04 APPENDIX

120 Facility Floor Plans Showing Usage
141 Building Component Analysis
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BUILDING USAGE

VERIFICATION DRAWINGS

The following verification drawings represent building usage as understood by the university and Clark I Huesemann at the time of this report and are intended to illustrate the types of spaces that were cataloged in the utilization analysis.
BAKER FAMILY FITNESS CENTER
FULKERSO CENTER

FIRST FLOOR PLAN

EVENT SPACE/MP

ALUMNI ROOM

OPEN LABS

CLASS LABS

CLASSROOMS

Other

Open Labs

Class Labs

Classrooms
FIRST FLOOR PLAN

SECOND FLOOR PLAN

KIT BOND INCUBATOR
SPRATT STADIUM
LOGAN, BESHEARS AND JUDA HALLS

SECOND FLOOR PLAN

THIRD FLOOR PLAN

FIRST FLOOR PLAN
LEAVERTON AND VASELAKOS HALLS
BUILDING COMPONENT ANALYSIS

Building Condition:

A comprehensive building condition analysis of each primary building on campus was performed. Two ways of defining the condition are provided. A summary narrative of the evaluation describes the building condition in an overview. In addition, each building’s condition is described on a building component analysis form.

The building component analysis form evaluates separately, the value of all the primary systems of each building. These systems are defined as the following:

1. Exterior Building Components
   a. Substructure
      i. Standard Foundations
      ii. Special Foundations
      iii. Slab on Grade
      iv. Basement Excavation
      v. Basement Walls
   b. Superstructure
      i. Floor Construction
      ii. Roof Construction
   c. Exterior Enclosure - Walls
   d. Exterior Enclosure – Doors and Windows
   e. Roofing
   i. Roof Coverings
   ii. Roof Openings

2. Interior Building
   a. Walls, Partitions and Doors
   b. Floors
   c. Ceilings
   d. Finishes, Fittings and Trim
   e. Stairs

3. Engineered Systems
   a. Vertical Conveyance
   b. Plumbing
   c. Heating/Ventilation/AC
   d. Fire Protection and Life Safety
   e. Electrical and Lighting

The form identifies the cost of replacement of each primary system as a percentage of the total cost of a similar building. These percentages will vary based on the function of the facility. For example, classroom buildings will require different types of construction systems than gymnasiums. Percentages of each system will also vary depending on the size and number of stories of each building. For example, multistory buildings must allocate cost to stairs and elevators that single story buildings do not.

Each primary system’s condition is evaluated and given a value from excellent to unsalvageable. The resultant contribution of value of any system takes into account the condition and the percent of cost of a typical facility.

The total resultant value then is an estimate of the percent of current value of an existing building, as it would compare to the replacement cost of the same facility if built new.
## Building Component Analysis

**Campus**
- MWSU

**Building Name**
- Agenstein/Remington Hall

### A. Exterior Building Components
- **Substructure**
  - **Value:** 3.4% x 3.2%  
  - **Resultant Value:** 3.2%
- **Superstructure**
  - **Value:** 8.7% x 8.1%  
  - **Resultant Value:** 8.1%
- **Exterior Enclosure - Walls**
  - **Value:** 2.2% x 2.0%  
  - **Resultant Value:** 2.0%
- **Exterior Enclosure - Windows and Doors**
  - **Value:** 3.4% x 3.2%  
  - **Resultant Value:** 3.2%
- **Roofing**
  - **Value:** 1.8% x 1.8%  
  - **Resultant Value:** 1.8%

**Maximum Value:** 19.6%

### B. Interior Building Components
- **Walls, Partitions and Doors**
  - **Value:** 7.9% x 7.3%  
  - **Resultant Value:** 7.3%
- **Floors**
  - **Value:** 3.8% x 3.5%  
  - **Resultant Value:** 3.5%
- **Ceilings**
  - **Value:** 4.8% x 4.5%  
  - **Resultant Value:** 4.5%
- **Finishes, Fittings and Trim**
  - **Value:** 8.0% x 7.4%  
  - **Resultant Value:** 7.4%
- **Stairs**
  - **Value:** 2.1% x 2.0%  
  - **Resultant Value:** 2.0%

**Maximum Value:** 26.6%

### C. Engineered Systems Components
- **Vertical Conveyance**
  - **Value:** 2.4% x 1.9%  
  - **Resultant Value:** 1.9%
- **Plumbing**
  - **Value:** 18.1% x 14.3%  
  - **Resultant Value:** 14.3%
- **Heating/ Ventilation/AC**
  - **Value:** 16.0% x 14.9%  
  - **Resultant Value:** 14.9%
- **Fire Protection and Life Safety**
  - **Value:** 2.5% x 2.3%  
  - **Resultant Value:** 2.3%
- **Electrical and Lighting**
  - **Value:** 14.8% x 13.8%  
  - **Resultant Value:** 13.8%

**Maximum Value:** 53.8%

### Total Value
- **100.00%**

**Variation / Percent Allocation Adjustment:**

**Overall Percent Condition**
- **90.1%**

**Significant staining of brick on Remington from through wall drains or vents**

**Adjusted Percent Condition**
- **90.1%**
# Building Component Analysis

## Campus

<table>
<thead>
<tr>
<th>Building Name</th>
<th>MWSU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baker Family Fitness Center</td>
<td></td>
</tr>
</tbody>
</table>

## Value

### A. Exterior Building Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substructure</td>
<td>9.4%</td>
</tr>
<tr>
<td>Superstructure</td>
<td>7.3%</td>
</tr>
<tr>
<td>Exterior Enclosure - Walls</td>
<td>6.2%</td>
</tr>
<tr>
<td>Exterior Enclosure - Windows and Doors</td>
<td>5.1%</td>
</tr>
<tr>
<td>Roofing</td>
<td>6.4%</td>
</tr>
</tbody>
</table>

Maximum Value: 34.4%

### B. Interior Building Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walls, Partitions and Doors</td>
<td>7.7%</td>
</tr>
<tr>
<td>Floors</td>
<td>6.3%</td>
</tr>
<tr>
<td>Ceilings</td>
<td>5.1%</td>
</tr>
<tr>
<td>Finishes, Fittings, Built-ins and Trim</td>
<td>1.5%</td>
</tr>
<tr>
<td>Stairs</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Maximum Value: 20.6%

### C. Engineered Systems Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Conveyance</td>
<td>0.0%</td>
</tr>
<tr>
<td>Plumbing</td>
<td>6.3%</td>
</tr>
<tr>
<td>Heating/Ventilation/AC</td>
<td>15.5%</td>
</tr>
<tr>
<td>Fire Protection and Life Safety</td>
<td>3.8%</td>
</tr>
<tr>
<td>Electrical and Lighting</td>
<td>19.5%</td>
</tr>
</tbody>
</table>

Maximum Value: 45.1%

**Total Value**: 100%

### Variation / Percent Allocation Adjustment:

**Overall Percent Condition**: 75.6%

Recent renovation left some items unaddressed

**Adjusted Percent Condition**: 75.6%
# Building Component Analysis

**Campus**: MWSU  
**Building Name**: Commons

### A. Exterior Building Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substructure</td>
<td>9.4%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8.7%</td>
</tr>
<tr>
<td>Superstructure</td>
<td>7.3%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.8%</td>
</tr>
<tr>
<td>Exterior Enclosure - Walls</td>
<td>6.2%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.9%</td>
</tr>
<tr>
<td>Exterior Enclosure - Windows and Doors</td>
<td>5.1%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.0%</td>
</tr>
<tr>
<td>Roofing</td>
<td>6.4%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.1%</td>
</tr>
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</table>

**Maximum Value**: 34.4%

### B. Interior Building Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walls, Partitions and Doors</td>
<td>7.7%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.1%</td>
</tr>
<tr>
<td>Floors</td>
<td>6.3%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.0%</td>
</tr>
<tr>
<td>Ceilings</td>
<td>5.1%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.0%</td>
</tr>
<tr>
<td>Finishes, Fittings, Built-ins and Trim</td>
<td>1.5%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.2%</td>
</tr>
<tr>
<td>Stairs</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Maximum Value**: 20.6%

### C. Engineered Systems Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Conveyance</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plumbing</td>
<td>6.3%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.0%</td>
</tr>
<tr>
<td>Heating/Ventilation/AC</td>
<td>15.5%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.2%</td>
</tr>
<tr>
<td>Fire Protection and Life Safety</td>
<td>3.8%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.0%</td>
</tr>
<tr>
<td>Electrical and Lighting</td>
<td>19.5%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15.4%</td>
</tr>
</tbody>
</table>

**Maximum Value**: 45.1%

**Total Value**: 100%

**Variation / Percent Allocation Adjustment**:

**Overall Percent Condition**: 81.4%

None

**Adjusted Percent Condition**: 81.4%
# Building Component Analysis

**Campus**  
MWSU  

**Building Name**  
Blum Union

<table>
<thead>
<tr>
<th><strong>Building Component</strong></th>
<th><strong>Value</strong></th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Residual Value</th>
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</thead>
<tbody>
<tr>
<td><strong>A. Exterior Building Components</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substructure</td>
<td>5.1%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.0%</td>
</tr>
<tr>
<td>Superstructure</td>
<td>16.4%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13.0%</td>
</tr>
<tr>
<td>Exterior Enclosure - Walls</td>
<td>8.5%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.7%</td>
</tr>
<tr>
<td>Exterior Enclosure - Windows and Doors</td>
<td>3.8%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.3%</td>
</tr>
<tr>
<td>Roofing</td>
<td>2.5%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.8%</td>
</tr>
<tr>
<td><strong>Maximum Value</strong></td>
<td>36.3%</td>
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<td></td>
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<tr>
<td><strong>B. Interior Building Components</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walls, Partitions and Doors</td>
<td>10.2%</td>
<td>x</td>
<td></td>
<td></td>
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<td></td>
<td>8.1%</td>
</tr>
<tr>
<td>Floors</td>
<td>5.6%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.3%</td>
</tr>
<tr>
<td>Ceilings</td>
<td>3.5%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.1%</td>
</tr>
<tr>
<td>Finishes, Fittings, Built-ins and Trim</td>
<td>2.7%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.1%</td>
</tr>
<tr>
<td>Stairs</td>
<td>1.0%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.3%</td>
</tr>
<tr>
<td><strong>Maximum Value</strong></td>
<td>23.0%</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>C. Engineered Systems Components</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical Conveyance</td>
<td>2.9%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.9%</td>
</tr>
<tr>
<td>Plumbing</td>
<td>3.7%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.2%</td>
</tr>
<tr>
<td>Heating/Ventilation/AC</td>
<td>15.9%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9.5%</td>
</tr>
<tr>
<td>Fire Protection and Life Safety</td>
<td>3.3%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0%</td>
</tr>
<tr>
<td>Electrical and Lighting</td>
<td>15.1%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.0%</td>
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<tr>
<td><strong>Maximum Value</strong></td>
<td>40.9%</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Value</strong></td>
<td>100%</td>
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<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Variation / Percent Allocation Adjustment:**

