

U C BERKELEY

SEISMIC UPDATE

JULY 2008

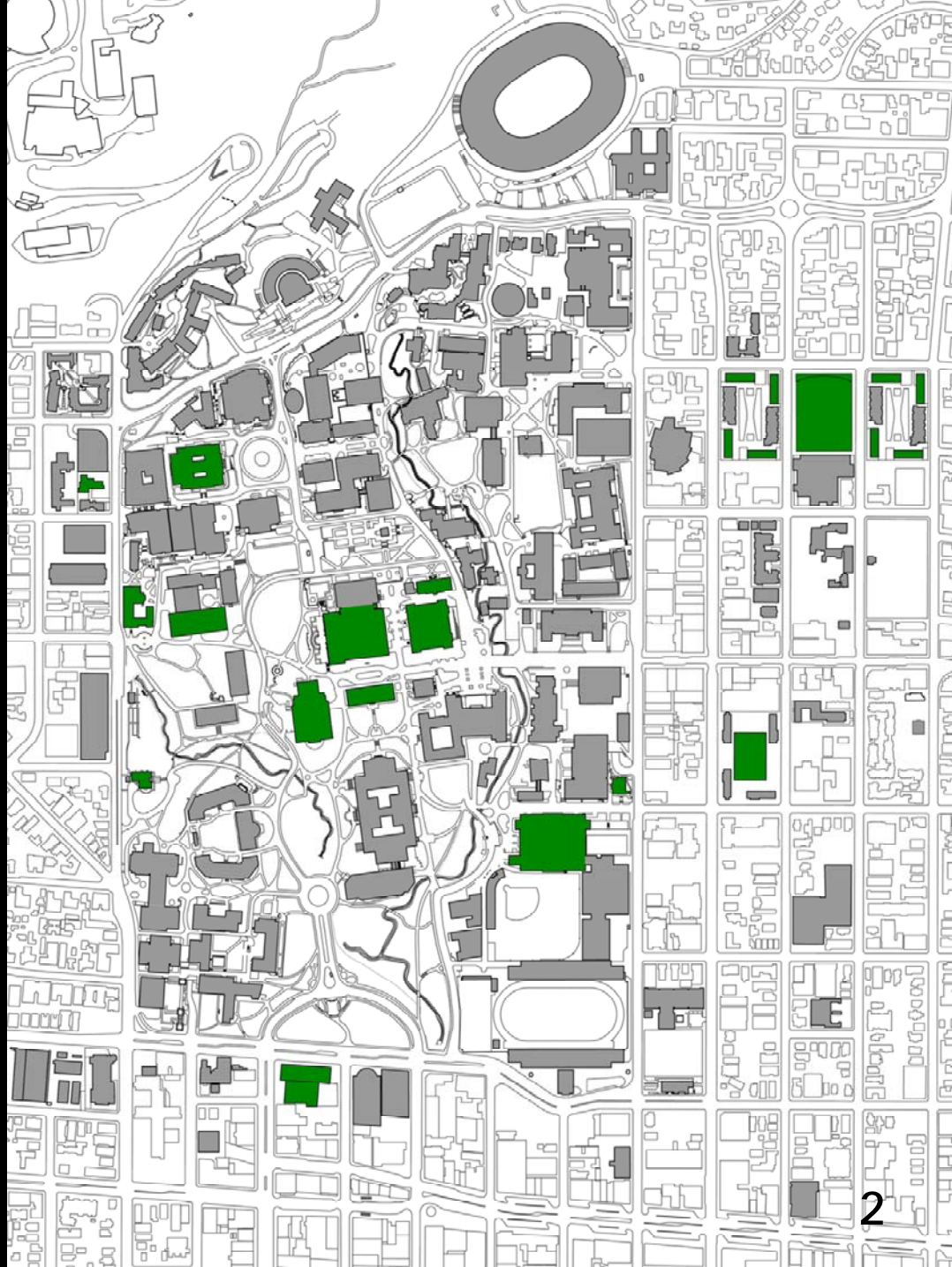


# SEISMIC PROGRAM

Regents Policy on Seismic Safety adopted in 1975

Initial assessment of UC facilities published in 1978

Seismic improvements to **16%** of current space inventory were complete or underway by 1997

