundation for Decision Making and Risk Management

University Goals and Objectives

Scenario planning

Design

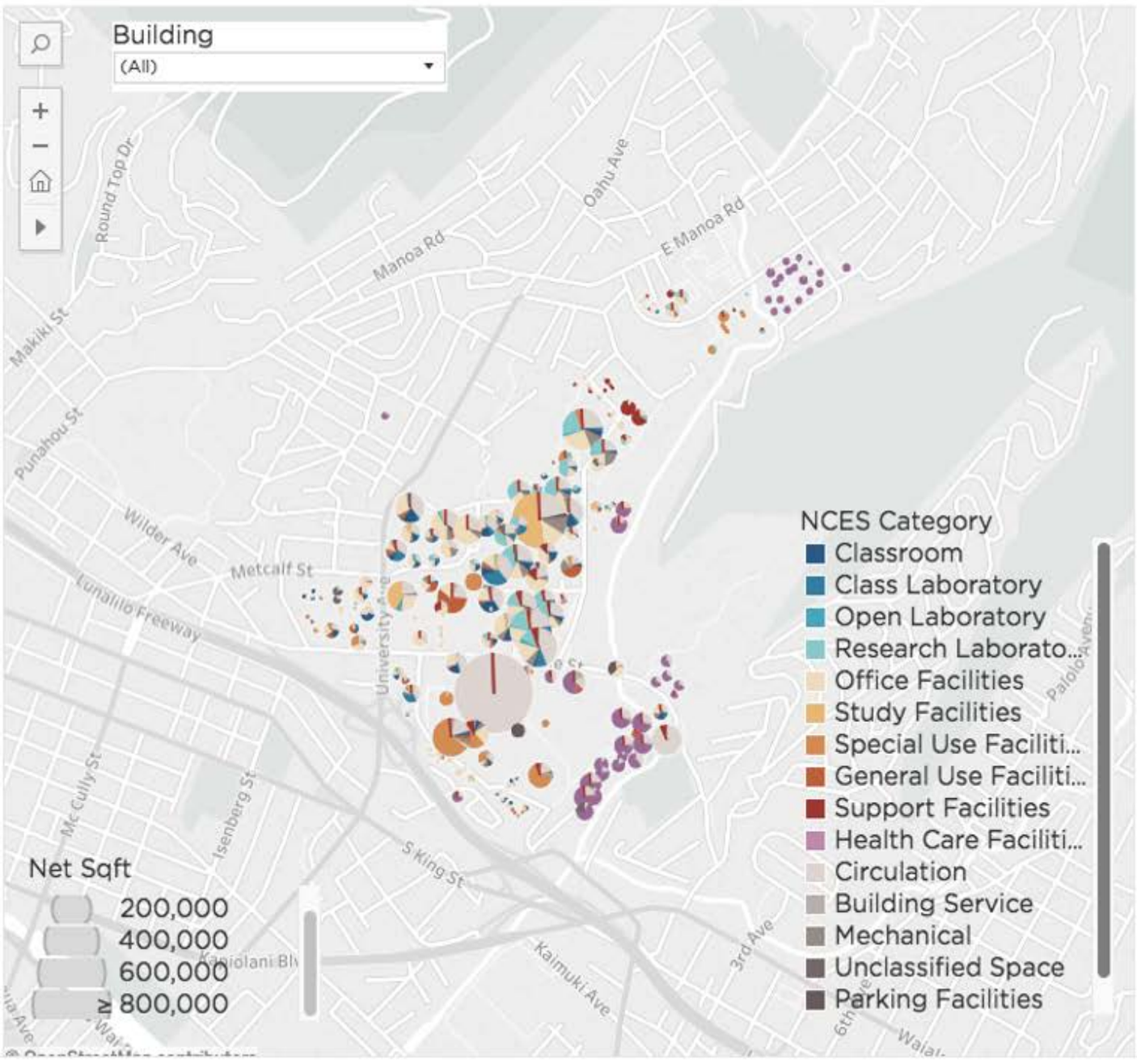
Policy

Economic impact

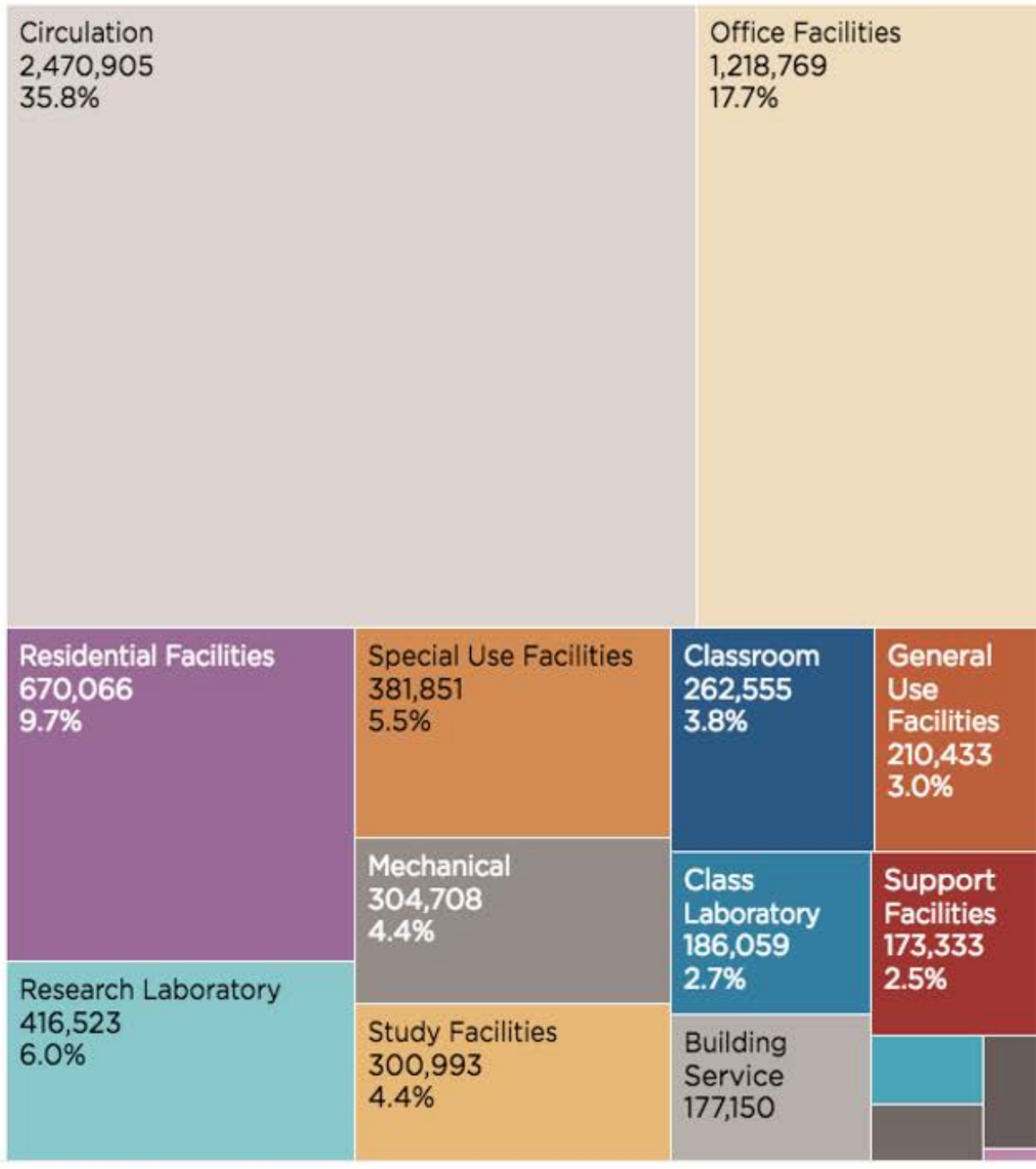
Utilization Baseline

UH Mānoa has almost 7 million sf of space in 311 buildings (does not include off-campus facilities)