Overall Percent Condition: 68.2%

Adjusted Percent Condition: 68.2%
## Building Component Analysis

<table>
<thead>
<tr>
<th>Campus</th>
<th>MWSU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Name</td>
<td>Eder Hall</td>
</tr>
</tbody>
</table>

### A. Exterior Building Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substructure</td>
<td>3.5%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.8%</td>
</tr>
<tr>
<td>Superstructure</td>
<td>9.1%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7.2%</td>
</tr>
<tr>
<td>Exterior Enclosure - Walls</td>
<td>2.2%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.3%</td>
</tr>
<tr>
<td>Exterior Enclosure - Windows and Doors</td>
<td>3.5%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.1%</td>
</tr>
<tr>
<td>Roofing</td>
<td>2.0%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.6%</td>
</tr>
</tbody>
</table>

**Maximum Value**: 20.3%

### B. Interior Building Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walls, Partitions and Doors</td>
<td>9.6%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7.6%</td>
</tr>
<tr>
<td>Floors</td>
<td>3.6%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.1%</td>
</tr>
<tr>
<td>Ceilings</td>
<td>4.9%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.9%</td>
</tr>
<tr>
<td>Finishes, Fittings and Trim</td>
<td>7.1%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.3%</td>
</tr>
<tr>
<td>Stairs</td>
<td>2.4%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.8%</td>
</tr>
</tbody>
</table>

**Maximum Value**: 27.6%

### C. Engineered Systems Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Conveyance</td>
<td>2.6%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.8%</td>
</tr>
<tr>
<td>Plumbing</td>
<td>14.0%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.5%</td>
</tr>
<tr>
<td>Heating/Ventilation/AC</td>
<td>14.2%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8.4%</td>
</tr>
<tr>
<td>Fire Protection and Life Safety</td>
<td>2.6%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.8%</td>
</tr>
<tr>
<td>Electrical and Lighting</td>
<td>18.7%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.1%</td>
</tr>
</tbody>
</table>

**Maximum Value**: 52.1%

**Total Value**: 100%

---

**Variation / Percent Allocation Adjustment:**

- **Overall Percent Condition**: 65.4%
- **Adjusted Percent Condition**: 65.4%

Floor has indications of differential settlement - a bump
Condition and quality varies widely across the structure given multiple renovations

---

**EDER HALL**
### Fulkerson Center

#### Building Component Analysis

<table>
<thead>
<tr>
<th>Campus</th>
<th>MWSU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Name</td>
<td>Fulkerson Center</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsuitable</th>
<th>Resultant Value</th>
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<tbody>
<tr>
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<td></td>
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<td></td>
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<td>x</td>
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<td>1.7%</td>
</tr>
<tr>
<td>Exterior Enclosure - Windows and Doors</td>
<td>3.5%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.8%</td>
</tr>
<tr>
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<td>x</td>
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<td>7.6%</td>
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<td>Vertical Conveyance</td>
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<td>2.1%</td>
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<td>2.1%</td>
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<tr>
<td>Electrical and Lighting</td>
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**Total Value** 100%

**Variation / Percent Allocation Adjustment:**

None

**Overall Percent Condition** 77.1%

**Adjusted Percent Condition** 77.1%

---

**FULKERSON CENTER**
# Building Component Analysis

## Campus

**MWSU**

### Building Name

**Griffin Indoor Sports Complex**

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
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<td>A. Exterior Building Components</td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Substructure</td>
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<td>x</td>
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<td>x</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Enclosure - Windows and Doors</td>
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<td>x</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roofing</td>
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<td>x</td>
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</tr>
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</tr>
<tr>
<td>Fire Protection and Life Safety</td>
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<tr>
<td>Electrical and Lighting</td>
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<td>x</td>
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</table>

**Total Value**

100%

**Variation / Percent Allocation Adjustment:**

None

**Overall Percent Condition**

87.4%

**Adjusted Percent Condition**

87.4%
## Building Component Analysis

### A. Exterior Building Components

<table>
<thead>
<tr>
<th>Substructure</th>
<th>5.2%</th>
<th>X</th>
<th>4.1%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superstructure</td>
<td>18.7%</td>
<td>X</td>
<td>14.8%</td>
</tr>
<tr>
<td>Exterior Enclosure - Walls</td>
<td>13.2%</td>
<td>X</td>
<td>7.9%</td>
</tr>
<tr>
<td>Exterior Enclosure - Windows and Doors</td>
<td>2.8%</td>
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</tr>
<tr>
<td>Roofing</td>
<td>2.1%</td>
<td>X</td>
<td>0.7%</td>
</tr>
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Maximum Value: 42.0%

### B. Interior Building Components

<table>
<thead>
<tr>
<th>Walls, Partitions and Doors</th>
<th>5.5%</th>
<th>X</th>
<th>3.3%</th>
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</thead>
<tbody>
<tr>
<td>Floors</td>
<td>3.2%</td>
<td>X</td>
<td>1.9%</td>
</tr>
<tr>
<td>Ceilings</td>
<td>5.8%</td>
<td>X</td>
<td>3.5%</td>
</tr>
<tr>
<td>Finishes, Fittings, Built-ins and Trim</td>
<td>0.5%</td>
<td>X</td>
<td>0.3%</td>
</tr>
<tr>
<td>Stairs</td>
<td>0.7%</td>
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<td>0.2%</td>
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Maximum Value: 15.7%

### C. Engineered Systems Components

<table>
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<tr>
<td>Plumbing</td>
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</tr>
<tr>
<td>Heating/Ventilation/AC</td>
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<td>5.7%</td>
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<tr>
<td>Electrical and Lighting</td>
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<td>7.5%</td>
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</table>

Maximum Value: 42.3%

### Total Value

100%

### Variation / Percent Allocation Adjustment:

**Overall Percent Condition**: 55.4%

High variability of condition and quality due to partial renovations

**Adjusted Percent Condition**: 55.4%
## Building Component Analysis

<table>
<thead>
<tr>
<th>Campus</th>
<th>MWSU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Name</td>
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### A. Exterior Building Components

<table>
<thead>
<tr>
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<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsatisfactory</th>
<th>Resultant Value</th>
</tr>
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<tbody>
<tr>
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<td>3.5%</td>
<td>x</td>
<td></td>
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<td></td>
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<td>2.8%</td>
</tr>
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<td>2.1%</td>
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Maximum Value 20.3%

### B. Interior Building Components

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<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsatisfactory</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walls, Partitions and Doors</td>
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<td></td>
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<td></td>
<td>7.6%</td>
</tr>
<tr>
<td>Floors</td>
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<td>x</td>
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<td></td>
<td></td>
<td></td>
<td>2.8%</td>
</tr>
<tr>
<td>Ceilings</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>3.9%</td>
</tr>
<tr>
<td>Finishes, Fittings and Trim</td>
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<td></td>
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<td>5.6%</td>
</tr>
<tr>
<td>Stairs</td>
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Maximum Value 27.6%

### C. Engineered Systems Components

<table>
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<tbody>
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<td>11.1%</td>
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<tr>
<td>Heating/Ventilation/AC</td>
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<td></td>
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<td></td>
<td></td>
<td>8.4%</td>
</tr>
<tr>
<td>Fire Protection and Life Safety</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>1.5%</td>
</tr>
<tr>
<td>Electrical and Lighting</td>
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<td></td>
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</table>

Maximum Value 52.1%

Total Value 100%

### Variation / Percent Allocation Adjustment:

**Overall Percent Condition** 75.0%

None

**Adjusted Percent Condition** 75.0%

---

**SPRATT HALL**
# Building Component Analysis

## Campus
MWSU

## Building Name
Looney Complex

<table>
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<th>Value</th>
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<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
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<tbody>
<tr>
<td><strong>A. Exterior Building</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
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<td></td>
<td>5.7%</td>
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<td>Roofing</td>
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<td>2.1%</td>
</tr>
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**Total Value**

100%

**Variation / Percent Allocation Adjustment:**

None

**Overall Percent Condition**

60.3%

**Adjusted Percent Condition**

50.0%
Building Component Analysis

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<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
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<tbody>
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<td></td>
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<tr>
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<tbody>
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<table>
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<tr>
<th>C. Engineered Systems Components</th>
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<th>Fair</th>
<th>Poor</th>
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<th>Resultant Value</th>
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<tr>
<td>Heating/Ventilation/AC</td>
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<td>2.1%</td>
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<tr>
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</table>

Total Value 100%

Variation / Percent Allocation Adjustment:

Overall Percent Condition 74.0%

Materials and finishes of lesser quality and showing wear

Adjusted Percent Condition 74.0%
## Building Component Analysis

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<thead>
<tr>
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<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
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<td>A. Exterior Building Components</td>
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</tr>
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<td>Superstructure</td>
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<td></td>
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<td>7.2%</td>
<td></td>
</tr>
<tr>
<td>Exterior Enclosure - Walls</td>
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<td>x</td>
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<td>1.3%</td>
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</tr>
<tr>
<td>Exterior Enclosure - Windows and Doors</td>
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<td>Finishes, Fittings and Trim</td>
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<tr>
<td>Electrical and Lighting</td>
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**Total Value** 100%

**Variation / Percent Allocation Adjustment:**

*Overall Percent Condition* 85.4%

*Adjusted Percent Condition* 85.4%

**POPPLEWELL HALL**
Building Component Analysis

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<th>Fair</th>
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<th>Resultant Value</th>
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<tr>
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<td>Floors</td>
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<tr>
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<tr>
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<tr>
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<tr>
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Variation / Percent Allocation Adjustment:

Overall Percent Condition 42.1%

Adjusted Percent Condition 42.1%

POTTER HALL
## Building Component Analysis

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<tbody>
<tr>
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### A. Exterior Building Components

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<tr>
<th>Component</th>
<th>Value</th>
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<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsavable Value</th>
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<td>Exterior Enclosure - Walls</td>
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<tr>
<td>Exterior Enclosure - Windows and Doors</td>
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**Maximum Value**: 32.0%

### B. Interior Building Components

<table>
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<th>Good</th>
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<tbody>
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<td></td>
</tr>
<tr>
<td>Floors</td>
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</tr>
<tr>
<td>Ceilings</td>
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<td>x</td>
<td>1.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finishes, Fittings and Trim</td>
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<td></td>
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<td>Stairs</td>
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**Maximum Value**: 23.0%

### C. Engineered Systems Components

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<th>Poor</th>
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</tr>
<tr>
<td>Plumbing</td>
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<td></td>
</tr>
<tr>
<td>Heating/Ventilation/AC</td>
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<td>0.0%</td>
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<td></td>
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<tr>
<td>Fire Protection and Life Safety</td>
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</tbody>
</table>

**Maximum Value**: 44.7%

### Total Value

**Total Value**: 100%

### Variation / Percent Allocation Adjustment:

**Overall Percent Condition**: 26.5%

The main stair is in very poor condition, shored up with wood posts and shims and needs to be addressed immediately.

