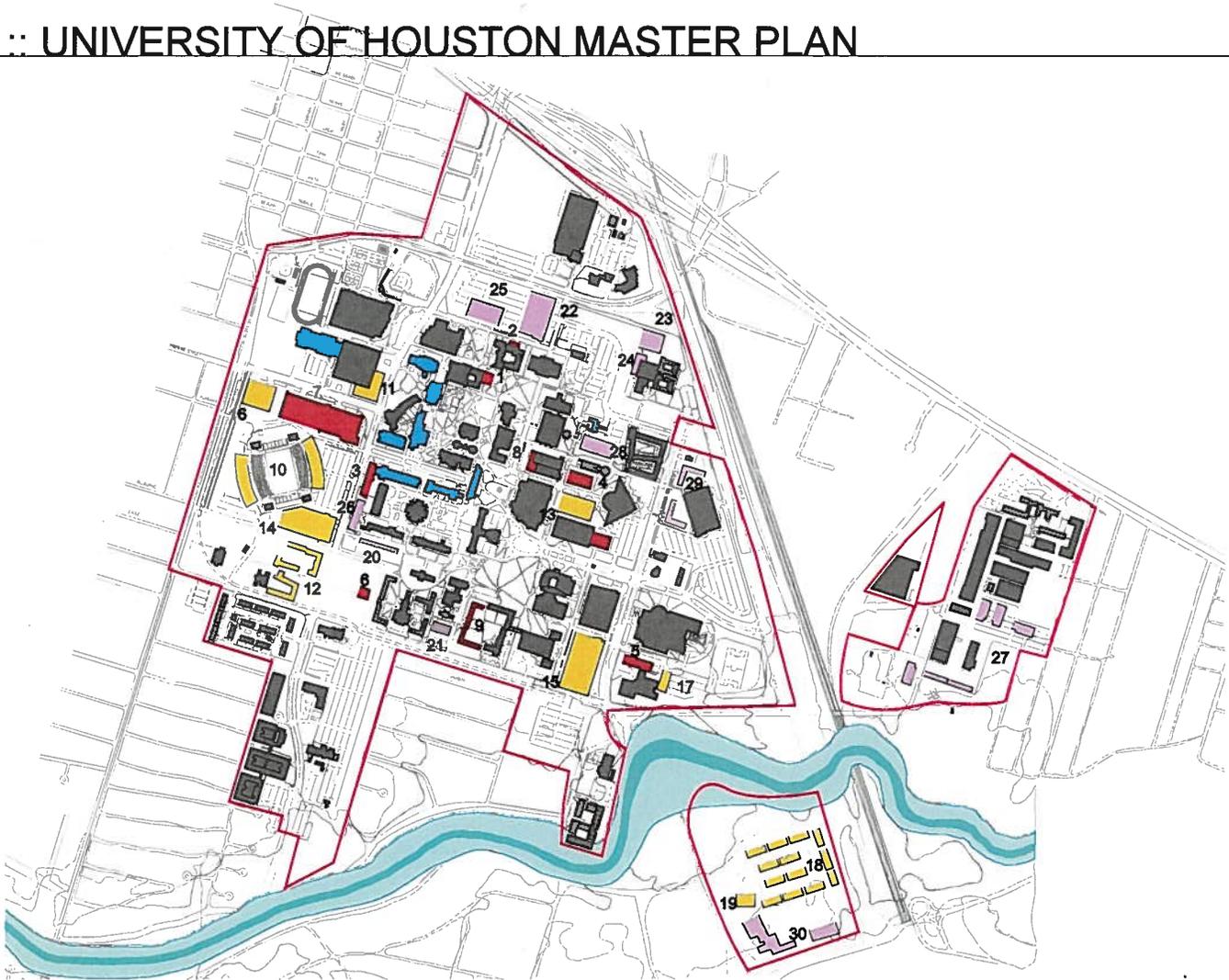


Introduction :: The presence of over 24 task forces illustrates the scale and complexity of issues that exist on the UH campus. By mapping the efforts of the task forces, the implications of their alignments become more evident with respect to their impact on the UH campus as a whole. In assessing the priorities of the campus, the focus of DesignLAB's first phase is to respond to the University's most pressing issue: research. By using the College of Natural Sciences and Mathematics as a case study, the evaluation seeks to identify findings that would assist in the development of policy for governing research and the necessary corollaries of space utilization, optimization, infrastructure and responsibility.