UH Mānoa Building Area By NCES Category



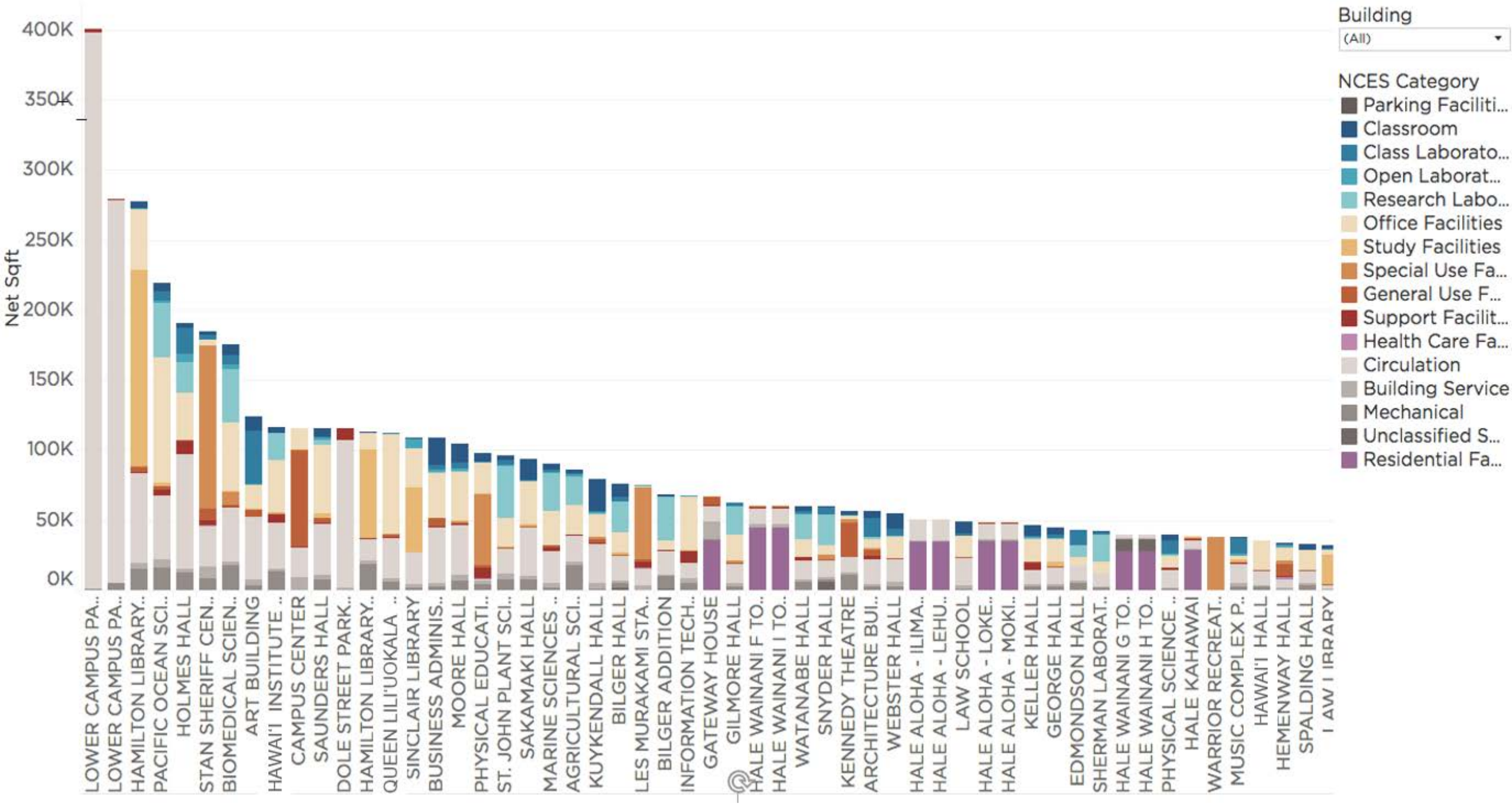
UH Mānoa Total Area By NCES Category



Source: Field-Validated AIM Database

Inventory by Building

Buildings Range from over 400,000 sf to under 20,000 sf

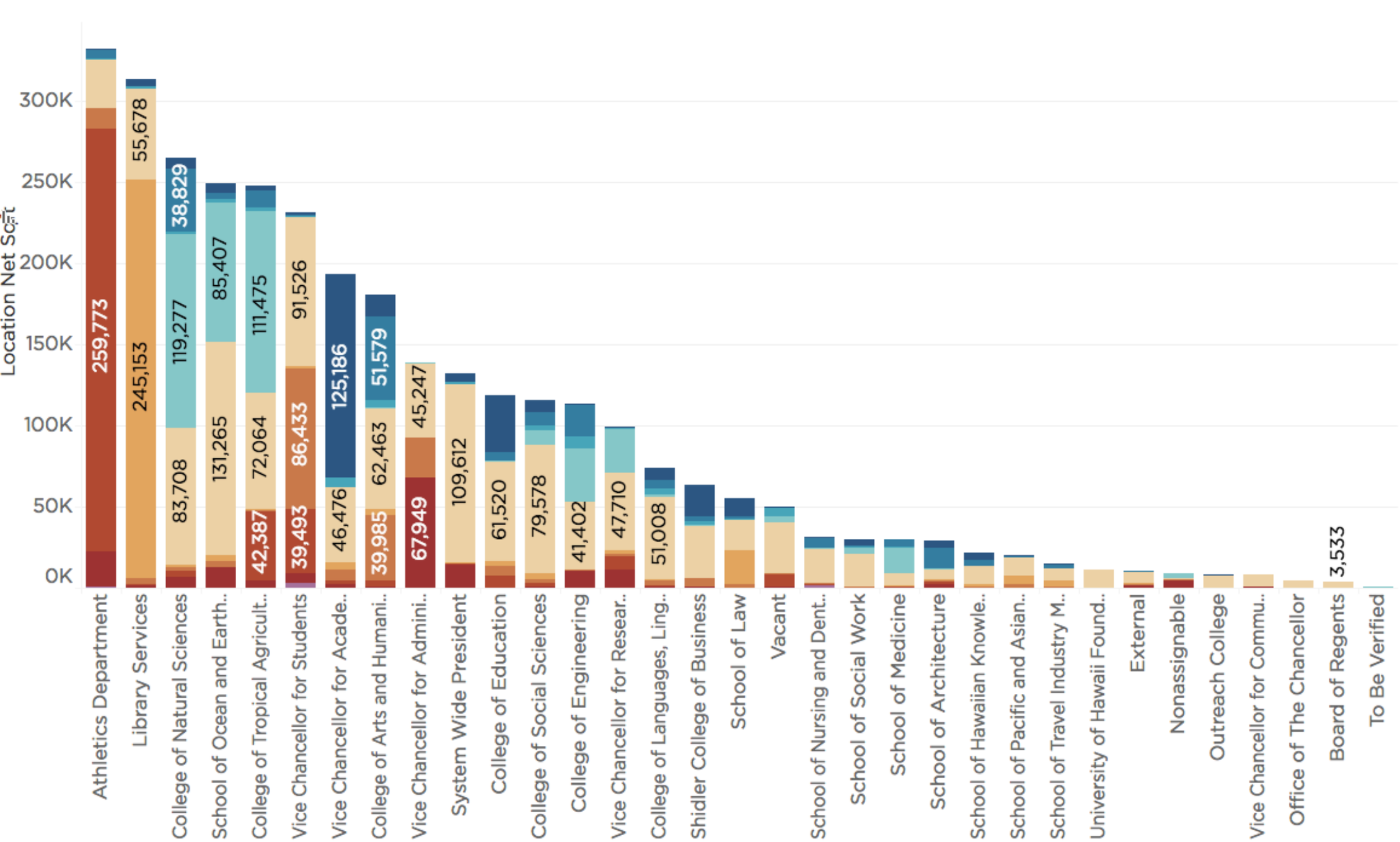


- The 2 largest buildings are the lower parking structures, followed by Hamilton Library, POST and Holmes Hall

Source: Field-Validated AIM Database

Inventory by Administrative/Academic Unit

Athletics and Library Services have the Highest Program SF



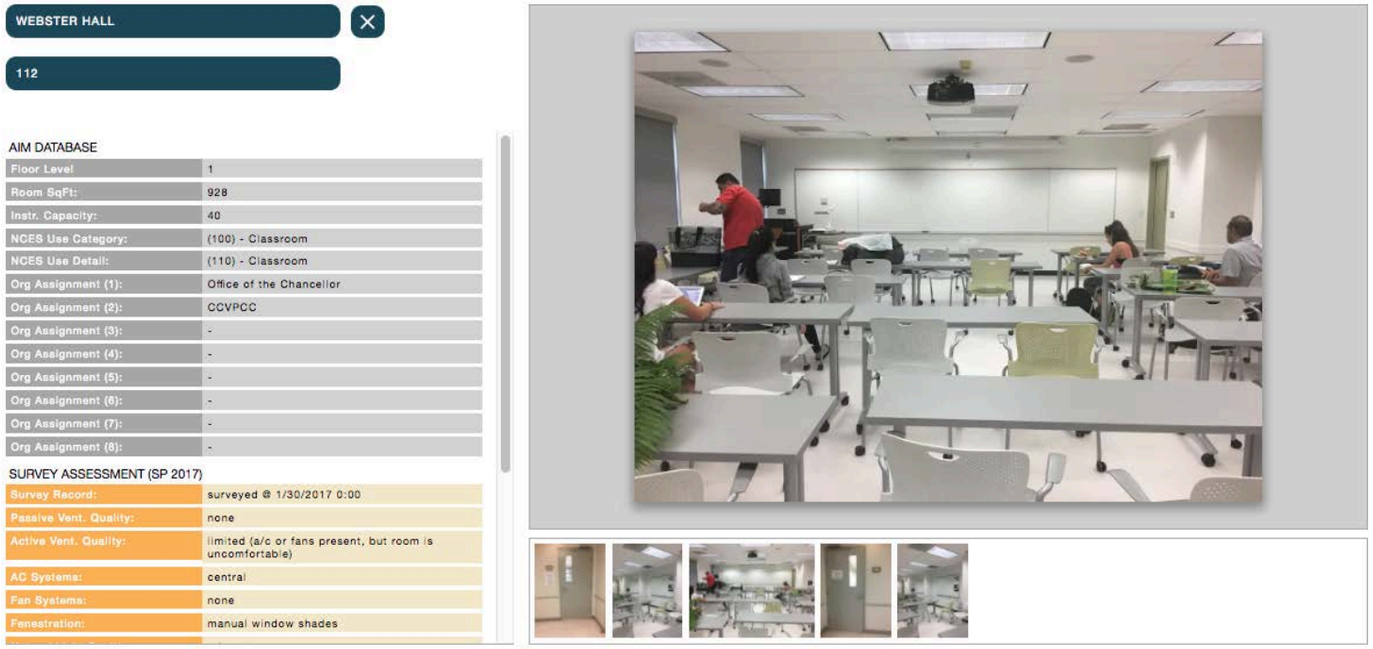
- Athletics and Library Services have the most space, followed by academic groups with major research facilities (Natural Sciences, SOEST, CTAHR)

Source: Field-Validated AIM Database

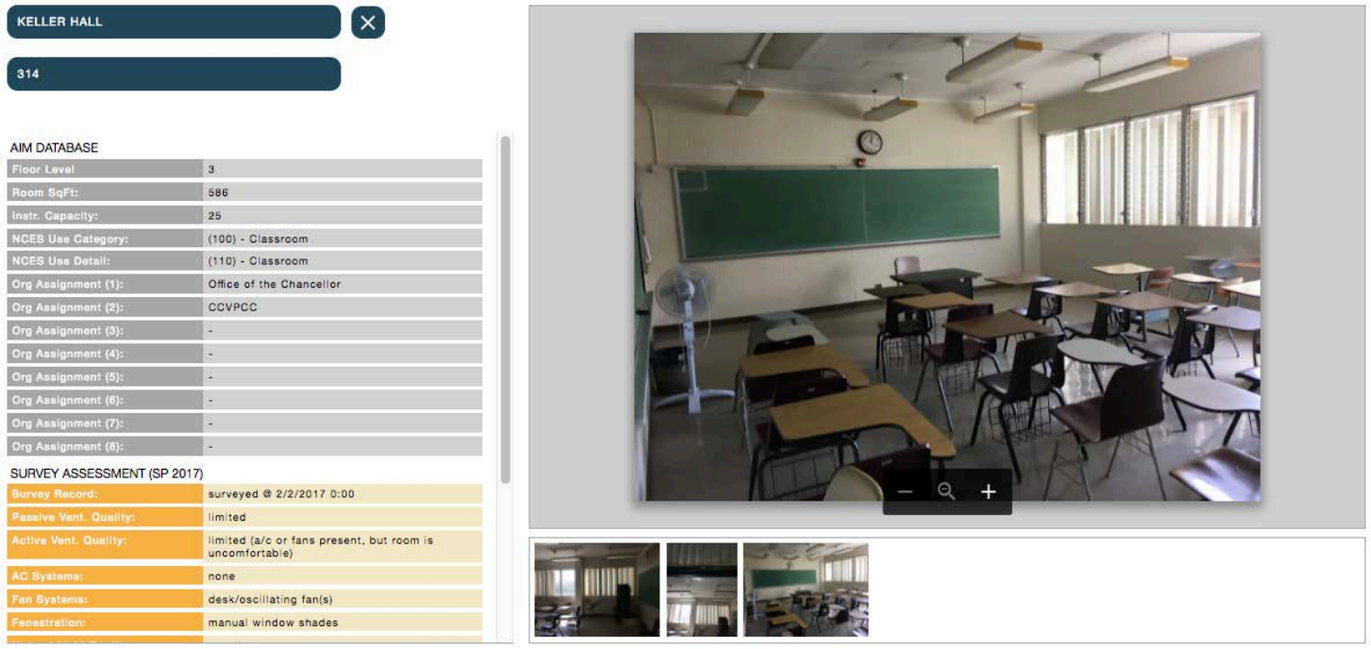
Individual Room Level: High Degree of Variance

- What are the attributes of a highly utilized classroom?