### Adjusted Percent Condition

**Adjusted Percent Condition**: 26.6%
### Building Component Analysis

#### A. Exterior Building Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
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<tbody>
<tr>
<td>Substructure</td>
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<td></td>
<td></td>
<td></td>
<td>2.6%</td>
</tr>
<tr>
<td>Superstructure</td>
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<td></td>
<td></td>
<td></td>
<td>7.2%</td>
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<tr>
<td>Exterior Enclosure - Walls</td>
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<td>1.3%</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>1.1%</td>
</tr>
<tr>
<td>Roofing</td>
<td>2.0%</td>
<td>x</td>
<td></td>
<td></td>
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</table>

**Maximum Value: 20.3%**

#### B. Interior Building Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walls, Partitions and Doors</td>
<td>9.6%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.1%</td>
</tr>
<tr>
<td>Floors</td>
<td>3.6%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.2%</td>
</tr>
<tr>
<td>Ceilings</td>
<td>4.9%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.6%</td>
</tr>
<tr>
<td>Finishes, Fittings and Trim</td>
<td>7.1%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.0%</td>
</tr>
<tr>
<td>Stairs</td>
<td>2.4%</td>
<td>x</td>
<td></td>
<td></td>
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**Maximum Value: 27.6%**

#### C. Engineered Systems Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Conveyance</td>
<td>2.6%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Plumbing</td>
<td>14.0%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.5%</td>
</tr>
<tr>
<td>Heating/Ventilation/AC</td>
<td>14.2%</td>
<td>x</td>
<td></td>
<td></td>
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<td></td>
<td>4.5%</td>
</tr>
<tr>
<td>Fire Protection and Life Safety</td>
<td>2.6%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.8%</td>
</tr>
<tr>
<td>Electrical and Lighting</td>
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<td>x</td>
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<td></td>
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<td></td>
<td>6.0%</td>
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</tbody>
</table>

**Maximum Value: 52.1%**

---

**Total Value**

100%

---

**Variation / Percent Allocation Adjustment:**

- Overall Percent Condition: 36.3%
- Exterior wall at the south corner has indications of differential settlement
- Newly remodeled accessible restrooms

**Adjusted Percent Condition**: 36.3%
### Building Component Analysis

<table>
<thead>
<tr>
<th>Component Type</th>
<th>Substructure</th>
<th>Superstructure</th>
<th>Exterior Enclosure - Walls</th>
<th>Exterior Enclosure - Windows and Doors</th>
<th>Roofing</th>
<th>Maximum Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Value</td>
<td>31.4%</td>
<td>13.7% x</td>
<td>3.4% x</td>
<td>3.4% x</td>
<td>1.1% x</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component Type</th>
<th>Walls, Partitions and Doors</th>
<th>Floors</th>
<th>Ceilings</th>
<th>Finishes, Fittings, Built-ins and Trim</th>
<th>Stairs</th>
<th>Maximum Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Value</td>
<td>24.4%</td>
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<table>
<thead>
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<th>Component Type</th>
<th>Vertical Conveyance</th>
<th>Plumbing</th>
<th>Heating/Ventilation/AC</th>
<th>Fire Protection and Life Safety</th>
<th>Electrical and Lighting</th>
<th>Maximum Value</th>
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</thead>
<tbody>
<tr>
<td>Maximum Value</td>
<td>44.2%</td>
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</tr>
</tbody>
</table>

| Total Value                             | 100%                |          |                        |                          |                        |               |

**Variation / Percent Allocation Adjustment:**

- HVAC systems are energy inefficient

**Overall Percent Condition:** 81.8%

**Adjusted Percent Condition:** 41.8%

---

**Note:**

- **Excellent (85-95):** New or near new condition as a result of recent installation, repair and/or replacement.
- **Good (70-84):** No obvious deficiencies in condition or performance, serviceable with basic maintenance.
- **Fair (50-69):** Need for minor repair and limited replacement of components based on age and/or performance.
- **Poor (30-49):** Failure of primary components and multiple systems evident; major repair or replacement required.
- **Unsalvageable (0-29):** Components or systems unusable, code deficient and/or not suited for current use; complete replacement required.
## Building Component Analysis

### Campus

#### MWSU

#### Building Name

- **Griffon Hall**

<table>
<thead>
<tr>
<th>Component Type</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
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</thead>
<tbody>
<tr>
<td><strong>A. Exterior Building Components</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substructure</td>
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<td>x</td>
<td>3.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Superstructure</td>
<td>13.7%</td>
<td>x</td>
<td>12.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Enclosure - Walls</td>
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<td>x</td>
<td>9.1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior Enclosure - Windows and Doors</td>
<td>3.4%</td>
<td>x</td>
<td>3.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roofing</td>
<td>1.1%</td>
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<td>0.9%</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maximum Value</strong></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td><strong>B. Interior Building Components</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walls, Partitions and Doors</td>
<td>8.9%</td>
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<td>7.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floors</td>
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<td>x</td>
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<td>Ceilings</td>
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<td>x</td>
<td>0.5%</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finishes, Fittings, Built-ins and Trim</td>
<td>6.6%</td>
<td>x</td>
<td>5.2%</td>
<td></td>
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<td></td>
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<tr>
<td>Stairs</td>
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<tr>
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<tr>
<td><strong>C. Engineered Systems Components</strong></td>
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</tr>
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<td>Vertical Conveyance</td>
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<tr>
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<tr>
<td>Heating/Ventilation/AC</td>
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<td>x</td>
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<td></td>
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</tr>
<tr>
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<td></td>
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<tr>
<td>Electrical and Lighting</td>
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<td>44.2%</td>
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<td></td>
</tr>
</tbody>
</table>

### Total Value

- **100%**

### Variation / Percent Allocation Adjustment:

- **Overall Percent Condition**: 82.3%

- Less durable finishes and equipment are showing early wear
- HVAC systems are energy inefficient

### Adjusted Percent Condition

- **82.8%**
## Building Component Analysis

### Campus MWSU

**Building Name** Vaselakos and Leaverton Halls

<table>
<thead>
<tr>
<th>Component Type</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Exterior Building Components</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
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<td>x</td>
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<td></td>
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<tr>
<td>Superstructure</td>
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<td>x</td>
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<td></td>
<td>10.8%</td>
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<tr>
<td>Exterior Enclosure - Walls</td>
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<td></td>
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<td>5.8%</td>
</tr>
<tr>
<td>Exterior Enclosure - Windows and Doors</td>
<td>3.4%</td>
<td>x</td>
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<td></td>
<td></td>
<td></td>
<td>2.0%</td>
</tr>
<tr>
<td>Roofing</td>
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<td>0.9%</td>
</tr>
<tr>
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<td>B. Interior Building Components</td>
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</tr>
<tr>
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<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5%</td>
</tr>
<tr>
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<td>x</td>
<td></td>
<td></td>
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<tr>
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<td></td>
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<td>1.3%</td>
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</tr>
<tr>
<td>C. Engineered Systems Components</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
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<td>13.4%</td>
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<tr>
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</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td>1.5%</td>
</tr>
<tr>
<td>Electrical and Lighting</td>
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<td></td>
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<td>7.0%</td>
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</tr>
</tbody>
</table>

**Variation / Percent Allocation Adjustment:**

- **Overall Percent Condition** 67.6%

- HVAC systems are energy inefficient

**Adjusted Percent Condition**

---

**(VASELAKOS AND LEAVERTON HALLS)**
### Building Component Analysis

<table>
<thead>
<tr>
<th>Campus</th>
<th>MWSU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Name</td>
<td>Scanlon Hall</td>
</tr>
</tbody>
</table>

#### A. Exterior Building Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substructure</td>
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<td>x</td>
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<td></td>
<td></td>
<td></td>
<td>2.3%</td>
</tr>
<tr>
<td>Superstructure</td>
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<tr>
<td>Exterior Enclosure - Windows and Doors</td>
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<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.7%</td>
</tr>
<tr>
<td>Roofing</td>
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</tr>
</tbody>
</table>

#### B. Interior Building Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
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<th>Resultant Value</th>
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</thead>
<tbody>
<tr>
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<td></td>
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<td>5.1%</td>
</tr>
<tr>
<td>Ceilings</td>
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<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5%</td>
</tr>
<tr>
<td>Finishes, Fittings, Built-ins and Trim</td>
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<td>x</td>
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<td></td>
<td></td>
<td></td>
<td>4.1%</td>
</tr>
<tr>
<td>Stairs</td>
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<td></td>
<td></td>
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</tbody>
</table>

#### C. Engineered Systems Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>4.4%</td>
</tr>
<tr>
<td>Plumbing</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>12.0%</td>
</tr>
<tr>
<td>Heating/Ventilation/AC</td>
<td>9.3%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.5%</td>
</tr>
<tr>
<td>Fire Protection and Life Safety</td>
<td>2.4%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.9%</td>
</tr>
<tr>
<td>Electrical and Lighting</td>
<td>11.5%</td>
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</tr>
</tbody>
</table>

**Total Value**

100%

**Variation / Percent Allocation Adjustment:**

- **Overall Percent Condition**: 78.7%
- **Adjusted Percent Condition**: 78.7%

---

**HVAC systems are energy inefficient**

---

**SCANLON HALL**
### Building Component Analysis

<table>
<thead>
<tr>
<th>Campus</th>
<th>MWSU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Name</td>
<td>Incubator</td>
</tr>
</tbody>
</table>

#### Exterior Building Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substructure</td>
<td>3.4%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.2%</td>
</tr>
<tr>
<td>Superstructure</td>
<td>8.7%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8.1%</td>
</tr>
<tr>
<td>Exterior Enclosure - Walls</td>
<td>2.2%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.7%</td>
</tr>
<tr>
<td>Exterior Enclosure - Windows and Doors</td>
<td>3.4%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.7%</td>
</tr>
<tr>
<td>Roofing</td>
<td>1.9%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.5%</td>
</tr>
</tbody>
</table>

Maximum Value: 19.6%

#### Interior Building Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walls, Partitions and Doors</td>
<td>7.9%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.2%</td>
</tr>
<tr>
<td>Floors</td>
<td>3.8%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.0%</td>
</tr>
<tr>
<td>Ceilings</td>
<td>4.8%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.8%</td>
</tr>
<tr>
<td>Finishes, Fittings and Trim</td>
<td>8.0%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.3%</td>
</tr>
<tr>
<td>Stairs</td>
<td>2.1%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.7%</td>
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</table>