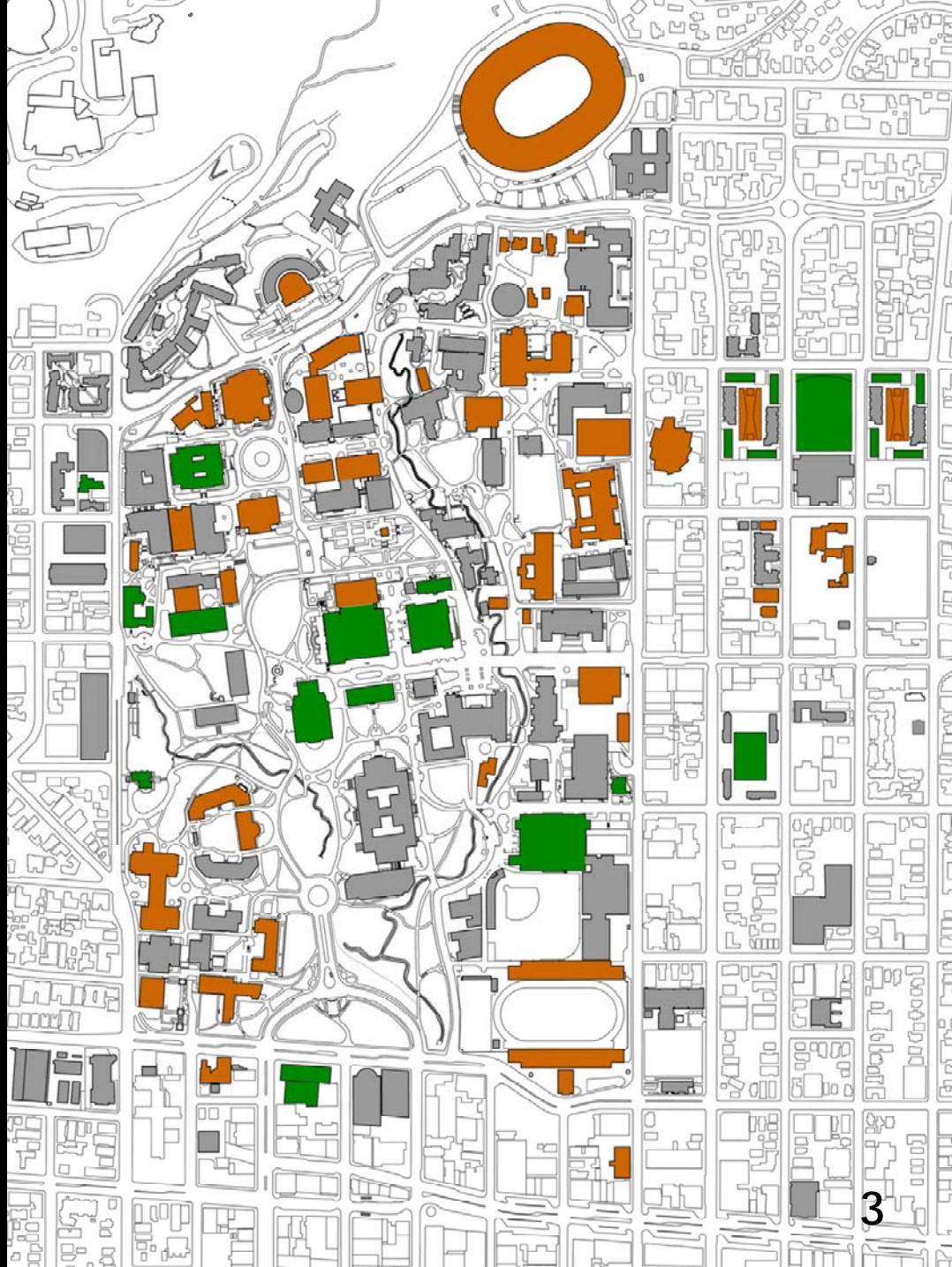


# SEISMIC PROGRAM

Northridge (1994) and Kobe (1995) earthquakes revealed new insights into seismic response