- High performing: Webster Hall 112, 30.5 hrs/week, 68% utilization



- Low performing: Keller 314, 8.33 hrs/week, 19% utilization



Source: MKThink field survey

…Leading to low formal scheduling of the 331 classrooms and 167 class labs

- Average formal scheduling for Classrooms/Class Labs: 34.1% (15.4 hrs week out of 45 available hour)

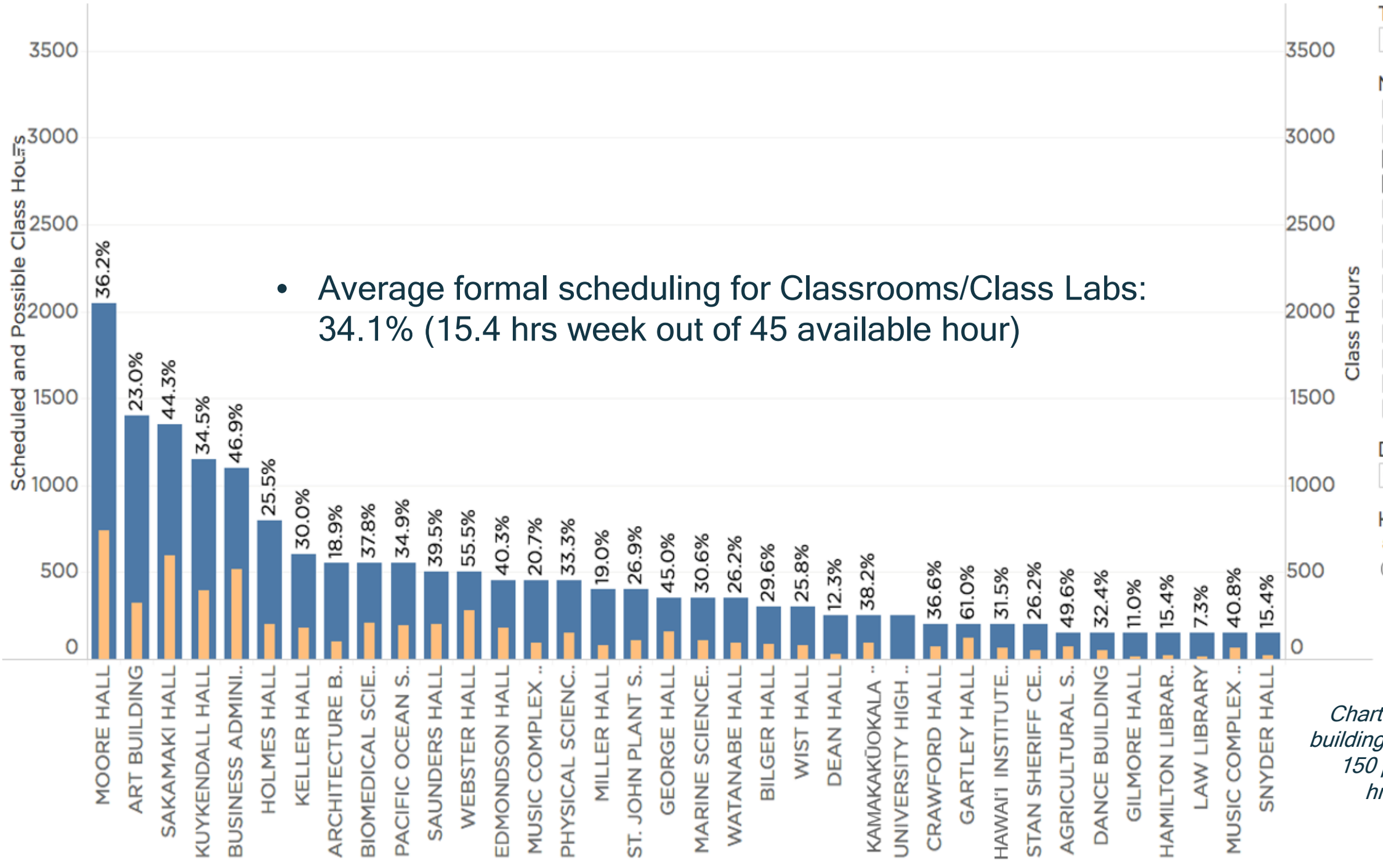
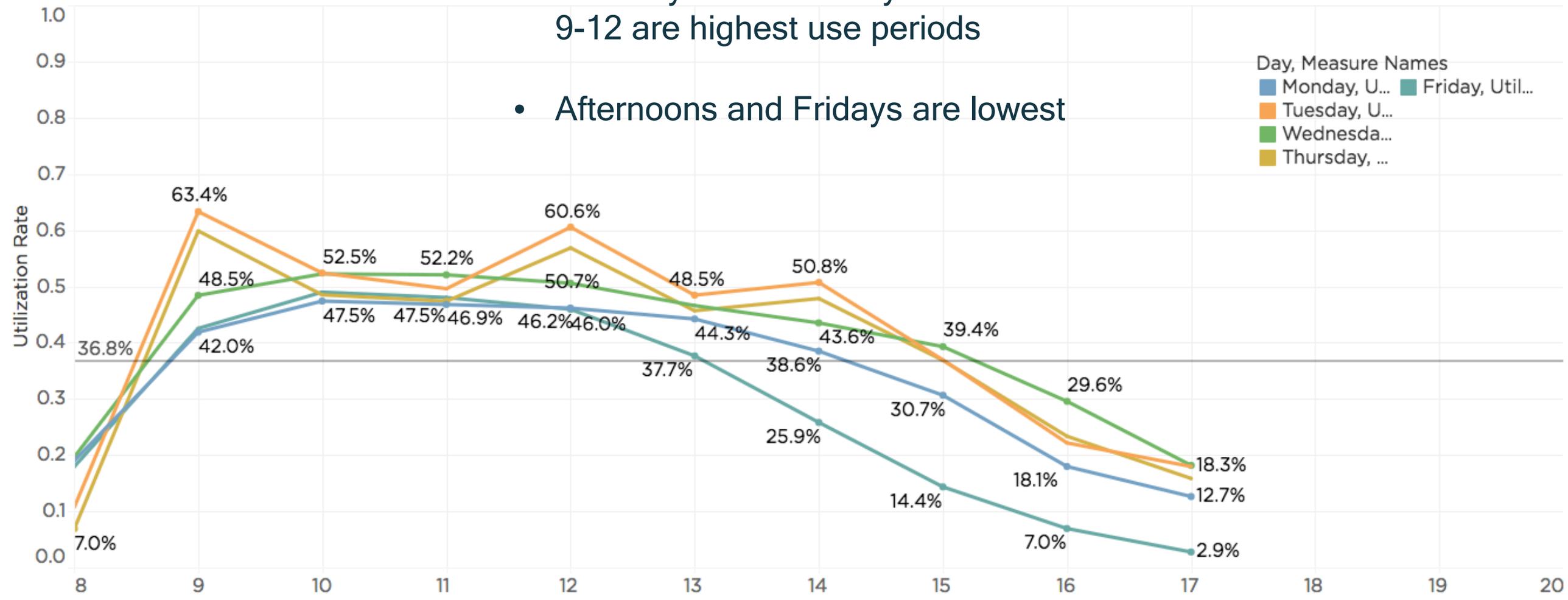


Chart does not show buildings with fewer than 150 possible class hrs/semester

Source: Banner/R25 Scheduling System

Classroom utilization varies significantly over the course of the day and day of the week

- Tuesday and Thursday from 9-12 are highest use periods
- Afternoons and Fridays are lowest



Term: Fall 2016

Acade...: (All)

Day: (Multiple values)

Building: (All)