- Findings ::**
- :: The development and implementation of an accurate accounting system **synthesizing space utilization and research space allocation data bases** would assist in optimizing research space usage and support.
 - :: The clarification of ambiguous responsibilities between University Plant Operations and Research Teams will alleviate long term deferred maintenance impacts and **establish a baseline for IDC allocation.**
 - :: The appropriate distribution of IDC towards facilities and plant operations would contribute to maintenance and renovation needs of research facilities.
 - :: **Increased HEAF distribution towards infrastructure** and required maintenance of research facilities would sustain a viable model moving forward, avoid long term impacts of deferred maintenance, and accelerate future growth.
 - :: UH projects increased graduate, off campus and on line enrollment but anticipates **stable on-campus undergraduate enrollment.**
 - :: After current construction is completed **no net increase in general classroom space** will be needed at UH until significantly after 2015.
 - :: UH's transition to 25% of undergraduates living on campus will dramatically change the nature of UH and significantly impact student life and student success.
 - :: Major increases in facilities for student support facilities will be required by Fall 2013 when the Freshmen Living Requirement is implemented.
 - :: To meet Tier One goals 3 major research clusters (West Science Complex, SW Campus Health Biomedical Complex and ERP) should be developed over the next few years.
 - :: Major investments in campus circulation and structured parking yielding at least 3000 new spaces are needed.

UNIVERSITY OF HOUSTON MASTER PLAN



Approved

- 1. Valenti Addition
- 2. Blaffer Addition
- 3. Science Teaching Laboratory
- 4. Classroom Business
- 5. Health Biomedical
- 6. West Dining
- 7. Stadium Parking Garage
- 8. Power Plant Addition
- 9. Cougar Village 2

College of Natural Sciences and Mathematics

Proposed 2015

- 10. Robertson Stadium Project
- 11. Hoffeinz Addition
- 12. Cougar Place Sophomore Hall
- 13. UC Expansion and Renovation
- 14. Mixed-Use
- 15. Wheeler Multimodal Center/Garage
- 16. Stadium Multimodal Center
- 17. Pharmacy/Research Center
- 18. Family Housing
- 19. Childcare