With this new knowledge, UC Berkeley commissioned a new campus assessment in 1997: **SAFER** report

**SAFER** report rated **27%** of campus space as 'poor' or 'very poor': appreciable hazard to life in major seismic event

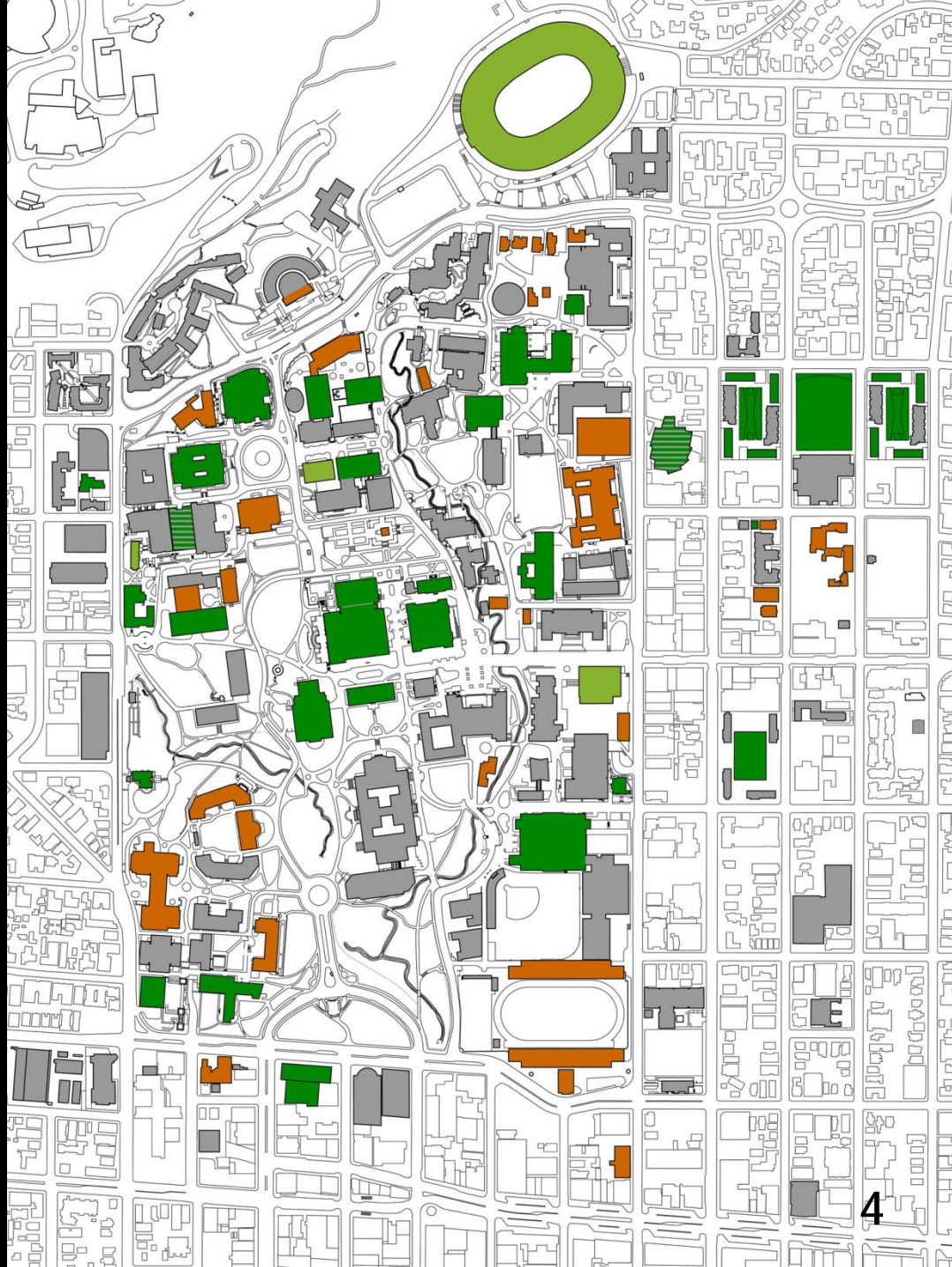
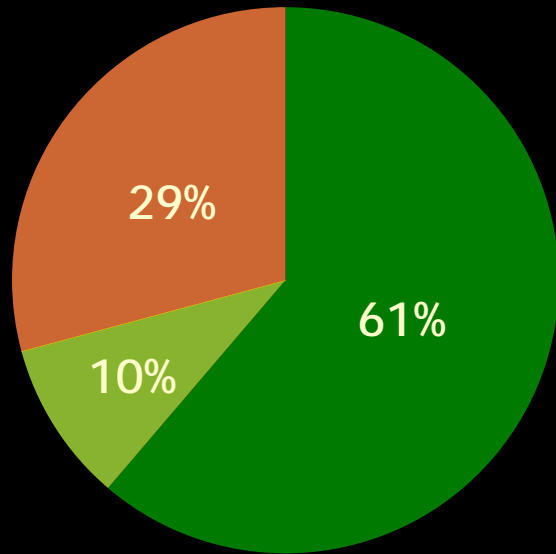