NCES Category Code: Classroom

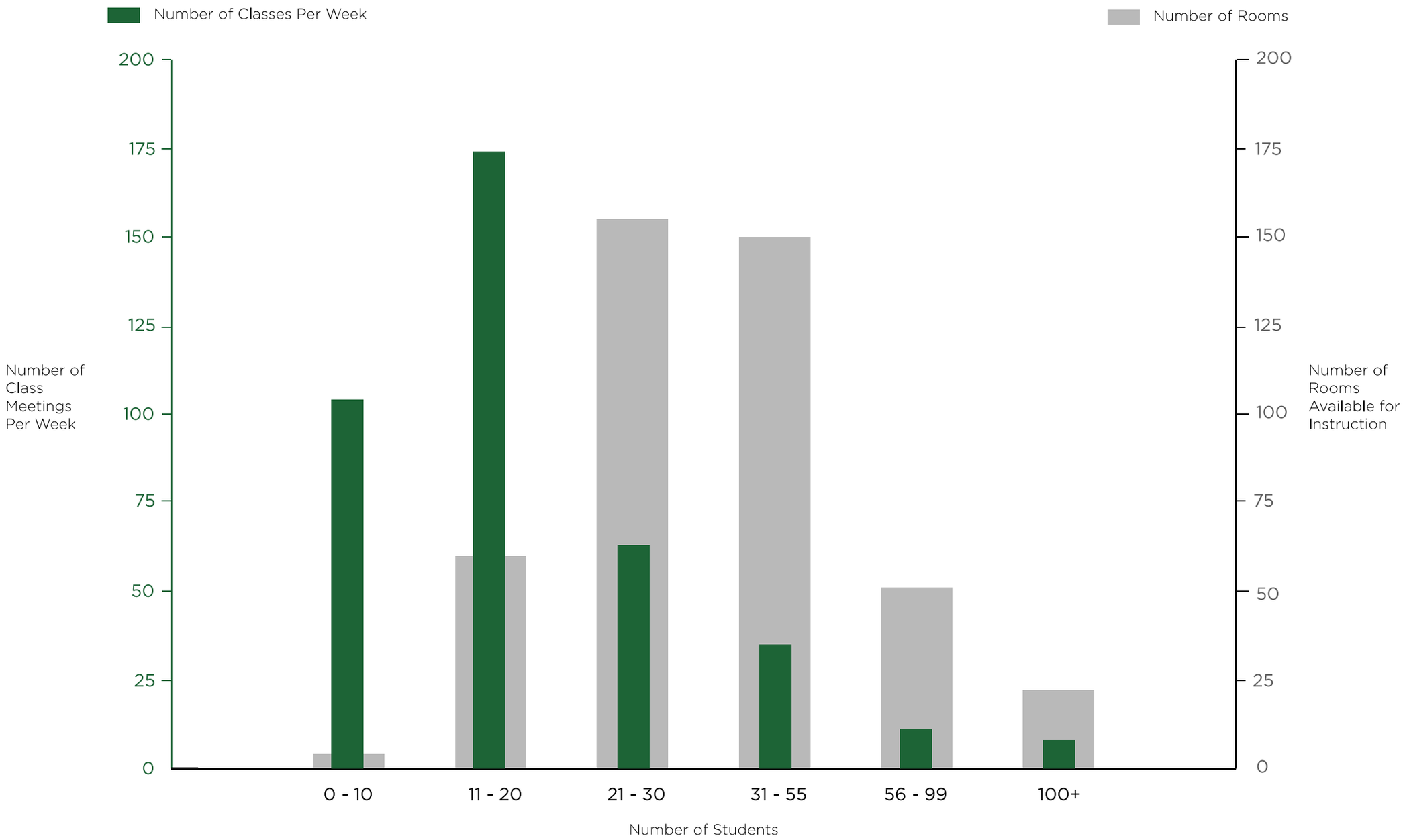
Hour: 8 – 17

Source: Banner/R25 Scheduling System

…Resulting from room sizes that don't match today's class sizes

Distribution of Room Sizes and Enrollment, Fall 2016 Semester

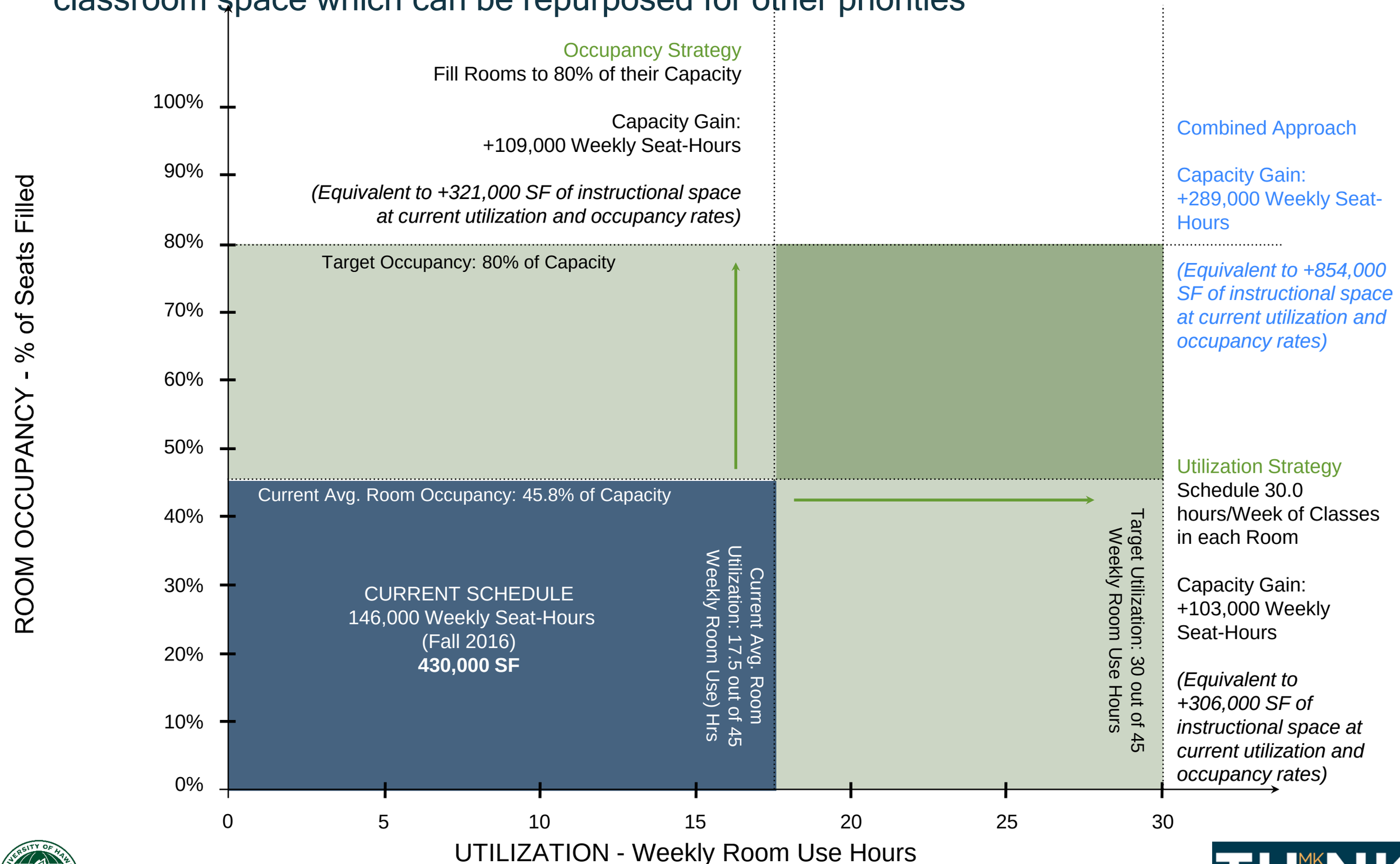
Number of Classes Based on an Average Week Calculated from Banner Database
Number of Room Capacities from R25 Database



Note: Data provided by University Scheduler. Includes rooms in database regardless of room type (classroom, class lab, conference room, etc.) except for 15 classrooms with unvalidated capacities. Also excludes 5,630 classes, 56.8% of total classes offered, with rooms yet to be assigned or categorized with "TBA" room assignment.

Quantifying the opportunity

Improvements in both utilization and occupancy yield an additional 200% effective classroom space which can be repurposed for other priorities



Examples of applicability

- Transactional – classroom R&M (matrix)
- Projects – College of Engineering, Comm/ACM (PBS Building)
- Institutional – Classroom master planning, campus master plan

Transactional: Classroom Matrix

Room Name	Room Info: Building	Room Info: Room Type	Renovation: Room SqFt	Renovation: Potential CIP Impact year	Scores: User Score (Scheduler controlled = 1; Weighting: 1.0)	Scores: Size Score (0 / 1 / 0.5; Weighting: 1.0)	Scores: Distance Score (Core Zone: 1, Middle Zone: .5, Outer Zone: 0; Weighting: 0.5)	Scores: Room Condition Score (Lower ratings = higher score; Weighting: 1.0)	Scores: AC Score (None=1, Window=.5, Central=0; Weighting: 1.0)	Scores: Tech Score (More Tech = Lower Score; Weighting: 1.0)	Total Score
		AIM NCES Code									
KELL 404	KELLER HALL	Classroom	653	2022	1	1	1.0	0.5	1	1	4.97
KELL 303	KELLER HALL	Classroom	1279	2022	1	1	1.0	0.3	1	1	4.83
KELL 301	KELLER HALL	Classroom	632	2022	1	1	1.0	0.7	0.5	1	4.67
KELL 402	KELLER HALL	Classroom	648	2022	1	1	1.0	0.6	0.5	1	4.60
KELL 401	KELLER HALL	Classroom	632	2022	1	1	1.0	0.5	0.5	1	4.53
KELL 413	KELLER HALL	Classroom	586	2022	1	0.5	1.0	0.5	1	1	4.53
KELL 403	KELLER HALL	Classroom	648	2022	1	1	1.0	0.5	1	0.5	4.47
KELL 414	KELLER HALL	Classroom	586	2022	1	0.5	1.0	0.5	1	1	4.47
KELL 302	KELLER HALL	Classroom	1279	2022	1	1	1.0	0.4	0.5	1	4.40
KELL 314	KELLER HALL	Classroom	586	2022	1	0.5	1.0	0.4	1	1	4.40
KUY 302	KUYKENDALL HALL	Classroom	620	2020	1	1	1.0	0.5	0.5	0.5	4.03
DEAN 105	DEAN HALL	Classroom	457		1	0.5	1.0	0.3	1	0.75	4.02
HIG 311	HAWAI'I INSTITUTE OF GEOPHYSICS	Classroom	497	2022	1	0.5	1.0	0.5	0.5	0.75	3.78
KELL 313	KELLER HALL	Classroom	586	2022	1	0.5	1.0	0.3	0.5	1	3.77
KUY 313	KUYKENDALL HALL	Classroom	621	2020	1	1	1.0	0.5	0	0.75	3.72
MOORE 423	MOORE HALL	Classroom	677		1	1	1.0	0.7	0	0.5	3.67
KUY 401	KUYKENDALL HALL	Classroom	188	2020	1	0.5	1.0	0.6	0	1	3.60
KUY 401A	KUYKENDALL HALL	Classroom	176	2020	1	0.5	1.0	0.6	0	1	3.60
ART 117	ART BUILDING	Class Laboratory	1211		0	1	1.0	0.5	1	0.5	3.53
KUY 209	KUYKENDALL HALL	Classroom	1255	2020	1	1	1.0	0.5	0	0.5	3.53
KUY 210	KUYKENDALL HALL	Classroom	938	2020	1	1	1.0	0.5	0	0.5	3.53
KUY 213	KUYKENDALL HALL	Classroom	611	2020	1	1	1.0	0.5	0	0.5	3.53
KUY 303	KUYKENDALL HALL	Classroom	622	2020	1	1	1.0	0.5	0	0.5	3.53
KUY 304	KUYKENDALL HALL	Classroom	620	2020	1	1	1.0	0.5	0	0.5	3.53
KUY 306	KUYKENDALL HALL	Classroom	1291	2020	1	1	1.0	0.5	0	0.5	3.53
KUY 301	KUYKENDALL HALL	Classroom	1569	2020	1	1	1.0	0.5	0	0.5	3.47
KUY 305	KUYKENDALL HALL	Classroom	934	2020	1	1	1.0	0.5	0	0.5	3.47
KUY 307	KUYKENDALL HALL	Classroom	1265	2020	1	1	1.0	0.5	0	0.5	3.47
KUY 308	KUYKENDALL HALL	Classroom	622	2020	1	1	1.0	0.5	0	0.5	3.47

SCORECARD | Tech Ratings | Zones | +

- Data from the Baseline Utilization Study has helped to identify classrooms that would provide the most value to the University if renovated.