Proposed 2020

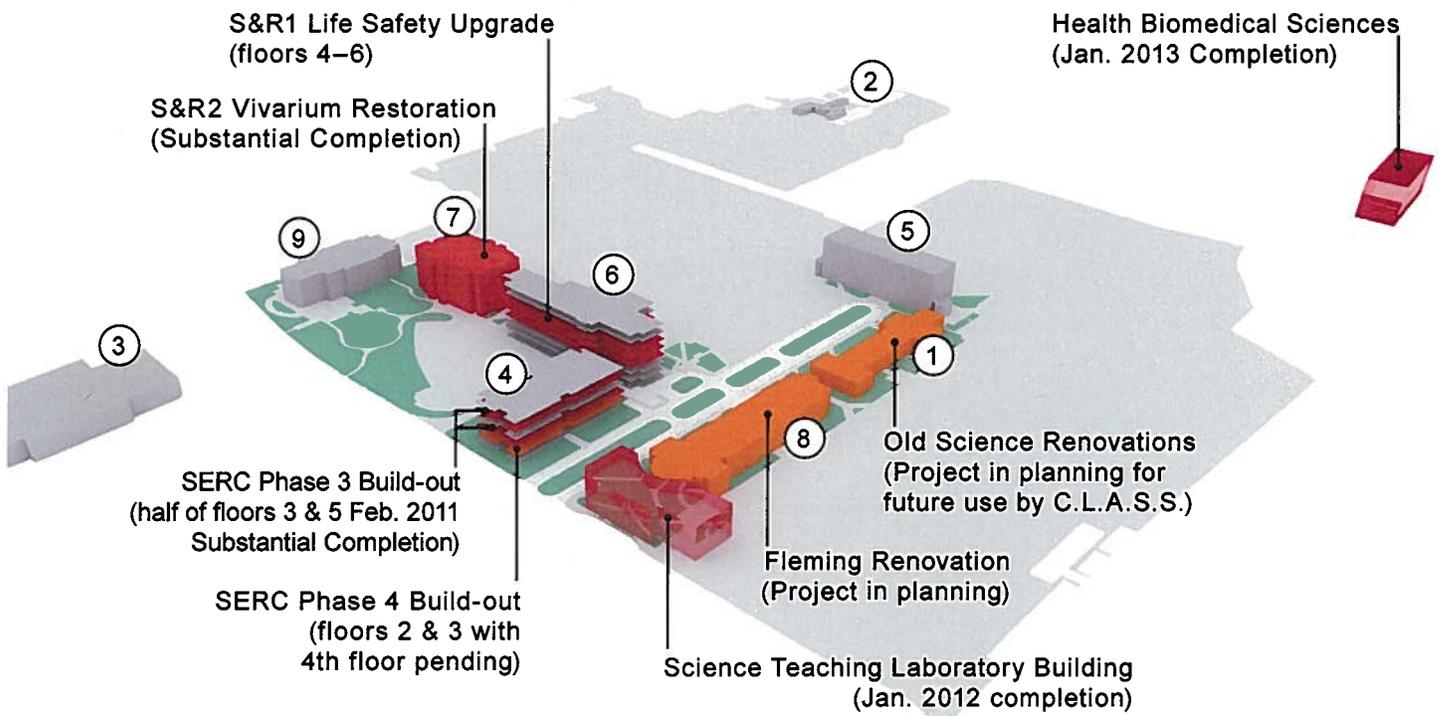
- 20. Jr./Sr. Hall
- 21. Health Center
- 22. North Campus Garage/Mixed-Use
- 23. Professional Precinct Garage
- 24. Law Addition
- 25. Fine Arts Building
- 26. West Campus Research Building
- 27. Future Research Buildings
- 28. Future Project Site
- 29. Future Project Site
- 30. Future Mixed-Use

PHASING PLAN

BUILDING	YEAR	SF	FUNDING
Robertson Stadium Project	2015		TBD Gifts, Athletic Revenue
Hoffeinz Addition	2015		TBD Gifts, Athletic Revenue
UC Expansion/Renovation	2015	333,000	Student Fees
Stadium Academic/Mixed Use & Garage	2015	500,000	Gifts, Athletic and Parking Revenue, State
Wheeler Multimodal Center/Garage	2015	790,000	Parking Revenue, Federal
Stadium Multimodal Center	2015		TBD Federal
Pharmacy/Research Center	2015		TBD Gifts, Tuition, Grants, Real Estate Sale
Cougar Place Sophomore Hall	2015	350,000	Housing Revenue
Family Housing	2015	178,000	Private Lease
Childcare	2015	17,000	Private Lease
SW Campus Circulation Road	2015		NA Parking Revenues, Misc.
Jr./Sr. Hall	2020		TBD Housing Revenue
Health Center	2020	15,000	Student Fees
North Campus garage/Mixed Use	2020	790,000	Parking, Dining and Lease Revenue
Professional Precinct Garage	2020	100,000	Parking Revenue
Law Addition	2020		TBD Gifts, Tuition
Fine Arts Building	2020		TBD Parking Revenue
West Campus Research Building	2020	125,000	Grants, Gifts, Private Partnerships
Future Research Buildings	2020		TBD Grants, Gifts, Private Partnerships
Professional Precinct Campus Circulation Road	2020		NA Parking Revenues, Misc.
Wheeler Street Extension to Energy Research Park	2020		NA Federal
Future Mixed Use	2020		TBD Private Lease
Future Project Site	2020+		TBD TBD
Future Project Site	2020+		TBD TBD