Maximum Value: 26.6%

#### Engineered Systems Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Conveyance</td>
<td>2.4%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.9%</td>
</tr>
<tr>
<td>Plumbing</td>
<td>18.1%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14.3%</td>
</tr>
<tr>
<td>Heating/Ventilation/AC</td>
<td>16.0%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9.5%</td>
</tr>
<tr>
<td>Fire Protection and Life Safety</td>
<td>2.5%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0%</td>
</tr>
<tr>
<td>Electrical and Lighting</td>
<td>14.8%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.7%</td>
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</tbody>
</table>

Maximum Value: 53.8%

Total Value: 100.00%

#### Variation / Percent Allocation Adjustment:

<table>
<thead>
<tr>
<th>Overall Percent Condition</th>
<th>None</th>
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</thead>
<tbody>
<tr>
<td>Adjusted Percent Condition</td>
<td>77.6%</td>
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</table>

Overall Percent Condition: 77.6%
### Building Component Analysis

#### West Campus Physical Plant Facilities

<table>
<thead>
<tr>
<th>A. Exterior Building Components</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substructure</td>
<td>9.4%</td>
<td>x</td>
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<td></td>
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<td>5.6%</td>
</tr>
<tr>
<td>Superstructure</td>
<td>7.3%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.3%</td>
</tr>
<tr>
<td>Exterior Enclosure - Walls</td>
<td>6.2%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0%</td>
</tr>
<tr>
<td>Exterior Enclosure - Windows and Doors</td>
<td>5.1%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.0%</td>
</tr>
<tr>
<td>Roofing</td>
<td>6.4%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0%</td>
</tr>
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</table>

Maximum Value: 34.4%

<table>
<thead>
<tr>
<th>B. Interior Building Components</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walls, Partitions and Doors</td>
<td>7.7%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.6%</td>
</tr>
<tr>
<td>Floors</td>
<td>6.3%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.7%</td>
</tr>
<tr>
<td>Ceilings</td>
<td>5.1%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.0%</td>
</tr>
<tr>
<td>Finishes, Fittings, Built-ins and Trim</td>
<td>1.5%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.9%</td>
</tr>
<tr>
<td>Stairs</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Maximum Value: 20.6%

<table>
<thead>
<tr>
<th>C. Engineered Systems Components</th>
<th>Value</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Unsalvageable</th>
<th>Resultant Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Conveyance</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plumbing</td>
<td>6.3%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.7%</td>
</tr>
<tr>
<td>Heating/Ventilation/AC</td>
<td>15.5%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9.2%</td>
</tr>
<tr>
<td>Fire Protection and Life Safety</td>
<td>3.8%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.3%</td>
</tr>
<tr>
<td>Electrical and Lighting</td>
<td>19.5%</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.6%</td>
</tr>
</tbody>
</table>

Maximum Value: 45.1%

Total Value: 100%

**Variation / Percent Allocation Adjustment:**

**Overall Percent Condition:** 56.1%

**Adjusted Percent Condition:** 56.1%

---

**WEST CAMPUS FACILITIES**
STORM WATER ANALYSIS

Drainage Evaluation

The campus of Missouri Western State University is roughly 723 acres in its entirety, with 200 acres of wooded natural habitat along the Otoe creek, which runs east and west through campus. Along with Otoe Creek, the campus includes nine man-made ponds.

The main portion of campus has a footprint of approximately 455 acres and is split into two drainage areas. A small portion of the southern end of campus, 85 acres, drains toward the southeast corner of campus at the intersection of Mitchell Avenue and 50th Street. The north portion of main campus is an accumulative area of 370 acres draining to Otoe Creek.

Storm water is mostly contained on campus by surface drainage, however there are storm sewer systems in both parking lots and in green spaces. The inlets on the campus range from curb inlets to area inlets. From the site visit in August 2014, the curb inlets appear to be in good condition and are operating correctly and efficiently. On the other hand, the area inlets appear to have a range of issues. Many of the area inlets have tops that are greatly below grade causing ponding issues in the green spaces and extreme grades adjacent to buildings and sidewalks. Those area inlets that are at grade, or have an open throat, seem to show erosion problems around the inlet due to the excessive amount of surface drainage that they are to contain.

The paved areas on campus that do not convey water to a storm sewer system are basically discharging water into flumes which end on to natural grade or just discharge through a curb cut directly to natural grade. The problems that are being seen in these instances are extreme erosion issues. Maintenance in some of these areas is evident, but are not solving the erosion problem. The erosion issues, both around the inlets and flumes, are starting to cause issues with the surrounding pavement areas, which is quickly compounding smaller scale problems into more critical ones. Meaning the cost for a solution is only increasing.
PAVEMENT CONDITION ANALYSIS

Pavement Evaluation

The purpose of this report is to provide an evaluation of current conditions of the pavement of both the parking lots and campus roads of Missouri Western State University. This report is not a complete pavement condition survey. Note that no soil or pavement samples were taken for evaluation, and that no field measurements were made. Available record drawings for the construction of each parking lot, if available, have not been researched.

A site visit was made in August 2014 to each pavement section and a pavement condition evaluation was made. The observations made with initial recommendation for each section with associated costs are presented herein. The data is organized by lot classification and subdivided by the physical characteristics of the sections, i.e. entrances, concrete barriers, and directional. Page 168 shows the map with the designations for each pavement section listed.

The parking lots at Missouri Western State University range in age and condition from old to new and poor to excellent. The combined evaluation provides a unified comprehensive approach for future allocation of assets by the university.

The current evaluation is a snapshot in time of the current surface condition of the pavement and is most effective when compared with previous reports. For this report, the PASER (Pavement Surface Evaluation and Rating) system published by the Transportation Information Center at the University of Wisconsin – Madison was used to evaluate the existing surface condition of parking lot pavements. A brief description of the individual PASER scores follows.

<table>
<thead>
<tr>
<th>Surface Rating</th>
<th>Visible Distress</th>
<th>General Condition/Treatment Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Excellent</td>
<td>None</td>
<td>New Construction</td>
</tr>
<tr>
<td>9 Excellent</td>
<td>None</td>
<td>Recent overlay, like new.</td>
</tr>
<tr>
<td>8 Very Good</td>
<td>- No longitudinal cracks except reflective cracking of PCC pavement joints. - Occasional transverse cracks, widely spaced at 40 feet or greater.</td>
<td>Recent seal coat or overlay. Little or no maintenance required.</td>
</tr>
<tr>
<td>7 Good</td>
<td>- Very slight or no raveling, surface shows some traffic wear. - Longitudinal cracks, widths up to 1/4”, spaced due to reflective cracking or through PCC joints. - Transverse cracks, widths up to 1/4&quot;, spaced 10 feet or more apart with little or slight crack raveling. - No patching or very few patches in excellent condition.</td>
<td>First signs of aging. Maintain with routine crack filling.</td>
</tr>
<tr>
<td>6 Good</td>
<td>- Slight raveling and traffic wear. - Longitudinal cracks, widths 1/4”-1/2” due to reflective cracking. - Transverse cracks, widths 1/4”-1/2”, some spaced less than 10 feet apart. - Slight to moderate polishing. - Occasional patching in good condition.</td>
<td>Pavement shows signs of aging, sound structural condition. Could extend life with seal coat.</td>
</tr>
</tbody>
</table>
There are differing levels of maintenance that can or must be done for each surface rating. Some of these tasks can be implemented into a continuous maintenance program extending the lifespan of the pavement. Other types of maintenance require outsourcing projects to competitive bid to reconstruct or rehabilitate the pavement and restore its lifespan. Picking the proper maintenance task to apply can be made easier by reviewing the evaluation score sheets attached to this report. Timing and implementation of maintenance is left to the owner.

High PASER Scores (8, 9 or 10) require routine maintenance. This employs the typical day-to-day maintenance activities of sweeping, clearing of drainage pathways, crack sealing, paint striping and other minor repairs to keep the pavement system clean of debris. A pavement section with a high PASER score will deteriorate to a middle score within five to six years, if routine maintenance is ignored.

Middle PASER Scores (4, 5, 6 or 7) require capital preventive maintenance. This type of maintenance is a planned set of cost effective treatments to preserve an existing pavement system. It slows the rate of deterioration and maintains or improves the functional condition of the pavement. It typically does not employ extensive structural repairs to the sub-base or sub-grade but may include some minor or full depth patching in order to restore the structural integrity of the pavement section. This preventative program reduces lifecycle costs of the pavement system by correcting surface deficiencies before they become structural deficiencies. The deficiencies are usually caused by environmental or pavement material defects. Examples of repair treatments include: nonstructural bituminous overlay of one inch or less, surface milling and nonstructural bituminous overlay, crack filling, joint sealing, crack repair (clean and seal, saw and seal, or rout and seal), or seal coat (slurry seal). Overlays and slurry seals generally extend the pavement lifespan from five to seven years. If preventive maintenance is not provided on a middle PASER score parking lot, in three to four years the pavement will then have a low score.
Low PASER Scores (1, 2, or 3) require more than routine or preventative maintenance. Scores in this range have severe deterioration of the surface and the structural integrity of the flexible pavement system requires extensive work. These projects require some sort of an investigation to determine how much damage has occurred to the pavement section and sub-grade so proper repairs can be made. Rehabilitation projects extend the lifespan of the pavement by seven to 10 years. These types of projects include milling with multiple course overlays; in-place recycling of the pavement by rubblizing the existing pavement then mixing with new aggregates and binders; and typically include sealing deep linear cracks. Reconstruction is any fix that removes or recycles the entire pavement section. Sub-grade stabilization may be required to repair a weak or soft sub-grade due to the intrusion of water over a prolonged period of time. Reconstruction projects recreate the 10-year life cycle of the paved area.

Reactive maintenance is independent of PASER scoring and is any activity that must be done in response to events beyond the control of the operator. This type of activity is not scheduled because events occur without warning but need to be addressed immediately. Examples of reactive maintenance include snow plowing, pothole patching, repairing pavement blowouts and accidental damage from construction activities, vehicular accidents or other impact-type damage.

**Project Cost Basis**

To accomplish the maintenance tasks, many different repair treatments must be completed to restore the pavement. Each repair treatment may require multiple work items to correct the pavement deficiencies, with each work item having its own cost. These work items and their unit costs (2014 dollars) are displayed in the following table.