Projects: College of Engineering

SPACE PROGRAM SCENARIOS SUMMARY

PAGE

SCENARIO 1 (3yrs)

- Optimize existing COE facilities
- Improve conditions
- Lowest cost intervention
- Increase effectiveness, utilization, and occupancy
- Address under-staffing if funding allows

67	Faculty
344	Grad Students & Researchers
1,375	Undergrad students
40	Admin
1,826	Total

1:5:20
Faculty:Grad:Undergrad Ratio

Total GSF needed 243,856

SCENARIO 2 (5yrs)

- Continue to increase utilization and occupancy as available
- Provide COE access to additional existing spaces across campus to complement updated core facilities
- Move toward target ratio of 1:5:20 as funding and enrollment allow

80	Faculty
400	Grad Students & Researchers
1,600	Undergrad students
40	Admin
2,120	Total

1:5:20
Faculty:Grad:Undergrad Ratio

Total GSF needed 284,714

SCENARIO 3 (20yrs)

- Provide requisite space through a combination of the optimized existing assets, additional assets across campus, and new building(s)

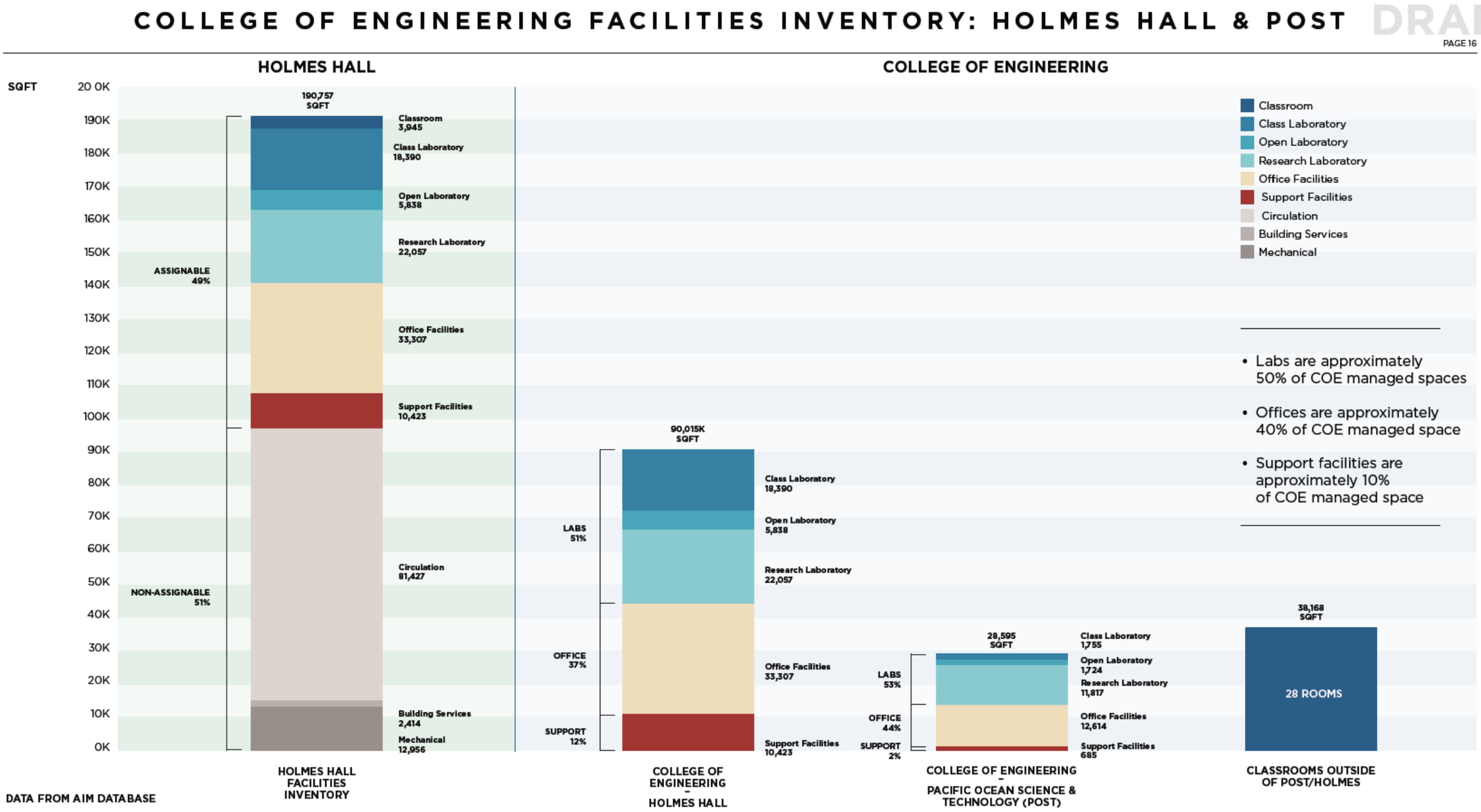
100	Faculty
500	Grad Students & Researchers
2,000	Undergrad students
54	Admin
2,654	Total

1:5:20
Faculty:Grad:Undergrad Ratio

Total GSF needed 335,868

- Focused on college needs relative to teaching and research goals
- Increase in utilization and occupancy levels of teaching and research space reduces overall need for physical square footage
- Scheduling of classes and non-engineering activities in other locations on campus
- Reuse of existing spaces prioritized to lower cost
- Estimate currently in progress; initial range $45-$75MM

Projects: College of Engineering

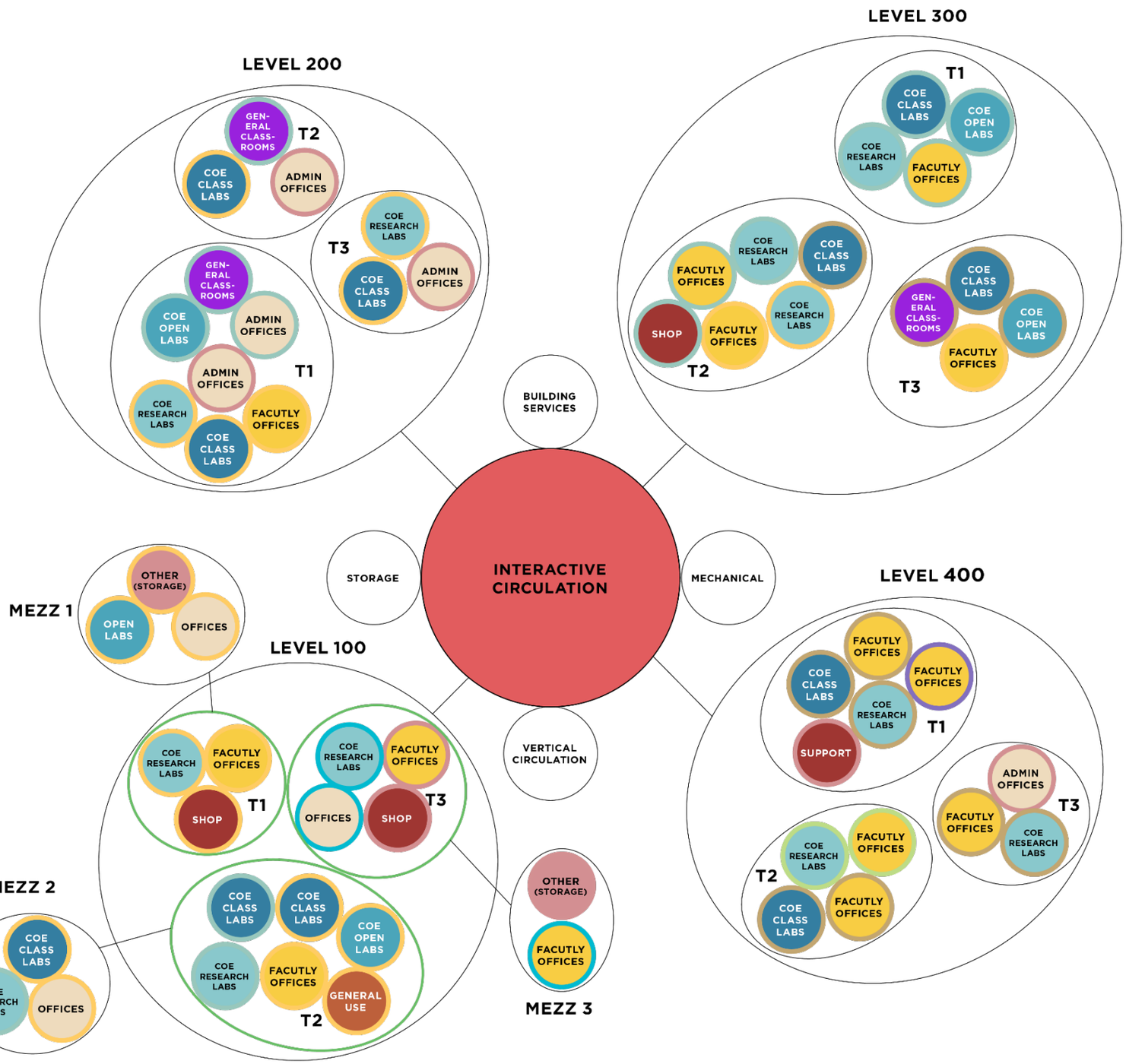


Cost savings could be over $50MM

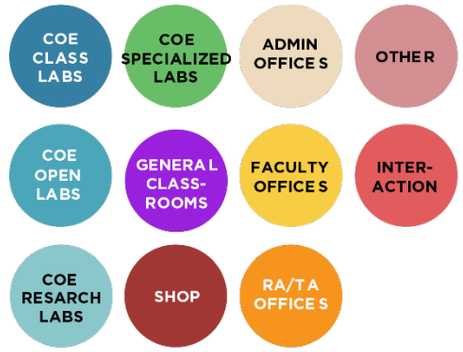
- Emphasis on meeting program needs through better use of space, not building more space
- Willingness of college to adapt needs to use existing space when possible, relocate certain activities outside of main building hub