Note: UH is currently undertaking an extensive Facility Condition Audit of all existing buildings and all infrastructure. Initial findings from that study and the work of this Master Plan to date indicate there are significant Infrastructure, Deferred Maintenance and Renovation issues throughout which must be addressed. These issues are substantial and many will take precedence over new construction projects. Once the audits are complete a large number of Infrastructure, Deferred Maintenance and Renovation projects to address these issues will be prioritized and added to this Phasing Plan.

COLLEGE OF NATURAL SCIENCES AND MATHEMATICS CASE STUDY



:: BUILDING INVENTORY

University of Houston

College of Natural Sciences and Mathematics

33



- ① **Science Building**
Floors: 3
Total SF: 61,713



- ② **Science and Engineering Annex**
Floors: 1
Total SF: 12,034



- ③ **Susanna Garrison Gymnasium**
Floors: 2
Total SF: 69,892



- ④ **Science & Engineering Research Center**
Floors: 5
Total SF: 155,124



- ⑤ **Philip Guthrie Hoffman Hall**
Floors: 7
Total SF: 128,781



- ⑥ **Science and Research Building 1**
Floors: 8
Total SF: 214,496



- ⑦ **Science and Research Building 2**
Floors: 7
Total SF: 169,758



- ⑧ **Lamar Fleming Jr. Building**
Floors: 4
Total SF: 117,155



- ⑨ **University of Houston Science Center**
Floors: 5
Total SF: 123,149

:: INDIRECT COST ALLOCATION

The case study of research in the College of Natural Sciences and Mathematics resulted in the following diagrams which are the syntheses of the National Institute of Health grant funding description, interviews with the UH Associate Vice President of Research Operations and the Chair of the Department of Chemistry, and in-person walkthroughs of the research laboratories and floor plates. These sources revealed absent funding streams essential to support the maintenance of laboratory buildings and research infrastructure.

