Five Year Research Space Plan
Approaches to Planning for Research Growth to meet 2020 Goals

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GOALS OF FIVE YEAR SPACE PLAN

• ASU has a research goal to double expenditures from $329M in 2010 to $480M in 2016 and to $700M in 2020.

• This plan outlines means by which the research space needs to accomplish these goals might be met.
Historical data for ASU and cross-university comparisons suggest:

Research space (nsf) = 0.00275 \* \Delta E

\Delta E indicates a targeted increase in annual research expenditures

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### Predicted Total Research Space Needs

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2016</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>expenditures</td>
<td>$329M</td>
<td>$480M</td>
<td>$700M</td>
</tr>
<tr>
<td>Additional space required</td>
<td>415,000 nsf</td>
<td>1,020,000 nsf</td>
<td></td>
</tr>
<tr>
<td>ISTB4</td>
<td>160,000 nsf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net additional requirements</td>
<td>255,000 nsf</td>
<td>850,000 nsf</td>
<td></td>
</tr>
</tbody>
</table>

255,000 nsf needed by 2016 (beyond ISTB4)
Deans/planners suggest projecting space types based on recent OKED buildings

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>ISTB4</th>
<th>2016 net additional requirements</th>
<th>2020</th>
<th>2020 net additional requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>wet lab</td>
<td>155,852</td>
<td>33,396</td>
<td>122,456</td>
<td>331,187</td>
<td>297,791</td>
</tr>
<tr>
<td>office</td>
<td>124,858</td>
<td>43,285</td>
<td>81,573</td>
<td>265,323</td>
<td>222,038</td>
</tr>
<tr>
<td>dry lab + support space</td>
<td>110,449</td>
<td>63,797</td>
<td>46,652</td>
<td>234,705</td>
<td>170,908</td>
</tr>
<tr>
<td>conf rooms, storage, reception</td>
<td>46,265</td>
<td>19,787</td>
<td>26,478</td>
<td>98,312</td>
<td>78,525</td>
</tr>
<tr>
<td>clean room</td>
<td>35,138</td>
<td>5,834</td>
<td>29,304</td>
<td>74,668</td>
<td>68,834</td>
</tr>
<tr>
<td>environmental rooms, autoclaves</td>
<td>5,253</td>
<td>514</td>
<td>4,739</td>
<td>11,163</td>
<td>10,649</td>
</tr>
<tr>
<td>bsl 3</td>
<td>2,185</td>
<td>0</td>
<td>2,185</td>
<td>4,643</td>
<td>4,643</td>
</tr>
<tr>
<td>vivaria</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

% of each space type based on average across 9 current OKED buildings
Are we using space efficiently?

Benchmarking suggests yes

- ASU ranked 43rd out of 281 US universities in $/lab sf in the 2007 NSF space survey
  - Univ Maryland $575
  - Univ Iowa $535
  - Univ Alabama $512
  - Ohio State $482
  - Univ Mississippi $478
  - Univ Pittsburgh $451
  - **ASU** $450
  - Univ Washington $433
  - Univ North Carolina $388
  - Univ Illinois $384
  - UCSD $370
  - UCLA $356
  - Univ Texas $342
  - Univ Wisconsin $335
  - Univ Arizona $332
  - UC Berkeley $260
  - Univ Florida $192
20% ↑ in space productivity in OKED buildings equivalent to adding 106,000 nsf

- All OKED buildings are subsidized by IDC-and the site of many top ASU initiatives
- Proposed 20% overall increase in $/sf from 2010 to 2016 (to $205/ all sf)
- 20% increase by 2016 seems practical via:
  - Hiring plans that leverage existing facilities
  - Increase in grant success
  - Increase in PI density
  - Inflation
8% renovation of 1M nsf yields 80,000 nsf

- Target buildings: Engineering Center, Bateman, Life Sciences, Goldwater, Schwada, PE East
- Renovation costs estimated at $500/nsf, about half of the $953/nsf for ISTB4
- Total estimated cost for $80K nsf: $40M
Solution 3. Transfer Some Research Off-campus

Take advantage of current depressed real estate market

- Office/dry lab/storage space available for purchase at <$50/nsf
- Renovations for such use keep price <$300/nsf
- Particularly suited for collections, distinct research groups
- Estimated 70,000 nsf for $21M
## “Top-down” 2016 Solutions Summary

<table>
<thead>
<tr>
<th>Strategy</th>
<th>NSF</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity gains in OKED buildings:</td>
<td>105,000</td>
<td>$20M</td>
</tr>
<tr>
<td>Renovation of existing science buildings:</td>
<td>80,000</td>
<td>$40M</td>
</tr>
<tr>
<td>Transfers to off-campus space:</td>
<td>70,000</td>
<td>$21M</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>255,000</strong></td>
<td><strong>$81M</strong></td>
</tr>
</tbody>
</table>

- **Required infrastructure investment/year:** $16M
Bottom-Up Projections from University Planners

- Based on hiring rate like FY12 (51 hires/yr)
- 1,500 nsf of dry or wet lab/faculty; 450 nsf for computational faculty
- Assumed 10,000 nsf available in BioDesign
- Predicted SF needs (3 years)
  - 68K wet lab
  - 118K dry labs
- Estimated available space (with renovations)
  - 71K wet lab
  - 165K dry lab
- Estimated renovation costs (3 years): $60M ($20M/year)
- Plus additional needs for purchase of off-campus site for collections
• 470M sf (3 ISTB4s) needed to achieve $700M/year expenditures beyond 2015
• Drawings/planning should begin in 2012 for opening of first building in 2016
• Plans should be used to solicit private/state funding
Without research infrastructure investment

• University planners estimate that unassigned space in ISTB4 and 1, and all SESE return space yields:
  – 62K NSF (SESE return space requires renovation)
  – 35 additional faculty hires

Limited further progress toward university research/teaching/service goals.