Projects: College of Engineering

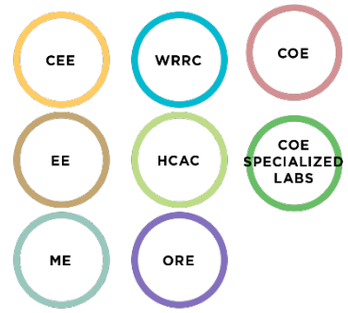
Existing Conceptual Organization Model



USE TYPES



DEPARTMENTS

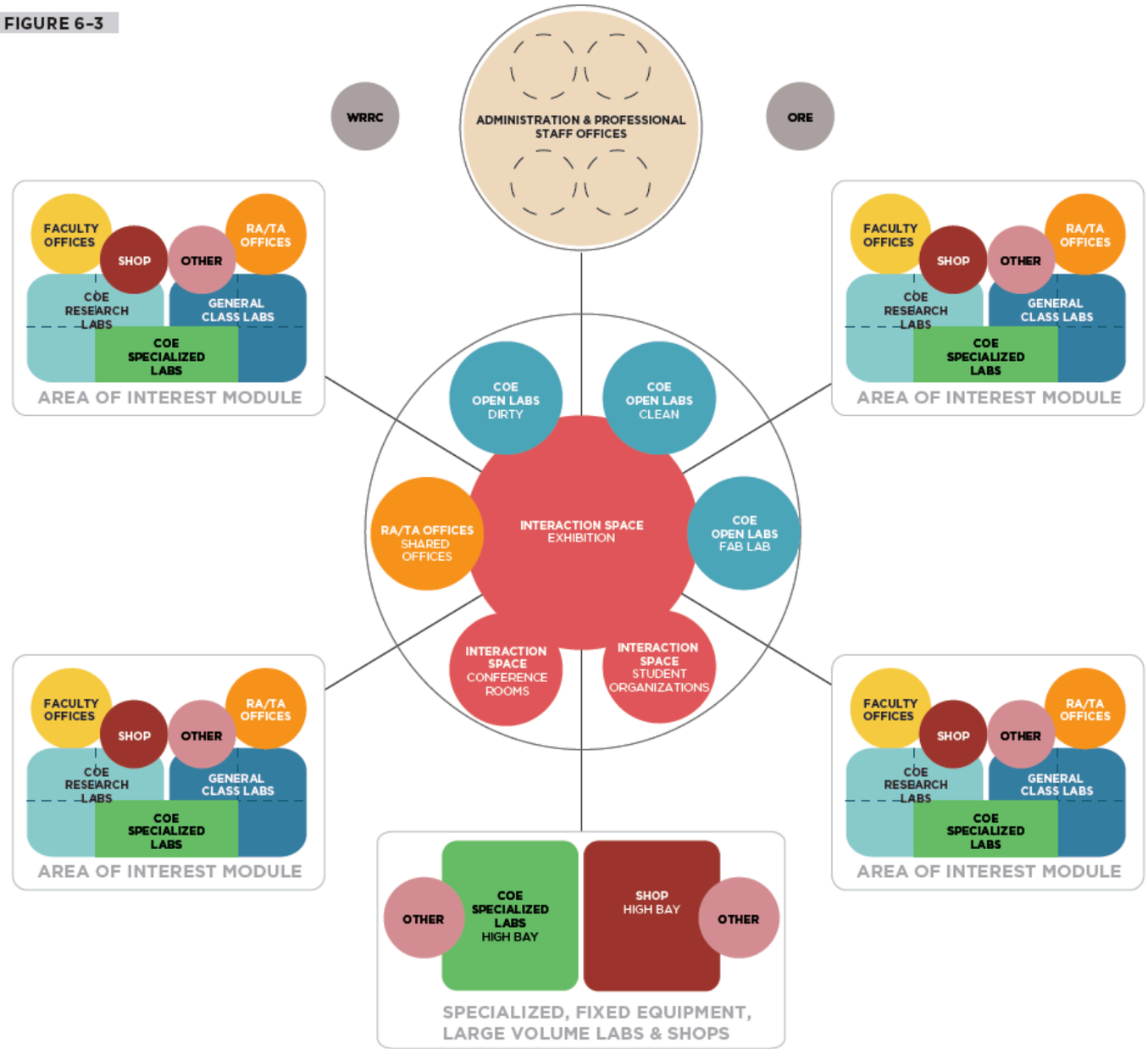


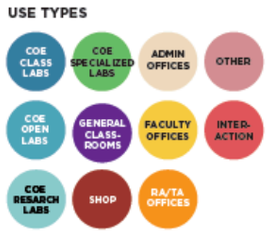
T1 = TOWER 1
T2 = TOWER 2
T3 = TOWER 3
T4 = TOWER 4
MEZZ = MEZZANINE

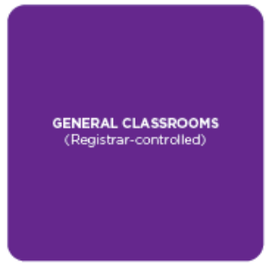
Projects: College of Engineering

Future Conceptual Organization Model

FIGURE 6-3







- Organizational Model integrates the best of the three precedents (organize by functional requirements, organize by program, and organize by layer of activity)
- Densest intensity of activity is in central shared spaces, promoting COE culture
- Shops and Specialized Labs requiring double-height spaces are co-located (functional requirement)
- Area of interest modules co-locates research teams in dynamic groupings that can change over time

Sustainability impact

- Building reuse vs. building replacement
- Lower SF requirements through higher utilization of space
- Upgrade of old mechanical system to more efficient environmental management will yield additional energy cost savings

Faculty Survey

DEFINITIONS

- IAFP[1]: Integrated Academic Facilities Plan
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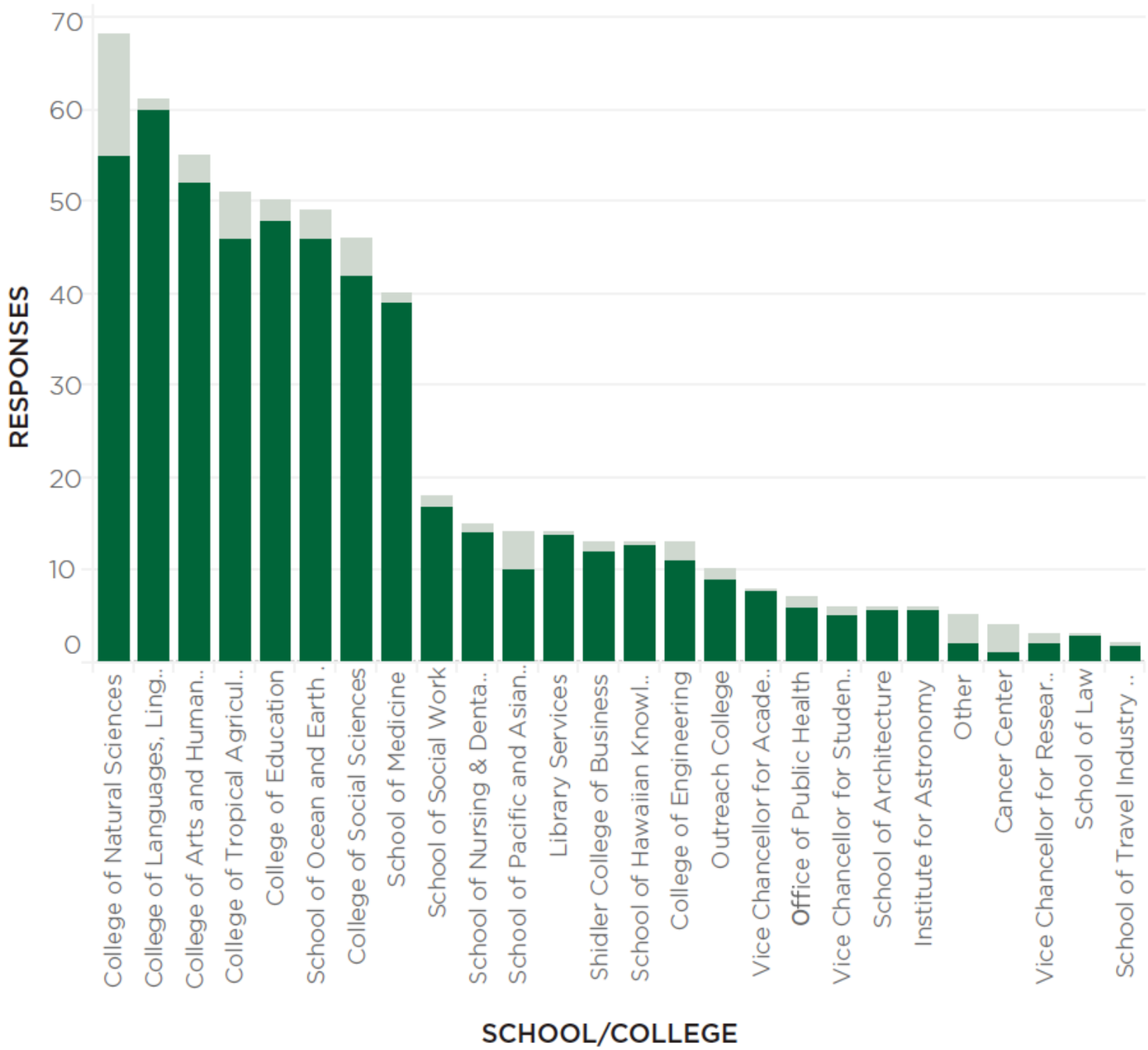
Faculty Survey on Facilities: Participation

WORK ACTIVITIES OF RESPONDENTS

In what college or school is your primary academic appointment, and, if applicable, secondary appointment(s)?