# SEISMIC PROGRAM

61% of space complete

Another 10% vacated  
or in design

29% of space remains  
to be done



# SEISMIC PRIORITIES

Primary focus of the seismic program is on buildings posing the greatest life safety risk

20 of our top 25 nonresidential seismic projects by ECO\* complete or in design

All residential seismic projects complete

SF extension center vacated and conveyed to developer

Building	GSF	ECO	Complete	Design	To Do
Barrows Hall	198,275	269	█		
Evans Hall	284,686	256			█
Tolman Hall	246,966	250			█
Wheeler Hall	137,393	229	█		
Wurster Hall	224,436	224	█		
LeConte Hall	148,032	190	█		
Latimer Hall	195,184	185	█		
Moffitt Library	140,252	173	█		
University Hall	155,181	143	█		
Doe Library	164,476	125	█		
Hearst Mining	141,900	122	█		
Haas Pavilion	245,881	115	█		
Davis Hall (partial)	139,927	109	█		
King Union	115,536	102		█	
Hildebrand Hall	136,996	100	█		
Mulford Hall	93,484	93			█
Warren Hall	79,057	92	█		
Lewis Hall	68,146	90			█
Memorial Stadium	288,653				
Stadium Upgrade		83		█	
Student Athlete Ctr		57		█	
Stanley Hall (old gsf)	65,049	81	█		
Barker Hall	91,144	80	█		
Donner Laboratory	53,875	76			█
McCone Hall	125,731	63	█		
Campbell Hall	63,719	62		█	
Bancroft Library	162,046	52	█		

\* ECO ratings from Comerio et al, *Economic Benefits of a Disaster Resistant University*, Jan 2000

# MEMORIAL STADIUM

The Stadium is a high priority building, and design is underway *but*

Several repaired and yet-to-be-repaired campus buildings have a higher **average year-round** life safety risk

The Stadium seismic risk is a function of both its everyday occupancy and its **game-day** occupancy

The actual **game-day** risk is lower than is often perceived because:

- Seats are occupied only **0.3%** of the time

$$5 \text{ hrs/game} \times 6 \text{ games/yr} \div 24 \div 365 = 0.3\%$$

- Only **30%** of the Stadium seats are at risk

*7,585 seats directly over fault displacement*

*16,550 seats on elevated structure subject to failure*

*Stadium built into hillside: balance of seats on grade*

# SEISMIC PRIORITIES

Future priorities continue to focus on high-occupancy, high-risk buildings

The next 14 buildings on our priority list comprise nearly 75% of remaining space requiring action

Once these buildings are done, 90% of UC Berkeley space requiring seismic improvements will be complete

