Planning Goals

Develop an Eberly College of Science facilities master plan to:

• Address the critical facility issues and meet the long term program objectives of the college
• Integrate the college needs into the University Park Master Plan
• Outline a phased execution strategy
• Guide decision making to ensure stewardship of the University’s physical and fiscal assets
Planning Guidelines

Improve research environment

Improve undergraduate learning environment

Attract and retain top talent

Allow for potential growth

Preserve and enhance adjacencies

Enhance collaboration and cross-disciplinary discovery

Preserve and enhance the quality of the campus environment

Develop solutions that relocate research labs once, not twice
Current Issues

Accumulated deferred maintenance

Obsolete research and teaching labs

Need for swing space to allow renovation

Challenges of renovation

Space to accommodate growth

Space for undergraduate laboratory instruction

Immediate needs for Physics, BMB, Biology
Existing Conditions

ECOS Buildings

Building Use by Departments

Facility Condition Needs Index

Departments With the Greatest Need
Building Use by Departments
Facility Condition Needs Index
Departments with the Greatest Need
Departmental Data

Departmental Assignable Square Footage

Existing Assignable Square Footage

Growth Assumptions

Long Term Growth Assignable Square Footage
Departmental Assignable Square Footage
Includes space in Life Sciences, Wartik, Torsell, etc.

- Chemistry 170,000 asf
- Physics 101,000 asf
- BMB 100,000 asf
- Biology 94,000 asf
- Mathematics 39,000 asf
- Astronomy 31,000 asf
- Statistics 13,000 asf
- Forensics 10,000 asf
## Existing Assignable Square Footage

<table>
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<tr>
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<th>Total ASF</th>
<th>Research ASF</th>
<th>Teaching ASF</th>
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<tr>
<td>Chemistry</td>
<td>170,000</td>
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<td></td>
<td><strong>558,000</strong></td>
<td><strong>482,400</strong></td>
<td><strong>75,600</strong></td>
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Growth Assumptions

Factors contributing to needs for growth:

• Existing unmet needs for research and teaching space

• Modern instruction requires smaller sections, more support space, and more flexible teaching spaces

• Modern research requires space for more instrumentation and support areas

• Space quality and quantity constraints are an obstacle in attracting and retaining faculty

• Every department must hire new faculty to maintain academic excellence

• Research program success requires additional space even without hiring new faculty

Long term planning assumption: Departmental growth of 25\%
## Long Term Growth Assignable Square Footage

<table>
<thead>
<tr>
<th></th>
<th>Total ASF</th>
<th>Research ASF</th>
<th>Teaching ASF</th>
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<td>603,000</td>
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<td>Existing ASF</td>
<td>558,000</td>
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<td>Projected Space Need</td>
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Projected needs include current space deficit
Campus Context

Open Space Structure

Campus Environment

Opportunity Sites

Building Opportunities
Open Space Structure
Campus Environment
Opportunity Sites
Building Opportunities

Figure 6, Opportunity Sites with Footprints
Schemes

BMB- Biology

    Alternative 1- Greenhouse Site

    Alternative 2- Fenske Site

Physics- Astronomy

    Osmond Parking Lot
1. Clear Greenhouse-Headhouse Site; demolition may be phased.

2. Build new 191,000 GSF/105,000 ASF Building @ 6 levels with 10,000 GSF of greenhouses on the roof; construction may be phased.

3. Relocate to new buildings:
   - BMB from Althouse
   - BMB from South Frear
   - BMB from North Frear
   - Part of BMB growth
   - BMB from Whitmore & Osmond and accommodate:
   - Biology from South Frear
   - Biology from Whitmore & Osmond
   - Biology Growth

4. Relocate to North Frear:
   - 373 ASF
   - 3,000 ASF
   - 18,000 ASF
   - 21,000 ASF

5. Renovate South Frear (96,000 GSF/53,000 ASF):
   - Biology from Mueller
   - 50,000 ASF
   - remaining surplus in S. Frear
   - 96,000 GSF / 53,000 ASF

6. Renovate Mueller for 15,000 ASF BMB growth, 9,000 ASF LARP and Life Sci. Labs, and other ECOS or campus uses.

7. Consider demolishing Althouse to create a new building site or retain Althouse for University use.
BIOLOGY-BMB 2
Summary
Eberly College of Science

1. Relocate Chemical Engineering & Raze Fenske Laboratory (100,000 GSF/55,000 ASF). Build new BMB building (153,000 GSF/84,000 ASF) with 12,000 GSF greenhouses on roof.

2. Move to new building:
   - BMB from South Frear: 44,000
   - BMB from Althouse: 33,000
   - BMB from North Frear: 5,000
   - Part of BMB Growth: 2,000
   - Temporarily relocate 9,000 ASF LARP and Life Science Lab Space from South Frear: 84,000 ASF

3. Renovate South Frear (97,000 GSF/53,000 ASF). Renovate Althouse Lab (64,000 GSF/35,000 ASF).

4. Move to renovated South Frear:
   - Biology from Mueller Lab: 50,000
   - Biology from Whitmore: 2,000
   - Biology from Osmond: 1,000

5. Renovate Mueller Lab (97,000 GSF/53,000 ASF).

6. Accommodate the balance of BMB growth (22,000 ASF) and displaced LARP and Life Sci. Labs (9,000 ASF) in either renovated Mueller or Althouse Lab.
   - Reuse 57,000 ASF of Mueller and Althouse for ECOS growth
   - Accommodate 18,000 ASF biology growth in North Frear in 20,000 ASF vacated by BMB

BMB - Biology Alternative Plan 2
Preferred Plan for Physics - Astronomy

1. Replace Osmond parking (120 spaces) and relocate classroom space from Osmond west wing and raze west wing.

2. Build new physics/astronomy building on Osmond parking site, linked to Osmond Lab. (104,000 GSF/110,000 AAG @ 6 levels).

3. Move to new building on parking lot:
   - Astronomy from Davey: 21,000
   - Physics from Davey: 36,000
   - Part of physics from Osmond and accommodate:
     - Part of Physics growth: 13,000
     - Astronomy growth: 7,000
     - Swift Mission on campus: 6,000
   - Temporarily relocate elsewhere:
     - PAMS Library (22K) from Davey

4. Renovate Davey Laboratory (150,000 GSF/62,000 ASF)

5. Move to renovated Davey Laboratory:
   - Remaining physics from Osmond: 37,000
   - Physics from Whitmore: 4,000
   - PAMS Library: 22,000
   - Physics Growth: 5,000
   - Surplus remaining in Davey for ECOS growth or classroom space: 14,000 ASF

6. Renovate Osmond Laboratory for use as undergraduate science/University teaching center (76,000 ASF).
Physics/ Astronomy Building Opportunity Site Study

Site Analysis

Massing

Existing Spatial Character
Site Analysis
Massing

Physics / Astronomy Building Site Study
Existing Spatial Character

Existing Spatial Character
Physics / Astronomy Building Site Study
Existing Spatial Character
Refinements to the University Park Campus Master Plan
Conclusions

Long term vision for ECOS includes two new buildings and the reassignment, reallocation, and renovation of existing buildings to meet remaining needs.

Advantages of the ECOS master plan:

• Research environment and capacity will be improved
• All major laboratory buildings will eventually be renovated
• Undergraduate teaching space will be improved
• Allows for modest growth
• Researchers only move once
• Physics and Astronomy adjacencies are maintained