KEY

- Primary Academic Affiliation
- Secondary Academic Affiliation

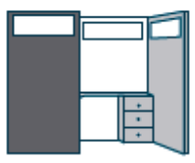
26 schools/colleges were represented by respondents, with the most responses from the College of Natural Sciences, the College of Languages, the Linguistics & Literature and the College of Arts & Humanities

Faculty Survey on Facilities: Themes

EMERGING THEMES

1. MEETING/COLLABORATIVE SPACE

Collaborative spaces and meeting rooms emerged as a primary need for faculty members. Formal rooms such as meeting or conference rooms as well as collaborative spaces that encourage small group learning were determined to be among the most essential future workplace typologies. Additionally, faculty noted the importance of providing meeting spaces for graduate students seeking to meet and engage with faculty and students.



2. FACULTY, STUDENT SPACE LIMITED

The additional provision of faculty and student spaces were primary themes throughout. Specifically, this revolved around the need for collaboration among students, graduate students, researchers and faculty in offices as well as in library settings. Active learning spaces and multi-purposes spaces were also deemed important.

3. PHYSICAL ADJACENCY TO OTHER DEPARTMENTS

The provision of spaces to interact with other faculty members was listed as one of the top five priorities of faculty members. Limiting splits between departments and ensuring adjacencies exist between departments working in close collaboration was a primary concern among faculty. Additionally, the breadth of collaborations as evidenced across schools and colleges highlights the importance of physical proximity.

4. ROOM ENVIRONMENTAL QUALITY ESSENTIAL

Access to natural light and ventilation was the second highest priority among faculty, as corroborated by the recurrent requests for alternative air-conditioning systems. Additionally, the need for green spaces, open-air walkways, and landscaped areas emerged as ways to improve the work environment and better align with Hawaiian climate and culture.

5. TECHNOLOGY ADVANCEMENTS

The need for improved technological effectiveness emerged as a primary concern in meeting rooms, classrooms, and laboratories. Over the next 10 years, faculty believe they will increasingly use other mobile devices, video conferencing services and smart boards, partially to prepare for more remote-teaching set-ups.

Faculty Survey on Facilities: Collaboration

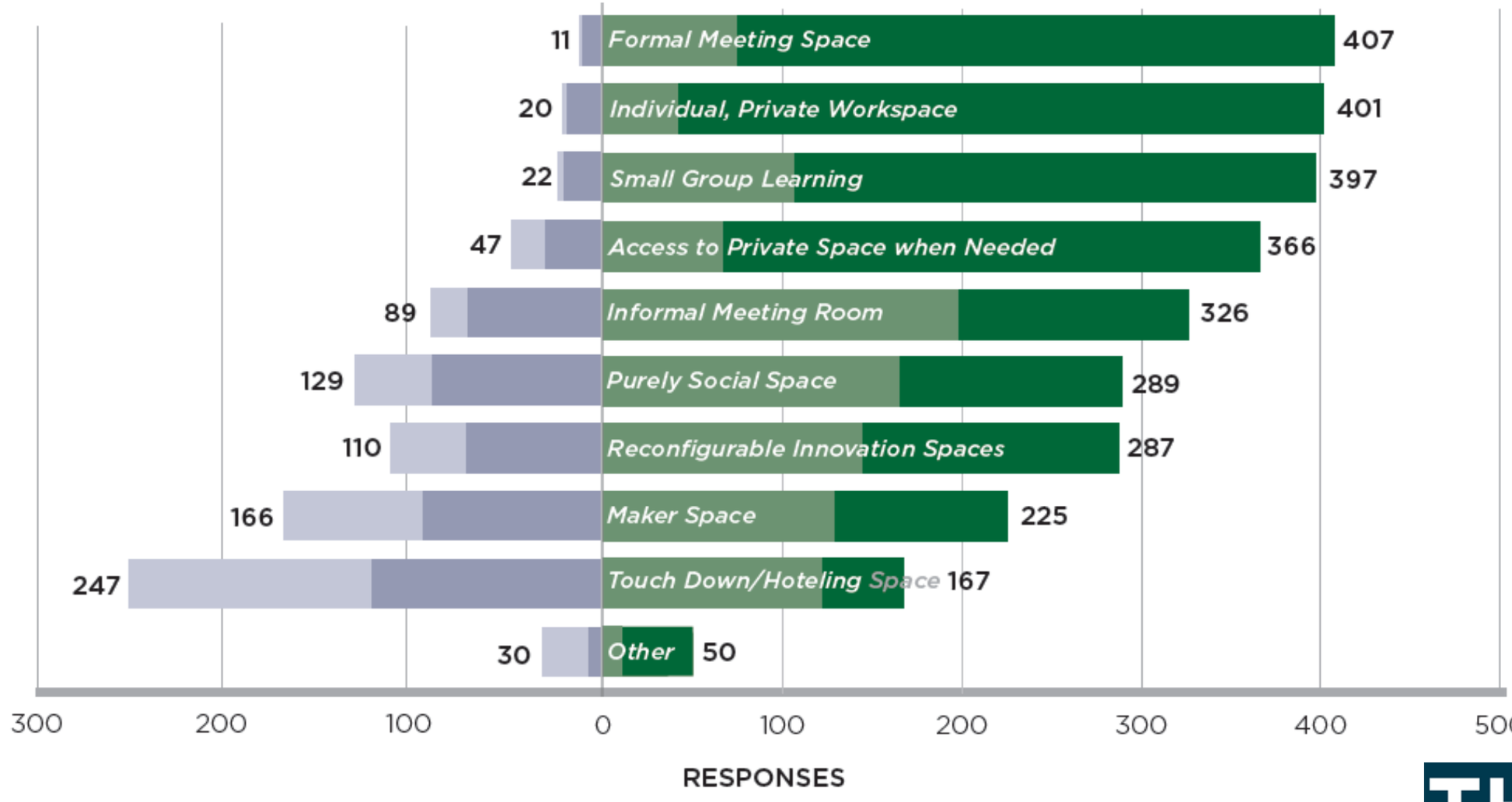
FUTURE IDEAL WORKPLACE TYPOLOGIES

Imagine a future ideal academic office workspace. Please evaluate the following workplace typologies.

KEY

- Essential
- Somewhat Important
- Somewhat Unimportant
- Unnecessary

Formal Meeting Space, Individual/Private Workspaces, and Small Group Learning Spaces are the most favored workplace typologies

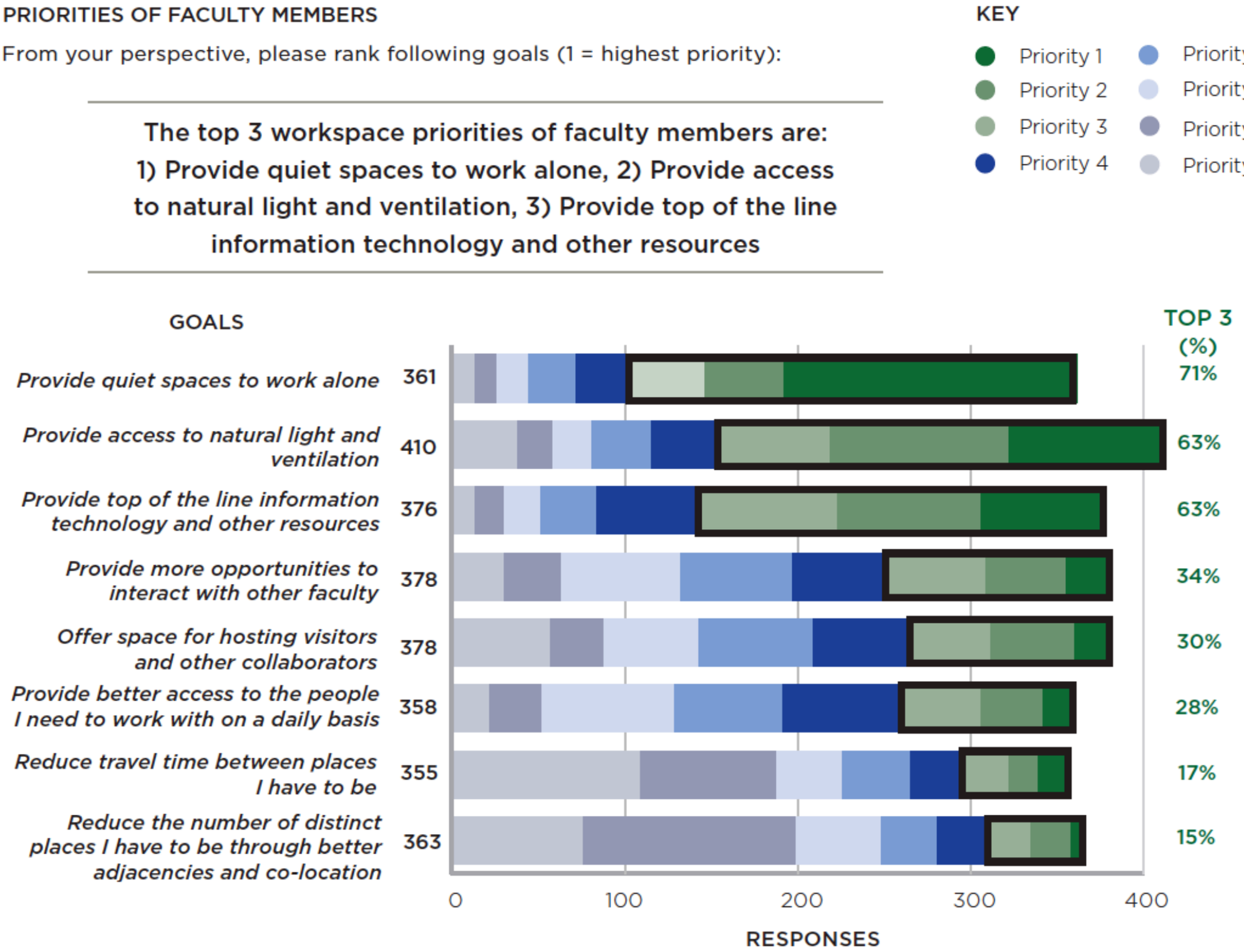


Faculty Survey on Facilities: Space Priorities

PRIORITIES OF FACULTY MEMBERS

From your perspective, please rank following goals (1 = highest priority):