<table>
<thead>
<tr>
<th>Specific Work Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobilization</td>
<td>$3,500 + $0.75/SY</td>
</tr>
<tr>
<td>Asphalt Removal</td>
<td>$1.50/SY</td>
</tr>
<tr>
<td>2” Milling</td>
<td>$2.50/SY</td>
</tr>
<tr>
<td>Sub-grade Repair</td>
<td>$10.00/SY</td>
</tr>
<tr>
<td>4” Asphalt Base Course</td>
<td>$17.50/SY</td>
</tr>
<tr>
<td>2” Asphalt Surface Course</td>
<td>$10.00/SY</td>
</tr>
<tr>
<td>Minor Patch (Asphalt)</td>
<td>$30.00/SY</td>
</tr>
<tr>
<td>Major Patch (Asphalt)</td>
<td>$40.00/SY</td>
</tr>
<tr>
<td>Crack Filling</td>
<td>$2.00/SY</td>
</tr>
<tr>
<td>Major Patch (Concrete)</td>
<td>$60.00/SY</td>
</tr>
<tr>
<td>Pavement Marking</td>
<td>$0.50/SY</td>
</tr>
<tr>
<td>Slurry Seal</td>
<td>$2.25/SY</td>
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</table>

<table>
<thead>
<tr>
<th>Additional Project Costs</th>
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</tr>
</thead>
<tbody>
<tr>
<td>5% for Lighting, Signing &amp; Drainage</td>
<td>5% for Sidewalk, Ramps &amp; Curbs</td>
</tr>
<tr>
<td>10% for Contingencies</td>
<td>33% for Project Soft Costs</td>
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</table>
[Key]
- Problem Pavement Areas
<table>
<thead>
<tr>
<th>Lot ID</th>
<th>RECOMMENDATIONS</th>
<th>ESTIMATED CONSTRUCTION COSTS (2014 DOLLARS)</th>
<th>COMMENTS</th>
</tr>
</thead>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PARKING LOTS</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>B1</td>
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</tr>
<tr>
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</tr>
<tr>
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<td></td>
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</tr>
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<td>I</td>
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</tr>
<tr>
<td>J1</td>
<td></td>
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</tbody>
</table>

MWSU Pavement Analysis - Estimated Probable Construction Costs
## RECOMMENDATIONS

<table>
<thead>
<tr>
<th>Lot ID</th>
<th>Pavement Score (10/2014)</th>
<th>No Improv. Req’d</th>
<th>Seal Coat Surface</th>
<th>Crack &amp; Patch Repairs</th>
<th>Mill &amp; Overlay</th>
<th>Crack Filling</th>
<th>Minor Patch</th>
<th>Full Depth Patch</th>
<th>% Parking Area Per Lot</th>
<th>Total Lot Area (Sq. Ft.)</th>
<th>Estimated Repair Cost</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>J2</td>
<td>8</td>
<td>x</td>
<td>10%</td>
<td>0%</td>
<td>5%</td>
<td>100%</td>
<td></td>
<td></td>
<td>41,840 $</td>
<td>30,500 Center segment of parking lot J</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J3</td>
<td>8</td>
<td>x</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
<td></td>
<td></td>
<td>51,910 $</td>
<td>17,500 South segment of parking lot J</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K1</td>
<td>7</td>
<td>x</td>
<td>20%</td>
<td>5%</td>
<td>0%</td>
<td>100%</td>
<td></td>
<td></td>
<td>63,160 $</td>
<td>37,000 North segment of parking lot K</td>
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<tr>
<td>K2</td>
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<td>x</td>
<td>20%</td>
<td>5%</td>
<td>0%</td>
<td>100%</td>
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<td></td>
<td>51,260 $</td>
<td>31,500 Center segment of parking lot K</td>
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<tr>
<td>K3</td>
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<td>x</td>
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<td>25%</td>
<td>30%</td>
<td>100%</td>
<td>14,620 $</td>
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<td>26,610 $</td>
<td>93,000 Southeast segment of parking lot K</td>
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<tr>
<td>L</td>
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<td>x</td>
<td>0%</td>
<td>25%</td>
<td>30%</td>
<td>100%</td>
<td>14,620 $</td>
<td></td>
<td>26,610 $</td>
<td>93,000 Handicap/Reserved in parking lot L, S. of Popplewell Hall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>-</td>
<td>x</td>
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<td>25%</td>
<td>30%</td>
<td>100%</td>
<td>0%</td>
<td></td>
<td>100%</td>
<td>-</td>
<td>Mississippi Department of Conservation parking lot</td>
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<tr>
<td>N</td>
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<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
<td>57,350 $</td>
<td></td>
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<td>O1</td>
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<td>54,310 $</td>
<td></td>
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<td></td>
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<td>Q2</td>
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<td></td>
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## ROADWAYS

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<tr>
<th>Roadway</th>
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<th>Seal Coat Surface</th>
<th>Crack &amp; Patch Repairs</th>
<th>Mill &amp; Overlay</th>
<th>Crack Filling</th>
<th>Minor Patch</th>
<th>Full Depth Patch</th>
<th>% Parking Area Per Lot</th>
<th>Total Lot Area (Sq. Ft.)</th>
<th>Estimated Repair Cost</th>
<th>Comments</th>
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<tr>
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<td></td>
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<tr>
<td>RR Way</td>
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<td>100%</td>
<td></td>
<td></td>
<td>12,750 $</td>
<td>29,500 Downs Drive respectively to parking lot K1</td>
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<td></td>
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<td>x</td>
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<td></td>
<td></td>
<td>8,750 $</td>
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<td></td>
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<td>7,990 $</td>
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MWSU Pavement Analysis - Estimated Probable Construction Costs
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<th>Replacement</th>
<th>Crack Filling</th>
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<th>Full Depth Patch</th>
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<th>% Parking Area Per Lot</th>
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<td>DD B2</td>
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<td>x</td>
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<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12,600</td>
<td>$ 36,000</td>
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<td>40%</td>
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<td>20%</td>
<td>-</td>
<td></td>
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<td>50%</td>
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<td>25%</td>
<td>-</td>
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<td></td>
<td></td>
<td></td>
<td>14,260</td>
<td>$ 47,500</td>
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<td>x</td>
<td></td>
<td>40%</td>
<td>0%</td>
<td>20%</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18,000</td>
<td>$ 49,000</td>
<td>Downs Drive respectively to parking lot G</td>
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<td>DD H</td>
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<td></td>
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<td>20%</td>
<td>-</td>
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<td></td>
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<td>Downs Drive respectively to parking lot H</td>
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<td>25%</td>
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<td></td>
<td></td>
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<td></td>
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<td>25%</td>
<td>-</td>
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<td></td>
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<td>20%</td>
<td>0%</td>
<td>15%</td>
<td>-</td>
<td></td>
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<td></td>
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<td>97,250</td>
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<td>20%</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18,340</td>
<td>$ 49,500</td>
<td>James McCarthy Drive south, respectively to parking lot H</td>
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Total Estimate of Probable Construction Costs (2014 Dollars) $3,346,000

MWSU Pavement Analysis - Estimated Probable Construction Costs
Restoration Maintenance Program

A Pavement Management System utilizing each of the maintenance categories mentioned previously is highly recommended. The owner must create a comprehensive program whereby preventative maintenance for parking lots with scores of 4 or higher is combined with rehabilitation or reconstruction projects. Appendix B (Estimated Probable Construction Costs) provides recommendations as to the type of repairs, degree of crack filling or patching that are anticipated to restore the parking lot inventory to an acceptable level.

Working with 2014 dollars the estimated cost to restore the inventory is $3,346,000. When extending improvements over a 10-year period with an allowance of 3% for inflation each year, a budget of $395,400 per year would be required (See tables below).

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Lot Area (Square ft)</th>
<th>Cost (2014 Dollars)</th>
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<tr>
<td>No Improvement Required</td>
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<td>Mill &amp; Overlay</td>
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<tr>
<td>Full Depth Replacement</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>1,800,600</strong></td>
<td><strong>$3,346,000</strong></td>
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<td><strong>Year</strong></td>
<td><strong>Annual Cost</strong></td>
<td><strong>Annual Cost</strong></td>
<td><strong>Annual Cost</strong></td>
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<td>$345,000</td>
<td>$352,000</td>
</tr>
<tr>
<td>2</td>
<td>342,000</td>
<td>355,000</td>
<td>369,000</td>
</tr>
<tr>
<td>3</td>
<td>345,000</td>
<td>366,000</td>
<td>388,000</td>
</tr>
<tr>
<td>4</td>
<td>349,000</td>
<td>377,000</td>
<td>407,000</td>
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</table>

Field Visit Notes

**Parking Lot A** – Pavement rating of 5. This is the circle drive in front of the administration building. Pavement condition is fair. Significant alligator crack pattern in the majority of the parking area. All parking is bounded by combined curb and gutter in good condition primarily.

**Parking Lot B**

**Section 1** – Pavement rating of 8. Section 1 is asphalt pavement. The perimeter is bounded with concrete parking blocks. Pavement conditions are good. Asphalt is oxidized. Cracking is minor and of small dimension.

**Section 2** – Pavement rating of 9. Section 2 is reinforced concrete pavement. The perimeter is protected by concrete parking blocks. Pavement panels appear to be about 15 feet square. Pavement is laid out in a radial pattern rather than orthogonal. Pavement condition is very good.
Parking lot C – Pavement rating of 4.
This lot is asphalt pavement. The perimeter is bounded by concrete parking blocks. Pavement condition is fair to poor. Longitudinal cracks along the apparent asphalt lift lines. Several secondary cracks along these lines. Very limited patching is evident. No curb inlets or storm sewer on this lot.

This lot is an asphalt parking lot apparently of newer construction. The perimeter is bounded by combined curb and gutter with a standard curb section. Cracks are evident along almost all asphalt lift lines. Drainage is to the southwest corner with the concrete flume discharging to turf. Erosion is evident at the end of the concrete flume.

Parking Lot D – Pavement rating of 7.
This lot is an inner parking lot with standard combined curb and gutter along the perimeter. Pavement condition is fair. Some of the curb and gutter has been replaced.

Cronkite Memorial Drive – Pavement rating of east leg is 7 and west leg is 5.
The driveway in front of the Cronkite Memorial is asphalt pavement with combined curb and gutter. Condition is good. The lower levels have drainage problems at the west end where water collects on the pavement because it cannot discharge through the flume. The western most has a vertical concrete curb in very poor condition. The western entrance at the road has erosion issues.

Parking Lot E
Section 1 – Pavement rating of 7.
This pavement is asphalt with combined curb and gutter. Crack repair and minor patching is required. Some groundwater seepage is evident in this section. There is a small turf median island. Drainage is accomplished with curb inlets and storm sewer in section 2.
Section 2 – Pavement rating of 7.
This lot is similar to section 1. This area is currently blocked off to vehicle traffic.

Section 3 – Pavement rating of 6.
This is an asphalt pavement with combined curb and gutter on the perimeter. Water drainage is directed to curb inlets in the next section. Water seepage is evident throughout this section.

Parking Lot F
Section 1 – Pavement rating of 5.
Pavement condition is asphalt with combined curb and gutter. Pavement condition is of poor quality compared to adjacent lot.
Section 2 – Pavement rating of 7.
Condition is similar to Section 3. Asphalt pavement with concrete combined curb and gutter. Storm water directed to curb inlets. Some raveling is evident in the lowest portions of the parking lot.
Section 3 – Pavement rating of 8.
This is asphalt pavement with combined curb and gutter on the perimeter. Asphalt pavement is in good condition. No thermal cracks are evident. Some minor cracking is evident.