Building	GSF	ECO	Design	To Do
Memorial Stadium	288,653			
Stadium Upgrade		83		
Student Athlete Ctr		57		
King Union	115,536	102		
Campbell Hall	63,719	62		
Evans Hall	284,686	256		
Tolman Hall	246,966	250		
Davis Hall (balance)	139,927	109		
Mulford Hall	93,484	93		
Lewis Hall	68,146	90		
Donner Laboratory	53,875	76		
Giannini Hall	69,564	52		
Art Museum	105,833	49		
Eshleman Hall	46,158	48		
Fulton 2223	51,964	43		
Hearst Gymnasium	124,450	40		
	1,752,961			

# CHALLENGES AT BERKELEY

## SURGE SPACE

- Building tenants must be 'surged' to interim locations while seismic work occurs
- Berkeley has only  $\pm 50,000$  asf of campus space reserved for surge
- For some projects, the tenants must be surged to leased space: the campus must bear this cost
- The Berkeley lease market is small and not growing
- The supply of surge space constrains the pace of seismic work



# CHALLENGES AT BERKELEY

## BUILDING RENEWAL

- The average age per GSF of owned space at UC Berkeley was roughly 41 years in 2007
- The typical building requiring seismic improvements also has building systems at or beyond their useful lives
- The cost of seismic correction is increased not only by required code upgrades, but also by the need to replace wornout systems
- It is sometimes more desirable, and feasible, to replace rather than repair if state funds can be leveraged with gifts

# CHALLENGES AT BERKELEY

## LIMITED STATE FUNDS

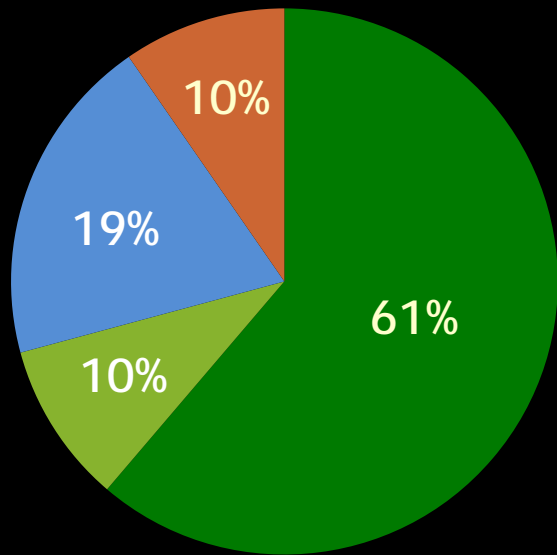
- Methodology for distribution among campuses does not adequately recognize seismic burden at Berkeley and Los Angeles
- At proposed levels, state capital funds to Berkeley would be consumed entirely by seismic projects: no funds for infrastructure, nonseismic building renewal, or program initiatives

# FUTURE STRATEGY

- Campbell Hall construction was in 09-10 state budget
- Tolman and Hearst Gym now under restudy to lower cost and reduce surge space impact
- Mulford under restudy for potential as replacement with gift funding
- 'Next priorities' for state funds have roughly 17% more GSF than 5 year plan

	GSF	State	State + Nonstate	Nonstate
<b>NONSTATE</b>				
Memorial Stadium	288,653			
Stadium Upgrade				
Student Athlete Ctr				
King Union	115,536			
Art Museum	105,833			
Eshleman Hall	46,158			
Fulton 2223	51,964			
	608,144			
<b>STATE - 5 YEAR PLAN</b>				
Campbell Hall	63,719			
Tolman Hall	246,966			
Mulford Hall	93,484			
Hearst Gymnasium	124,450			
	528,619			
<b>STATE - NEXT PRIORITIES</b>				
Evans Hall	284,686			
Davis Hall (balance)	139,927			
Lewis Hall	68,146			
Donner Laboratory	53,875			
Giannini Hall	69,564			
	616,198			

# SEISMIC PRIORITIES



Once these buildings are done, **90%** of UC Berkeley space requiring seismic improvements will be complete