The top 3 workspace priorities of faculty members are: 1) Provide quiet spaces to work alone, 2) Provide access to natural light and ventilation, 3) Provide top of the line information technology and other resources

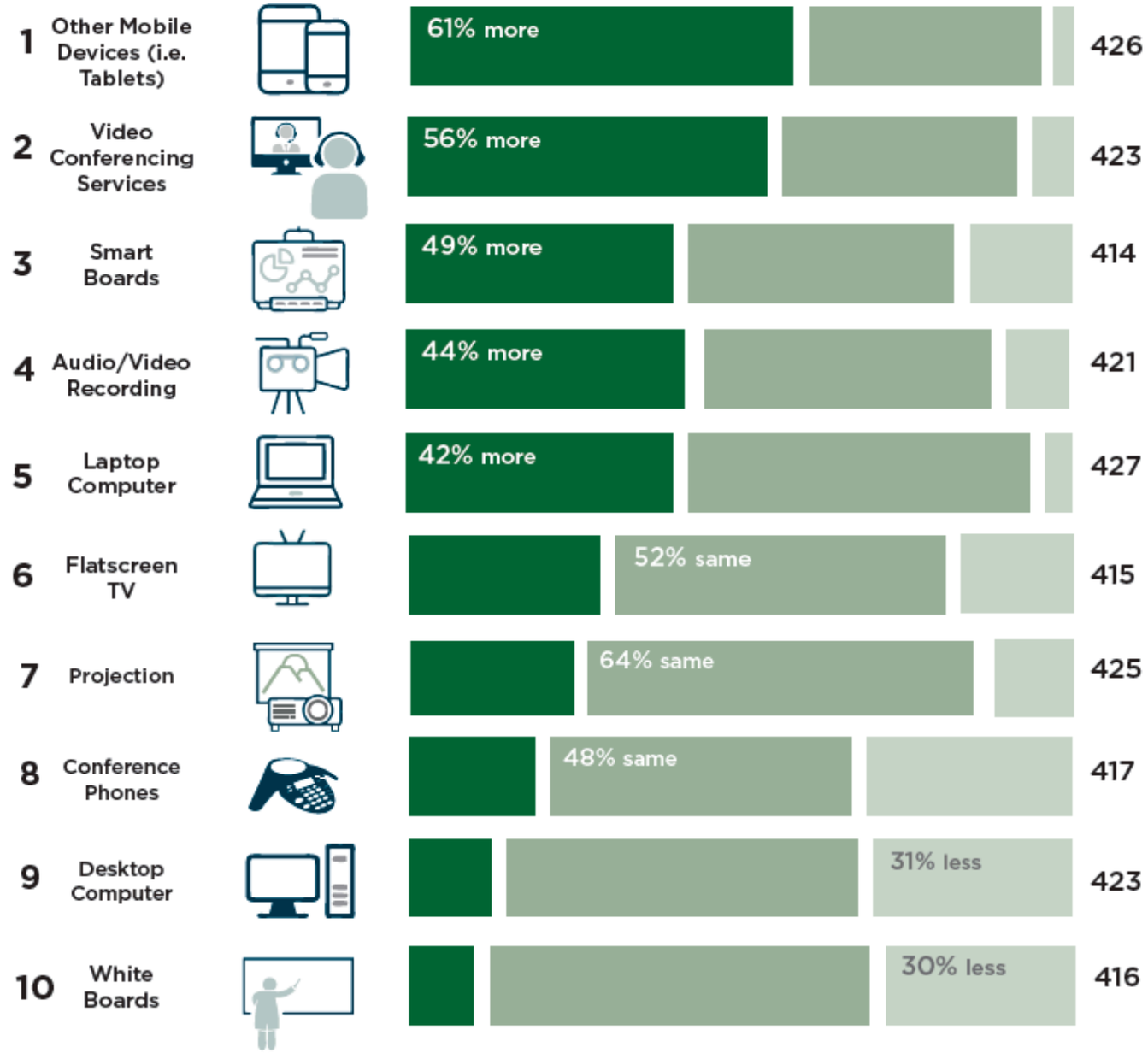


*Ordered by ranking within the 'Priority 1' category

Faculty Survey on Facilities: Technology

TECHNOLOGY USAGE - OVER NEXT 10 YEARS

Please review this list of technologies. Over the next 10 years, do you imagine yourself using these less, about the same, or more than you do today?



*Ordered by ranking within the 'more' category

KEY

- More
- About the same
- Less

Over the next 10 years, the greatest increases in technology use are projected to be for Other Mobile Devices, Video Conferencing Services and Smart Boards

Master Plan

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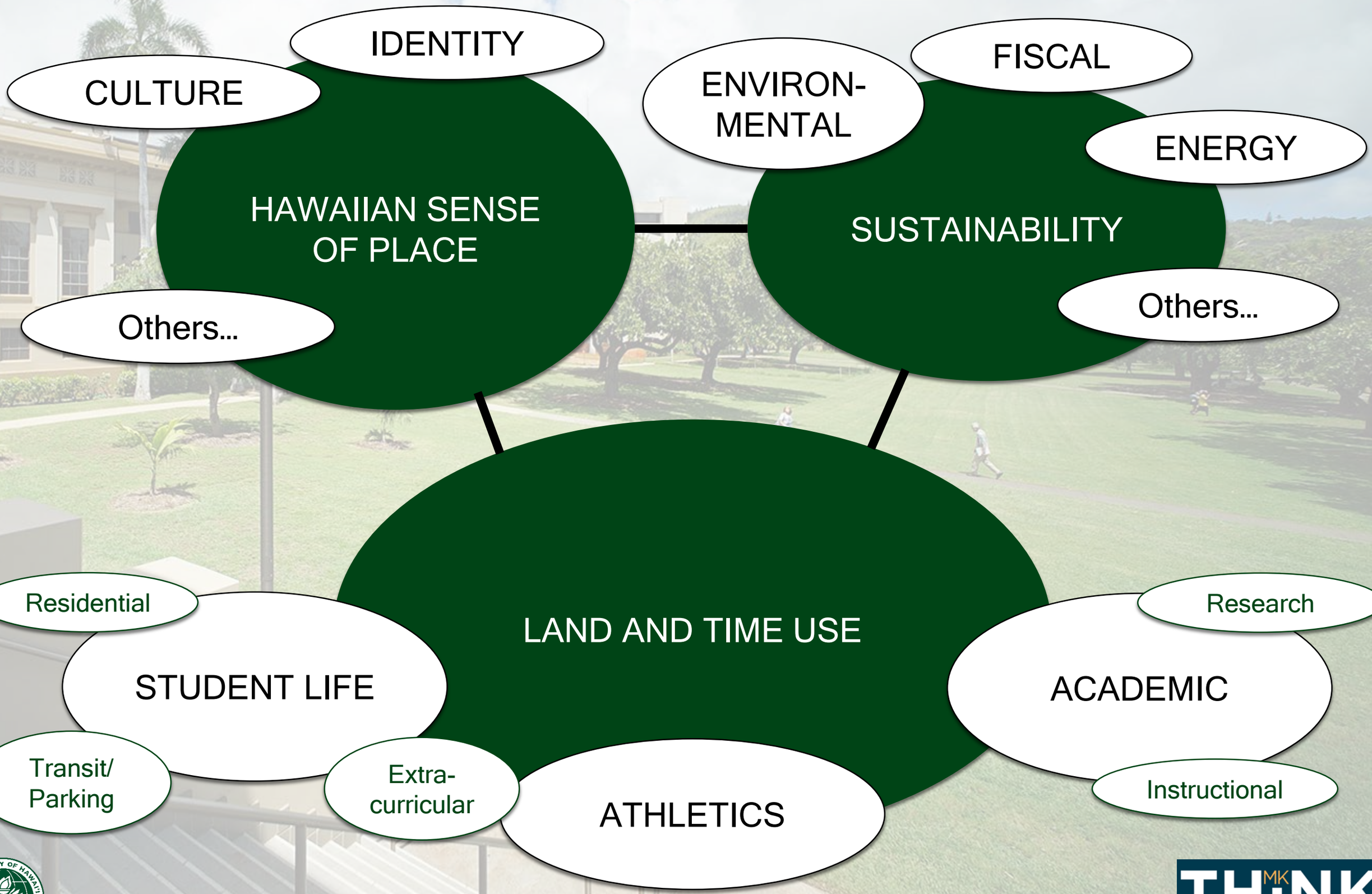
Master Planning - General Approach

- Facilities must accommodate changing modalities of instruction
- Master Plan is a long-term land use strategy
    - Campus is an asset, use it to support the University's goals and objectives
    - Land is the scarcest resource, plan needs to create most effective use of the resource
    - How can campus be resilient to changing academic demands and teaching styles

Master Planning - General Approach



Master Planning - Team Organization

Meets 1-2 times/semester

EXECUTIVE COMMITTEE

Consists of senior UH Manoa leadership and high level stakeholders (cabinet)

Meets biweekly

STEERING COMMITTEE

Consists of VPs of Finance and Administration & representatives of Facilities Planning & Faculty

Meets weekly

CORE TEAM

Consists of consultant team

TASK GROUP

TASK GROUP

TASK GROUP

Ad Hoc groups formed to address specific emergent issues and areas of inquiry

Master Planning - Timeline

Baseline Utilization Study

Completed Dec 2017

Faculty Survey

Completed June 2017

Master Plan Task Forces

Round 1 completed Oct 2017

IAFP

Approved by BOR April 20, 2017

MASTER PLAN

Goal & Objective Alignment
April 2018

Physical Planning
Aug 2018

Project Prioritization
Nov 2018

P&F Updates Feb & Apr 2018

Presentation to Board Nov 2018

LRDP

P&F Update Feb 2019

Presentation to Board Apr 2019

PRU

Initiate EA June 2019

Submission to C&C Aug 2019

P&F Update Sep 2019

C&C Approval Mar 2020

2020 CIP

Submission to Board Nov 2018

2021 CIP, 2022 CIP, 2023 CIP…

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