Parking Lot G
Section 1 – Pavement rating of 5.
Parking lot is asphalt pavement with combined curb and gutter on the perimeter. All asphalt is heavily oxidized. It has unraveling in some locations, cracking is less severe than most lots.
Section 2 – Pavement rating of 5.
This is asphalt pavement with combined curb and gutter around the perimeter. The surface is heavily oxidized and is beginning to lose aggregate in some locations. Combined curb and gutter is in fair condition. Some rutting from static wheel loads is evident. Water is directed from both section 1 and section 2 to the northwest corner of the lot to a flume that discharges onto the surface.

Parking Lot H
Section 1 – Pavement rating of 8.
This is the residential parking in the northern end. Pavement is asphalt, condition is fair to good. No significant cracking is evident. Perimeter is
combined curb and gutter in poor condition. Drainage is directed to the downstream flume then to the stream. Water is discharged to a flume which is collected to a pipe down the stream bank to the bottom of the channel. Some crack repair might be required.

Section 2 – Pavement rating of 6.
This is asphalt pavement with combined curb and gutter on both sides. This pavement has significantly more deterioration than in the previous section. Drainage is directed to a flume at the northwest corner of this section. Pavement is unraveling along some joints. Evidence of groundwater can be seen.

Section 3 – Pavement rating of 4.
This section has even more deterioration than the previous section. The surface course is unraveling in many locations. There is evidence of groundwater seepage. Drainage is directed to a flume at the northwest corner of the section. Section 3 of parking lot H has concrete parking blocks on the upstream side and combined curb and gutter on the downstream side.

Section 4 – Pavement rating of 9.
This was reconstructed in summer 2014. It is an asphalt pavement with combined curb and gutter on the downstream edge and concrete parking blocks on the upstream side. For section 4, the pavement directs the drainage to curb inlets at the northwest and northeast corners of the area and is then carried in pipes down to the creek. The drive approach separating the sections is concrete valley gutters carrying water from Downs Dr. to the inlets.

Section 5 – Pavement rating of 4.
This is asphalt pavement with concrete parking blocks on the perimeter except the downstream edge, which is combined curb and gutter. Drainage is directed to the curb inlet in the southeast corner of the section. Approximately 15% of this parking lot was patched with the reconstruction of section 4. There is evidence of water seepage from groundwater on this segment.

Parking Lot I – Pavement rating of 8.
Parking lot I is an asphalt pavement with combined curb and gutter around the perimeter. Area inlets are located internal to the parking stalls. Large curb inlet in south corner of the lot. Pavement condition is good. Parking lot is possibly five years old.

Parking Lot N – Pavement rating of 7.
This parking lot is asphalt construction with a concrete role type curb around the perimeter. Pavement condition is fair to good. Cracking is beginning to occur with a relatively random pattern, none of these cracks is large in size.

Parking Lot J
Section 1 – Pavement rating of 8.
This is the northern portion. It is an asphalt parking lot with combined curb and gutter around the perimeter. Drainage is directed to a curb inlet at the northwest corner of the segment. Pavement condition is pretty good.

Section 2 – Pavement rating of 8.
Parking lot J, section 2 is asphalt pavement with combined curb and gutter on the perimeter. It also is in fairly good condition. There is evidence of groundwater seepage in a portion of this segment along the west curb line.

Section 3 – Pavement rating of 8.
Asphalt pavement with combined curb and gutter. Evidence of asphalt overlay as shown by asphalt being placed over the gutter pan on the west edge. The inside edge has parking blocks in lieu of curb. Parking blocks outline the outside edge on the southernmost portion of the parking lot. Pavement condition is good. Minimal crack repair required.

Parking Lot K
Section 1 – Pavement rating of 7.
This is asphalt pavement with concrete parking blocks on both edges. Thermal cracking is evident in large segments. No alligator cracking is evident. Slurry seal has been applied at least once on this parking lot.

Section 2 – Pavement rating of 7.
Parking lot K, section 2 is similar to section 1 of the same lot.
Section 3 – Pavement rating of 9.
Parking lot K, section 3 is asphalt pavement with concrete parking blocks. Pavement condition is good. There is no drainage collection system on the lot. Erosion is evident at the downstream edge of the lot. There also is ponded water in the island area between section 2 and section 3.

This is asphalt pavement with concrete combined curb and gutter. This lot is almost exclusively handicap parking. Sidewalk and curb and gutter, particularly the handicap ramps, are in poor condition. Pavement condition is poor to fair. There is one area inlet near the southeast corner of the lot. Curb and gutter in wheelchair ramps need to be replaced.

Parking Lot Q
Section 1 – Pavement rating of 9.
This lot is asphalt. The edges are either turned down sidewalk or combined curb and gutter. Pavement condition is very good. Drainage is collected in curb inlets and storm sewer.
Section 2 – Pavement rating of 6.
This is asphalt with sidewalk or combined curb and gutter. Storm water is collected in a series of curb inlets and storm sewers. The parking lot is approximately three years old, and serves the newest residence hall. There is evidence of groundwater seepage and sub-grade failure in the lot.
Section 3 – Pavement rating of 7.
Section 3 of parking lot Q is asphalt with combined curb and gutter along the perimeter. Storm water is collected into the curb inlets and storm sewers. There is evidence of groundwater seepage mainly the westerly portion of this section. Section 3’s condition is better than the previous section.

Parking Lot O
Section 1 – Pavement rating of 7.
This is the south portion of the lot, south of the driveway. This portion of the lot consists of asphalt pavement with combined curb and gutter along the perimeter. The water is collected in curb inlets along the south side. Thermal cracks have developed and are fairly wide. Otherwise pavement condition is good.

Section 2 – Pavement rating of 7.
Section 2 of parking lot O is asphalt with combined curb and gutter on the perimeter. Water drainage is directed to flumes discharging onto earth. Corrosion problems continue to occur at each location. Pavement shows evident thermal cracks in large pattern.

University Drive – Pavement rating of 6.
University Dr. is the eastern most access road. The pavement is concrete with monolithic roll type curb. At least one third of the payment has recently been reconstructed. Panels appear to be 12’ x 20’. Mid panel transfers cracks are evident.

This roadway is a divided entrance roadway. The pavement is concrete pavement with standard monolithic roll type curb. Pavement condition is poor to fair. Significant mid panel cracks have occurred. Concrete has not deteriorated significantly. Approximately a third of the pavement has been removed and replaced.

SW University Drive – Pavement rating of 5.
SW University Dr. is concrete pavement with monolithic roll curb section. There is a longitudinal crack parallel to the pavement edge approximately 3 to 4 feet from the back of curb in both lanes. Significant cracking has occurred in the pavement throughout its length.

Downs Drive
Section K-1 – Pavement rating of 8.
Downs Drive is concrete pavement, two lanes with monolithic roll type curb unless otherwise noted later. This segment has approximately 40% of the panels with a longitudinal crack in one lane or the other. 60 to 70% of the panels are intact, faulting is minimal.
Section K-2 – Pavement rating of 7.
Pavement construction is same as previous section. 80% of the panels in the westbound lane exhibit a longitudinal crack 3 to 4 feet from the back of curb. Eastbound panels are primarily totally intact, faulting is noticeable but not major.
Section K-3 – Pavement rating of 7.
Groundwater seepage from the K-2 – K-3 drive is evident. Approximately 80% of the panels in both lanes have a longitudinal crack parallel to the back of curb 3 to 5 feet away from back of curb. Faulting is minor.

Section B-1 – Pavement rating of 7.
Pavement construction is the same, select panels in this segment have been removed and replaced. Remaining panels exhibit cracking, usually longitudinally.

Section B-2 – Pavement rating of 7.
This segment is the same construction, the westbound lane exhibits a longitudinal crack almost the entire length. The eastbound lane has a longitudinal crack approximately 50% of the way.

Section C – Pavement rating of 7.
Pavement construction is the same, longitudinal crack previously mentioned is evident in both lanes approximately 50% of the length.

Section E – Pavement rating of 6.
This segment is of the same construction. Select panels have been replaced. The longitudinal crack is evident two thirds of this segment.

Section G – Pavement rating of 7.
Pavement construction is of same type. Longitudinal crack is evident in both lanes in approximately 80% of the panels.

Section H – Pavement rating of 7.
This segment is of similar construction. Longitudinal crack is evident in approximately one third of the panels.

Section I – Pavement rating of 6.
This segment is of the same construction. Select panels have been removed and replaced. Longitudinal crack is evident in over half of the remaining panels.

Section N – Pavement rating of 6.
Pavement is of same construction. Approximately one fourth of the panels have been removed and replaced. 50% of the remaining panels indicate the longitudinal crack.

Section J-1 – Pavement rating of 6.
Pavement is of same construction. Longitudinal crack is evident in approximately 50% of the panels.

Section J-2 – Pavement rating of 6.
Pavement is of same construction. Longitudinal crack is evident in approximately 50% of the panels.

Section J-3 – Pavement rating of 7.
Pavement is of same construction. Longitudinal crack evident in a third of the panels.

James McCarthy Drive
North Segment – Pavement rating of 8
5% or less of the panels require removal and replacement.

South Segment – Pavement rating of 7
The south segment, adjacent parking lot H, has several areas where longitudinal cracking is evident.
Photo Number: 5
Location: Sidewalk
Description: Erosion along sidewalk from large amounts of surface drainage flowing toward Downs Drive

Photo Number: 6
Location: Area Inlet
Description: Surface drainage under cutting sidewalk at area inlet.

Photo Number: 7
Location: Parking Lot G
Description: Erosion at end of concrete flume

Photo Number: 8
Location: Downs Drive
Description: Longitudinal crack
Photo Number: 9
Location: Parking Lot O
Description: Major erosion around concrete at discharge location.

Photo Number: 10
Location: Parking Lot O
Description: Major erosion around concrete at discharge location.

Photo Number: 11
Location: Parking Lot O
Description: Major erosion around concrete discharge location.

Photo Number: 12
Location: Parking Lot O
Description: Major erosion around concrete discharge location.

Photos Referenced on Map
Photo Number: 13  
Location: Parking Lot O  
Description: Major erosion around concrete discharge location

Photo Number: 2  
Location: Downs Drive  
Description: Longitudinal crack in both lanes

Photo Number: 3  
Location: Parking Lot H  
Description: Water seeping through asphalt

Photo Number: 4  
Location: Parking Lot H  
Description: Water seeping through asphalt

Photos Referenced on Map
TURF ANALYSIS

Introduction

The Missouri Western campus is a picturesque landscape of deciduous and coniferous trees and fescue turf, similar to what many consider the vernacular for the state of Missouri. It’s home like, therefore comforting and welcoming. The topography is rolling, trees provide shade, and the turf is mown short on a weekly basis. These may not, however, be the most sustainable and cost-effective practices. How could the campus and environment benefit from re-evaluating current mowing practices?