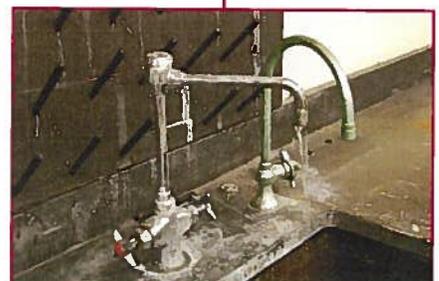
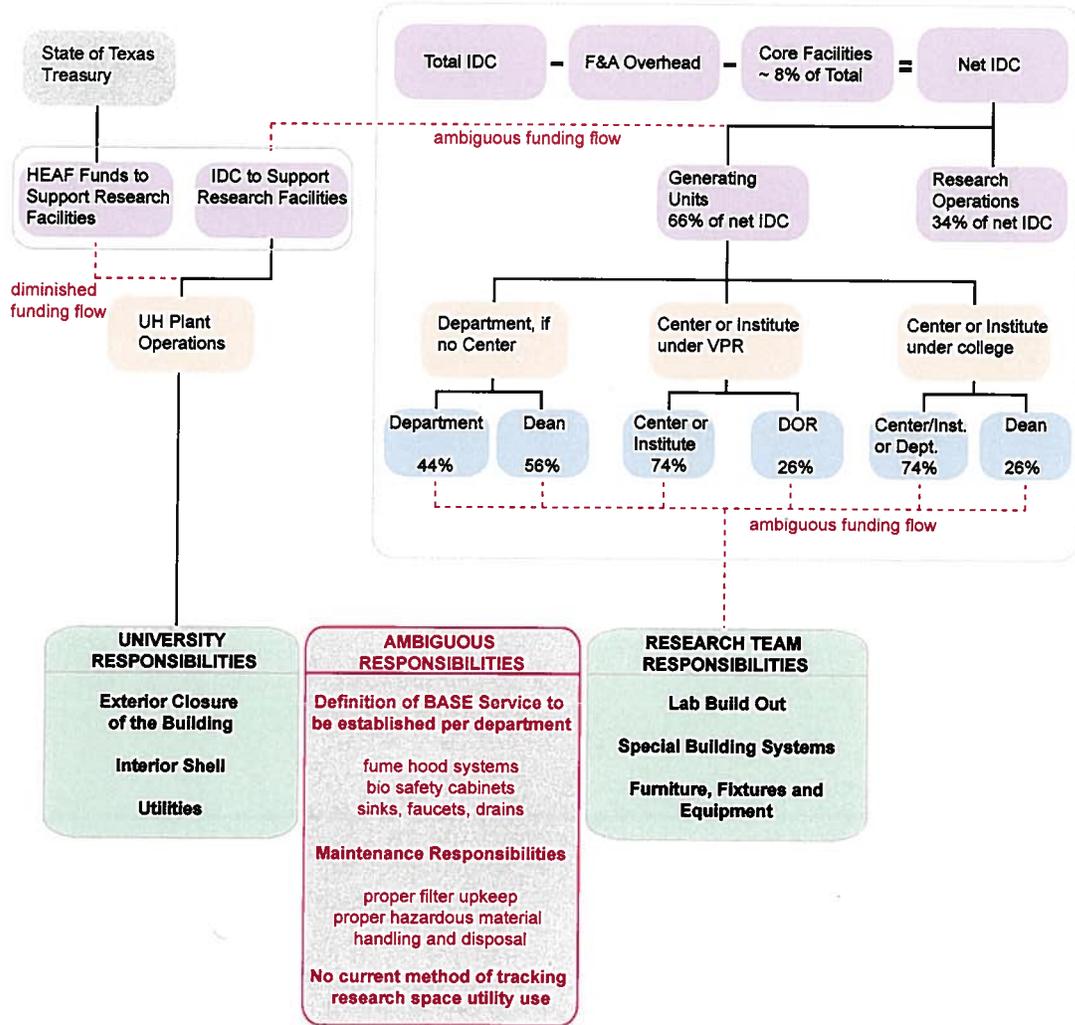
Funds are expected to flow from the indirect costs of federal grants to UH Plant Operations in order to fund incidental and periodic building shell, base utilities, and core maintenance. Additional funds are expected to flow from the indirect costs of federal grants to the respective research teams in order to fund project-specific equipment, infrastructure and maintenance. HEAF funds designated for renovation and maintenance are also expected to provide additional funds for maintaining the laboratory buildings shell and core. These funds were largely absent from those available to support laboratory maintenance and repairs.

Numerous areas of ambiguity exist between the university's responsibility for the building shell and core versus each research team's responsibility for project-specific equipment, infrastructure and maintenance. These ambiguities exacerbate the problems of absent funding streams and underscore the need for a clear definition of responsibilities for maintenance at the initiation of each new research laboratory and funded grant.

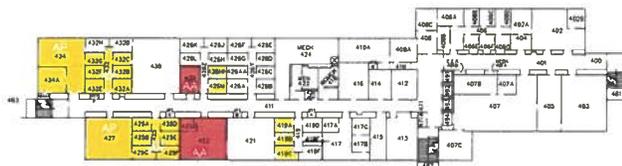
Left to Right

- Patched chemical vent hood ductwork
- Decertified biohazard vent hoods
- Moisture damage to adjacent ceiling tiles
- Welded joints vs. screwed joint repair
- Removal of biohazard vent fan unit
- Multiple malfunctioning faucets