Existing Turf Management

Maintenance Practices

The following practices, as provided by Missouri Western employees, are taking place campuswide and are intended to paint a picture of the level of effort and funding required to maintain the current aesthetic. From year to year, as administrations and state appropriations vary, these practices may vary, often resulting in a lack of continuity.

The university employs six full-time workers that mow once per week from April to October, or +/-28 mowings. There are also two part-time employees who work 40-hour weeks from June 1 to mid-August (the beginning of the fall semester). A typical week includes 3 1/2 days of mowing, 1/2 day of machine maintenance, and 1 day for maintaining planting beds and taking care of odd jobs. Mowing equipment consists of (2) tri-deck mowers (12’ and 17’), (2) 6’ John Deere mowers, and (1) track mower, which are rebuilt each winter.

Mowing height and frequency: The total campus area is 723 acres of which 62 1/2 acres are within the loop road. A total of 240 acres of existing turf areas (33% of the campus) are mown to a height of 3 1/2 inches every week for roughly 7 months. Additionally, mowing patterns are varied from week to week, which reduces compaction.

Type(s) of turf seed used: Missouri Western 80/20 blend, developed by a local distributor, consists of three varieties of fescue and one rye. The fescue seed consists of two tall turf-types and one creeping red.

Weed eating: Trimming is performed at all facilities, art displays, trees, light poles, etc.

Aerating: Is done as needed with a tow-behind aerator using 3/4-inch spikes driven 10-inches deep.

Fertilizing/feeding: Are only applied to specific areas as needed, not the entire campus, using a 50-10-10 (N-P-K) fertilizer.

Herbicides/weed management: Herbicides are applied as needed around light poles and other features using a liquid herbicide (60%
glyphosate). Spraying for +/-75 acres of dandelions is hired out every other year for roughly $5,000.

**Insecticides:** Not applied. Bag worms have not been an issue.

**Pesticides:** Not applied.

**Irrigating:** Three irrigation systems are utilized on campus. They are located at Ronald S Reed Junior Way, the Spring Sports Complex, and the Kansas City Chiefs practice fields. The university relies primarily on rainwater for watering the remainder of the landscape.

**De-icing:** Although not a turf maintenance practice, snow and ice removal does have an impact on turf health at the edges of walkways, roads and parking lots. In the past, sand, rock salt and chat have all been used to de-ice the campus, but rock salt is currently the preferred method. Equipment can be better dialed in for applications resulting in higher efficiency. Roughly 7 miles of sidewalks are treated at each snow/ice event each winter. In a typical snow and/or ice situation, areas are treated and plowed or shoveled onto turf areas, which in turn reduces the availability of water to plants in the soil and kills the turf.

**Annual Turf-related Expenditures**
Not only is there a significant amount of effort associated with the tasks mentioned above but there are also significant annual costs. Ranging from gas to deicing materials, the following expenditures convey the need to investigate alternatives to extensive mowing of non-native turf.

**Fuel costs:** Cost per year = $14,200. Cost per acre = $2.11. Assume 28 weeks of mowing. **Weed eating costs:** Cost per year = $11,760. Cost per acre = $1.75. Assume 28 weeks of mowing.

**Equipment and equipment-maintenance costs:** New equipment is purchased from year to year as state appropriations allow, roughly $4-5,000/year. As stated above, equipment is rebuilt yearly during the winter months. Cost per year = $5,040. Cost per acre = $0.75. Assume 28 weeks of mowing.

**Water costs:** Water costs for the irrigation system at Ronald S Reed cannot be calculated as it is not metered separately. The Chiefs practice fields are metered separately and cost $11,000/year.

**Seed costs:** Unknown.

**Fertilizer and herbicide costs:** $1,200 per year.

**Aeration costs:** Unknown.

**Cleaning artificial turf costs (for informational purposes only):** $3,000/year.

**Labor:** Cost per year = $49,980. Cost per acre = $7.43. Assume 28 weeks of mowing. **De-icing costs:** Unknown. Varies from year to year.

**Recommendations**
Implementation of the master plan may include a number of approaches to reduce annual maintenance costs campuswide. One or all of the recommendations mentioned below may be executed as the new framework for turf maintenance, and each can be a positive sustainable approach.

One of the most obvious recommendations is to reduce the acreage of turf mowed, which can be accomplished by converting turf areas to prairie ecosystems which do not require frequent mowing, converting non-native turf areas to native turf that does not require frequent mowing (Figure 1), limiting mowing in some areas to parking lot and walkway edges (Figure 2), and converting turf areas to additional hay production (Figure 3).
Scenario 1: Convert 60 acres of turf to a prairie ecosystem
(Biology Department led effort with installation and management assistance from the Missouri Department of Conservation)
Assume $12 per acre for mowing/maintaining turf
60 acres x $12 x 28 annual mowings = $20,160.00 per year saved in mowing costs, not including prairie planting and establishment costs

There is a large turf grass area adjacent to the northwest side of the MDC facility that has steep slopes that could be converted to a native prairie mix. Given the proximity to the MDC facility, the department would likely have an interest in assisting with management and perhaps using the area as an outdoor classroom.

Scenario 2: Convert 25 acres of turf to leased hay
Assume $12.00 per acre for mowing/maintaining turf
25 acres x $12 x 28 annual mowings = $8,400.00 per year saved in mowing costs
25 acres x $100 per acre per year = $2,500 per year earned with hay
Total = $10,900 per year gained.
Currently hay production on campus consists of 12 leased areas totaling 220 acres per year, generating $100 per acre, or $22,000. Implementing this scenario of reducing turf and increasing hay can lead to increased revenue for Missouri Western.

Other recommendations for reducing the acreage of mown turf include not mowing drainage swales or slopes (Figure 4), increasing the riparian corridor buffer a minimum of 50 feet (Figure 5), and adding buffer strips (10-foot minimum) at the perimeter of all ponds (Figure 6). Not only will these recommendations reduce labor and material costs but they will also reduce surface water pollution and should help deter the resident goose population.

**Scenario 3: Reduce mowing by 10% campuswide**
Assume $12 per acre for mowing/maintaining turf
240 acres x 10% = 24 acres x $12 x 28 annual mowings = $8,064.00 per year gained Reduction of mowing in areas of steep slopes provides greater soil stability, less compaction, and improved safety for maintenance staff.

**Scenario 4: Provide a 50-foot riparian buffer (per 100 linear feet)**
Assume $12 per acre for mowing/maintaining turf
0.12 acres x $12 x 28 annual mowings = $40.32 per year per 100 linear feet gained or $1,323.00 per year total gained

A native grass area around streams, ponds, and woodlands would provide a buffer for these sensitive resources and could be used for research by students and faculty.
Continue mowing in varying patterns from week to week to reduce soil compaction and improve air, water, and fertilizer intake. Refer to aerating practices below.

Aerating at least once per year will reduce compaction and allow water, air and fertilizers to reach grass roots, thus improving turf health and reducing maintenance in the form of overseeding, watering, fertilizing, and weed management (Figure 7).

In addition to mowing practices, other seed varieties and species have been developed and can be incorporated that require less water and are more durable and disease resistant.

Mowing less frequently will improve turf performance and reduce fuel and labor costs.

Increasing the mowing height will help to control weeds, insulate against drought, and reduce mowing frequency.

Using organic fertilizers and other natural products is a more natural and environmentally friendly approach to lawn care and will improve soil health and water quality by preventing harmful products from entering ponds and the riparian corridor. This approach can reduce the labor and materials required to produce a healthy lawn.

The soil should be tested every few years campuswide to assess and better understand the condition of the soil and determine fertilizing needs and correction of soil pH.

Maintenance costs for the items mentioned above, such as fuel and oil consumption and mechanical labor should be considered for all equipment purchases. If purchasing a new mower, for example, chose one that is more fuel efficient, burns less oil, has a wider deck, and is less maintenance intensive.

A consideration for de-icing may be the use of calcium chloride as a replacement for sand, rock salt or chat. Calcium chloride alone can reduce salt damage to the turf (Figure 8). Calcium chloride can also be mixed with rock salt to improve its' effectiveness, although this will not reduce turf damage.

References

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LANDSCAPE ANALYSIS

Introduction

In order to manage a landscape analysis of this size, the team divided the campus into a number of typologies, or zones. Each zone, including everything from hay fields at the perimeter to the green spine at the core, was then studied to determine the user’s experience and the condition of existing materials.

Overall, the team discovered an unclear sense of arrival, formally landscaped roads and lawn, hot parking lots, a picturesque landscape of large trees and lawn, a campus core (green spine) consisting of open lawn areas and a number of tree-lined walks, a well preserved natural landscape within the riparian corridor, and an opportunity to unify plant and landscape materials.

Edges

Perimeter of campus at roadways and internal loop road looking in. Mostly unplanted south edge of campus along Mitchell Avenue. Minimal but attractive plantings of trees, shrubs and native grasses along paved trail at Faraon Street. Trees include European Linden, crabapple and redbud. Views toward halls and clock tower from internal loop road consisting of both deciduous and evergreen trees such as European Linden, Sugar Maple, Sweet Gum, Spruce and White Pine.
Roads Entry / Exit Drives

Vehicular access and exit points. Formal planting of European Lindens and annuals along Ronald S. Reed Jr. Way provides a colorful and attractive experience, but perhaps maintenance intensive. Opportunity to reinforce shrub plantings at flag area. Meandering exit road to Mitchell further west is lined with European Lindens and is very attractive.

Road - Internal Loop Road

Internal vehicular loop (Downs Drive) surrounding the green spine and academic zone. Attractive street trees consisting of Sweet Gum, Sugar Maple, Green Ash, European Linden, Northern Red Oak, and Littleleaf Linden planted to the outside of the road on the south and west. No street tree plantings on the inside of the loop. This keeps views open to Halls and the green spine. Opportunity to reduce maintenance with accent plantings at the intersection of Reed Way and Downs Drive.

Parking

Campus parking located mostly outside of internal loop road. Opportunity to introduce shade trees to unplanted areas. Some areas include deciduous shade trees such as Pin Oak, ash, Sugar Maple and pecan. Users prefer to park under or near shade trees where available, even if a walk to their destination is greater. Areas planted with shade trees are also much more attractive and reduce the heat island effect.
**Building - Entries**

Entry and exit points to academic halls. Treatment ranges from no landscaping to minimal landscaping with potted plants to intensive landscaping using both deciduous and evergreen ornamental trees, shrubs, perennials and annuals.

**Building - Facades**

Building facades not including entry and exit points. Treatment ranges from turf only to plants widely spaced around building perimeters to an intensive use of deciduous and evergreen shrubs, perennials and annuals.