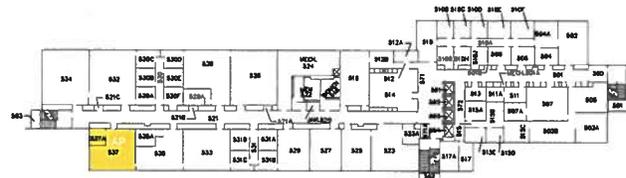




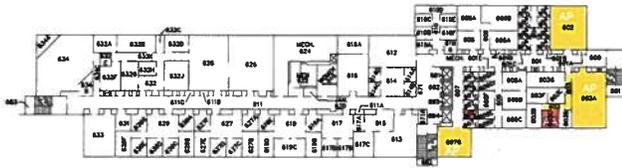
:: PRINCIPAL INVESTIGATOR COMPARISONS



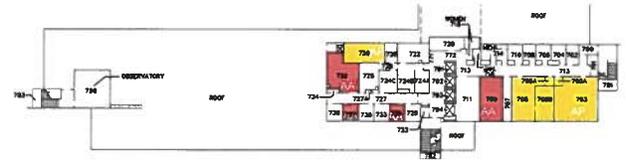
FOURTH FLOOR



FIFTH FLOOR



SIXTH FLOOR



SEVENTH FLOOR

SCIENCE AND RESEARCH BUILDING 1
SAMPLE PI COMPARISON

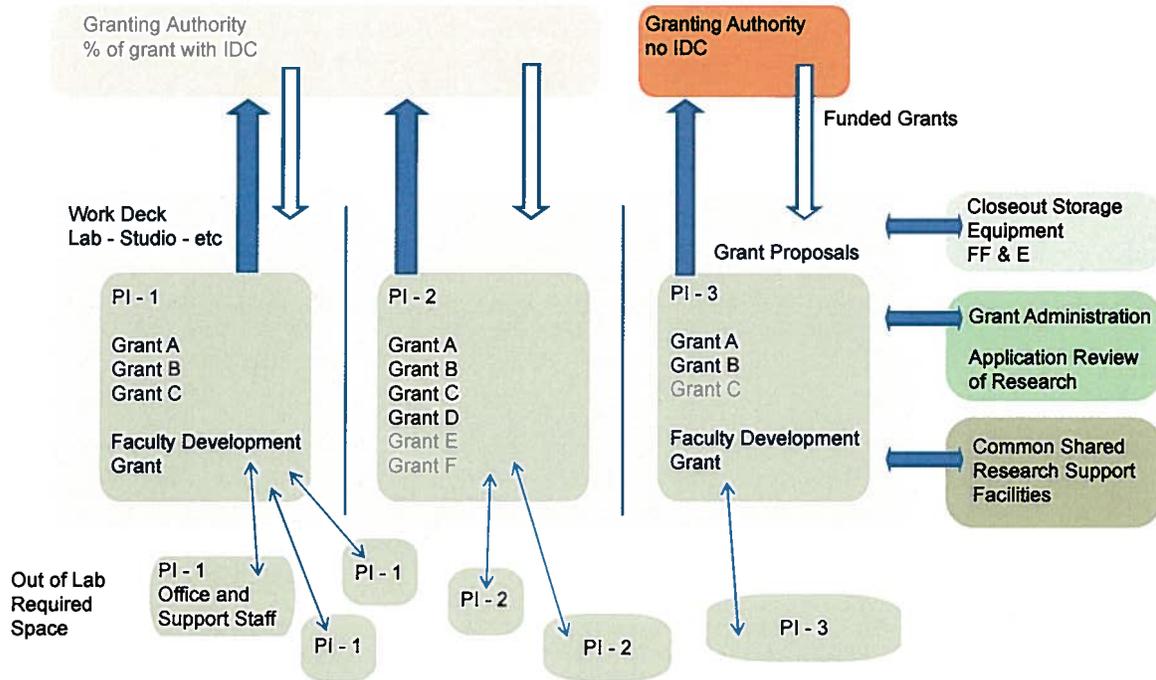


Principal Investigator Type	Proj No.	Start Date	End Date	Total Exp.	TE 2007	TE 2008	TE 2009	TE 2010	TE 2011	TE 2012	2011 Total							
											sq ft Exp. \$/sf	Total IDC	IDC 2009	IDC 2010	IDC 2011	IDC 2012	IDC \$/sf	
Principal Investigator A Solo Physics	103156	2011	2012	40,909						20,455	20,455							
	100459	2010	2012	106,202				35,401	35,401	35,401								
	101752	2010	2011	25,000				12,500	12,500			5,158			2,579	2,579		
	100785	2009	2011	93,000				31,000	31,000	31,000								
	102713	2010	2011	32,126					32,126			843				843		
	102427	2010	2011	67,873					67,873									
	98240	2008	2011	100,000		25,000	25,000	25,000	25,000									
	102061	2010	2011	91,850				45,925	45,925					19,589		9,795	9,795	
				556,960		25,000	25,000	149,826	270,280	86,856	2,050	131.84/sf	25,590		12,374	13,217		6.45/sf
Principal Investigator B Center Physics	94095	2006	2011	303,000	50,500	50,500	50,500	50,500	50,500									
	95790	2008	2011	303,222		75,805	75,805	75,805	75,805			99,717	24,929	24,929	24,929			
	88891	2003	2011	239,348	26,376	26,376	26,376	26,376	26,376									
	100229	2009	2011	200,000			66,667	66,667	66,667			66,667	22,222	22,222	22,222			
	101555	2010	2011	50,080				25,040	25,040									
				1,095,650	76,876	152,681	219,348	244,388	244,388		10,594	23.07/sf	166,384	47,151	47,151	47,151		4.45/sf
Principal Investigator C Biochemistry	100241	2010	2012	200,000				66,667	66,667	66,667								
	101187	2009	2012	487,942			121,985	121,985	121,985	121,985		160,877	40,219	40,219	40,219	40,219		
	102491	2010	2011	13,666				6,833	6,833									
	103346	2010	2011	82,733				41,366	41,366									
	100694	2009	2011	125,199			41,733	41,733	41,733									
	103274	2011	2011	28,692					28,692									
	101755	2010	2011	424,000				212,000	212,000									
	100696	2009	2011	119,540				59,770	59,770									
	100746	2009	2011	84,284				42,142	42,142									
	100695	2009	2011	127,162				63,581	63,581									
	102351	2010	2011	29,440				14,720	14,720									
	102355	2010	2011	45,336				22,668	22,668									
	101489	2010	2011	56,204				28,102	28,102									
	100907	2010	2011	74,018				37,009	37,009									
			1,898,216			163,718	721,567	824,277	188,652	3,579	230.31/sf	160,877	40,219	40,219	40,219	40,219		11.24/sf

:: RESEARCH SPACE ADMINISTRATION

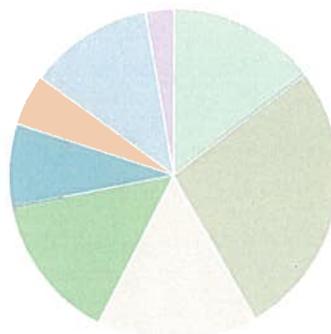
Routinely department chairs allocate to principal investigator research faculty office and laboratory space from the available pool based upon PI productivity history and new hire negotiations. The case study revealed inequity in the initial research space allocation and no incentives to return legacy space to the available pool.

Administrative authorization for submission of research grant proposals should be accompanied by approval of a lab maintenance and grant close out plan.



:: UH RESEARCH FUNDING

The charting of the existing state of funding resources at the University of Houston identifies that more than half of the funded research comes from federal and national sources, which return indirect costs to the university.



- Private For-Profit Grant Research
- Outside University Team Grants
- Texas State Grant Funding
- Federal and National Institutes
- Federal Depts.: DOD, DOJ, DOE
- National Science Foundation
- Non-Profit Foundations
- UH Grants