**Housing**

Student housing on eastern side of campus. Landscape ranges from turf only to heavily mulched areas with minimal planting to nicely planted entries. Plants consist of both deciduous and evergreen trees, shrubs and perennials. Tree species include Sugar Maple, crabapple, pine and spruce. Opportunity to soften the landscape, increase shade and accentuate building entries.

**Green Spine**

Heart of campus within loop road and academic halls. Landscape ranges from turf only to allées of deciduous shade trees including Sweet Gum, European Linden, Green Ash, Sugar Maple, White Pine, Spruce, crabapple, River Birch and mimosa. Glenn E. Marion Memorial Clock Tower is nicely accentuated within evergreen shrubs, perennials and annuals.
Missouri Department of Conservation

MDC property located off of James McCarthy Drive, north of student housing. Nicely planted sign, building entry and parking lot consisting of deciduous and evergreen trees, shrubs, and perennials. Species include European Linden, Northern Red Oak, Red Maple, Sugar Maple, and sycamore. A mass of native grasses and forbs also exists near the entry including bee balm and coneflower.

Support Areas

Maintenance complex and Extension office west of I-29. Mostly open landscape (turf only) except for deciduous and evergreen trees naturally spaced throughout. Accent plantings can be found adjacent to Physical Plant Office. Residence south of Extension office is attractively planted with deciduous and evergreen shade trees, shrubs, and perennials. Species include pine, spruce, European Linden, elm, Black Walnut and oak.

Undeveloped Areas

Areas throughout campus that have not been developed for use by the university. Landscapes include hay production to the north, east and west consisting of cool season grasses and invasive Johnson Grass. Heavily wooded areas exist north of the main campus including the Otoe Creek Nature Area. Woodland species include Black Walnut, cottonwood, mulberry, hickory, oak, elm, Black Willow, shrub or bush honeysuckle and a mixed understory. Opportunity to reduce mowing if desired.
Site Furnishings

Furnishings located throughout campus: benches, trash receptacles, bike racks, planters, etc. Good opportunity to unify site furnishings in style or color.

Other

Various landscape treatments located throughout campus. Opportunity to unify mulch treatments, reduce maintenance at sculptures, and refine planting beds.
Landscape Typologies

As it exists today, the campus consists of a number of zones, shown on page 193, that can be characterized by landscape type, among other factors. Landscape types may include formal, informal, cropland, wooded, shaded, unshaded, ornate, simple, complex, etc. Some zones may share the same landscape type while others have a type all their own. These types include everything from mown lawn and trees within the green spine to the hay fields at the campus fringe to the dense woods near Otoe Creek.

There are also several edges to the campus defined by landscaping. The visible edge is what can be seen from I-29. The identity edge is what can be seen in more detail from the main entry road, Mitchell Avenue. The third edge is the campus core edge, which is experienced from Downs Drive and looks into the academic core and green spine.

Land Uses

As shown in the diagram on page 194, a number of land uses utilize the existing campus property ranging from academics and housing to research areas and trails.

The master planning process will determine if these uses remain in their current location and if other uses need to be incorporated onto the campus.

Heat Islands

A positive experience at Missouri Western may not begin with parking but it is one factor that contributes to the overall impression of students, faculty, staff and visitors when on campus. A majority of existing parking lots are vast expanses of asphalt with little relief from shade trees and other landscaping. Not only does this generate high temperatures and hot cars but also the opportunity to improve the campus aesthetic. The master planning phase will investigate options to combat the heat island effect which will, in turn, improve both air quality and personal experiences (see diagram on page 195).

Annual Flower Beds

Currently there are 33 locations where annual flowers are planted and maintained throughout the growing season. An attractive feature, these beds are an important aspect of the overall look of the campus, but create additional drain on the limited maintenance resources (see diagram on page 196).
[Key]
- Identity Edge
- Visible Edge
- Campus Core Edge
- Green Spine
- Parking
- Buildings
- Housing
- MDC
- Support Areas
- Athletics
- Wooded Natural Area
- Pastoral / Savanna
- Hay Fields

Typologies
[Key]
- Academics
- Student Housing
- Athletics
- MDC
- Support Areas
- Hay Lease Areas
- Forensics
- Pond / Research / Academic
- Disc Golf
- Trails
- National Guard Armory

Land Uses
Annual Flower Beds
SIGNAGE AND WAYFINDING

Introduction

First and foremost, evaluating existing wayfinding and signage is wearing the hat of a first-time visitor. Signage can be the first opportunity to mark your arrival and make an impression. It can promote your identity and your brand.

From there the team studied the vehicular arrival sequence, pedestrian flow, and the location and condition of existing signage. Having collected this data, the team was then able to define the signage system, which included campus identity signs, vehicular wayfinding signs and facility identity signs, to name a few.

The result of this study, in summary, was that the existing sign system lacks unity, lacks regulation, seems cluttered, and would benefit from a clear progression of wayfinding signage.

Arrival Sequence

Whether a first time visitor or a faculty member who’s been on campus for years, the sense of arrival is critical to a positive experience. Confusion and disorientation is not a desirable image to convey. At Missouri Western the dominant identity edge is along Mitchell Avenue. Where there should ideally be one “main entry” node there are two. Traveling from the west Ronald S. Reed Jr. Way conveys the “main entry” image with the tree-lined boulevard, monument sign, and accent plantings. Traveling from the east, the new intersection and traffic light at University Drive also conveys “main entry.”

A secondary “back door” entry node exists at the north edge of campus along Faraon Street. This entry is more for those familiar with campus. Other nodes critical to the desired arrival sequence are along Woodbine Road.

Following arrival, one should be directed to primary destinations for new students and visitors such as admissions, the student union, and student housing. Parking for those destinations is also critical (see diagram on page 198).

Existing Signage

The graphic on page 199 represents the predominant signage used on campus for vehicular and pedestrian wayfinding. Campus identity signs are located at the outer edges of campus and draw vehicles in.

From there, vehicular wayfinding signs should provide direction to facilities and attractions. As can be seen in the graphic, this type of signage may not be sufficient. Once direction is provided, facility identity signs mark arrival at your destination. It’s time to find a parking spot! Application of this sign type is fairly complete. Now on foot, pedestrian wayfinding signs should direct people where to go, whether it be the residence halls, student union or admissions. The graphic shows a need for this type of signage.

All other signs are secondary and too numerous to show here. Feeder signs, located off campus, are sufficient on highways but require further study on local streets.
Arrival Sequence

[Key]
- Identity Edge
- Visitor Destinations
- Parking Destinations
- Entry Nodes
1. Traffic regulatory, informational banners and flags, and Chiefs signs are located throughout campus.
2. Feeder signs are located off campus.
Feeder

These signs are off campus and direct vehicular traffic from regional highways to the university. Currently located on I-29, US Route 36 and Riverside Road.

Except for custom billboard graphics these aluminum sign panels, with and without the MWSU logo, would require coordination with MoDOT.

Campus Identity

These are monument signs that identify the University from adjacent roadways. Located on Mitchell Avenue, Faraon Street, and Downs Drive.

A variety of styles, materials and colors. Newer brick signs match existing brick buildings but may not fit brand. Text on Mitchell Avenue sign is somewhat hard to read due to level of contrast. Text styles vary too.

Vehicular Wayfinding

These signs direct vehicles to various facilities and should be located throughout campus.

Signs vary in style, materials and colors. Some are very utilitarian. Text styles vary. MDC sign, although rustic, is the department’s brand on Missouri Western’s campus. Possibly too few of this family.
Traffic Regulatory

These signs provide regulations for vehicular traffic and are located throughout campus. Signs of this nature are “off-the-shelf” as standardized by the Manual on Uniform Traffic Control Devices (MUTCD) and can be placed into an overall signage package.

Regulatory / Informational - Parking

Located throughout campus, these signs provide regulations for vehicles other than those standardized by MUTCD.

Regulatory / Informational

These signs provide regulations and information for vehicles and pedestrians and are located throughout campus.

Signs vary in style, materials and colors. Very utilitarian with just rows of text. None of them seem to promote the character of campus.
**Facility Identity - Freestanding Signage**

These signs identify each facility or primary feature on campus and are typically located adjacent to the facility or feature for visibility by both vehicles and pedestrians.

Signs vary in style, materials and colors. Text styles vary. Some do not convey the “brand” of MWSU. Many of the newer brick signs are a clean and legible sign family.

**Facility Identity - Building Mounted**

These signs identify each facility or primary feature on campus and are attached to the facility or feature for visibility by both vehicles and pedestrians.

Signs vary in style, materials and colors. Text styles vary. Many of the letters located on the halls are a clean and legible sign family.
SUPPORTING UTILIZATION DATA

Library Ethnography

A review of the library usage included interviews and observations, in addition to review of provided data. Gate counts were reviewed from 2012, 2013, and 2014. A discussion with the library director confirmed that the peak times on a typical day are between 10 AM and 2 PM. Peak days during the year occur prior to finals and can increase the usage later into the evenings. A study of evening usage was conducted during 2013. It was noted that the library has a quantity of individual study rooms that is above the norm, and that the “back of house” office space is more than what is needed for the current operations. There is a significant quantity of bound journal volumes that can be reduced on the second level.

Utilization of the library space was observed and cataloged over the period of one day; on an hourly basis. Diagrams illustrating occupied seats by hour are included in the following pages. Summary observations reveal that the computer stations are heavily used, and individual users occupied several study spaces on the second floor most of the day. Traffic flow to the coffee bar during the morning hours was heavy. Usage was sparse at the larger study spaces and the individual study carrels (see diagrams pages 204-208).

Drop-in Computer Labs

This analysis mapped the usage of computer labs throughout the day, the fourth week of fall semester. In this particular case, a Wednesday was selected. Included were both dedicated computer labs and labs that were classrooms but also allowed for drop-in time on computers. The finding is that, for this day at least, the labs as a whole were very under utilized (see diagrams pages 209-210).
**Drop-in Computer Labs**

Wednesday 8:00AM - 5:00PM

*LABS WHILE OCCUPIED WITH CLASSES WERE NOT INCLUDED IN THE AVERAGES*

"[1]" REPRESENTS THE NUMBER OF HOURS AVAILABLE FOR DROP IN

NUMBERS SHOWN IN YELLOW ARE PEAK OCCUPANCY

NUMBERS SHOWN IN GRAY BARS ARE TOTAL NUMBER OF SEATS AVAILABLE

<table>
<thead>
<tr>
<th>Location</th>
<th>Number of Labs</th>
<th>Peak Occupancy</th>
<th>Total Seats</th>
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<td>LOONEY 225</td>
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* Drop-in Computer Labs
Wednesday 8:00AM - 5:00PM

209
Drop-in and Classroom Computer Labs
Average Occupancy - Wednesday 8:00AM - 5:00PM
Through collaboration with student government and the master planning team, a group of students mapped their daily route across campus to inform and clarify the impressions of university stakeholders as to how pedestrian and vehicular circulation occurs on campus.