2021 Sustainability & Climate Action Plan

Sustainable Infrastructure Hub

Buildings
Energy
Waste
Water
**Buildings**

**Hub: Infrastructure**

**Aspiration:** Minimize impacts from buildings so that educational assets can be maximized

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Where we are now

- **Benchmark 4:** LEED certify new buildings and major renovations on all campuses. Until 2019, target met: 13 new construction or renovation projects exceeding costs of $2 million were built to LEED Silver standards for 13 building projects.
- **Benchmark 12:** Evaluate LEED EBOM of existing facilities. Target met: Tupper evaluated for LEED EBOM in 2018 and ARC in 2019; Cutler partially evaluated in 2012.

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**Goal 1:** Reduce building impacts by using best practices in construction or divestment (including private partnership, demolition, or sell) (Metric: Percent of FY12 GSF of low/zero impact buildings)

<table>
<thead>
<tr>
<th>Year</th>
<th>Goal Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY17</td>
<td>10.4% of FY12 GSF (LEED certified)</td>
</tr>
<tr>
<td>FY26</td>
<td>40% of FY12 GSF to be low impact</td>
</tr>
</tbody>
</table>

- Reduce overall gross square footage (GSF) per student
- Create and implement Ohio University Low Impact Building Standards for construction, renovation and demolition projects
- Support curriculum related to low impact buildings

**Benefits of Goal #1 Strategies**

- Operating cost (for energy, water and waste) reduction
- Carbon emissions reduction
- Improved occupant comfort & productivity
- Educational and reputational benefits

**Costs of Goal #1 Strategies**

- Capital cost increase (including demolition costs)
- Maintenance cost increase possible

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**Goal 2:** Maintain & operate existing buildings to reduce impacts (Metrics: % hours of corrective maintenance (CM) and % hours of preventative maintenance (PM)); square footage of setbacks or reduced HVAC schedules

<table>
<thead>
<tr>
<th>Year</th>
<th>Goal Description</th>
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</thead>
<tbody>
<tr>
<td>FY17</td>
<td>83% CM; 17% PM</td>
</tr>
<tr>
<td>FY26</td>
<td>20% CM; 80% PM</td>
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</tbody>
</table>

- Expand and institutionalize an OHIO Sustainable Building Operations & Maintenance Program
- Reduce building resources usage through strategic planning & setback utilization
- Increase OHIO communication & education on reducing building impacts; consider building competitions

**Benefits of Goal #2 Strategies**

- Carbon emissions reduction
- Operating cost reduction
- Improved occupant comfort & productivity
- Possible maintenance cost reduction
- Educational & reputational benefits

**Costs of Goal #2 Strategies**

- Increase in staff training time

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**Notes and Definitions**

1°Low impact” will be defined in more detail in the proposed OHIO Low Impact Building Standards, and depends on building type and usage.

2°Corrective maintenance” & “preventative maintenance” are as currently defined by OHIO Facilities Management & Safety.

3°“Setbacks” are adjustments to temperature settings during times of low/no building usage.

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Carbon Emissions from OHIO buildings

Buildings produce 65% of our Athens campus emissions. The 76187 metric tons of CO2 equivalent emitted by our buildings each year is equal to 189,046,628 miles driven by an average passenger vehicle. (US EPA)
Energy

Hub: Infrastructure

Aspiration: Minimize utilization of energy while maximizing renewable energy sourcing and resiliency

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Where we are now

- **Benchmark 1:** Reduce institutional greenhouse gas emissions. Target of 25% below baseline exceeded. Between Fiscal Year 2012 (FY12) and FY18, net emissions decreased by 30%.
- **Benchmark 2:** Reduce campus and building energy intensity. Nearing target of 20% reduction from 2004 baseline at 15% reduction.
- **Benchmark 3:** Increase renewable energy. Nearing target of 20% renewables at 17.9%.

Moving forward

**Goal 1:** Reduce campus and building energy intensity (Metric: EUI for campus and for building types)

- FY17: 137 ave kbtu/sq ft
- FY26: 110 ave kbtu/sq ft

- Create and implement Ohio University Low Impact Building Standards for construction/renovation projects which align with our sustainability commitments
- Expand and institutionalize OHIO Sustainable Building Operations & Maintenance program
- Restart building energy competitions; educate OHIO campus and communities about energy efficiency

**Benefits of Goal #1 Strategies**

- Operating cost reductions – electrical and natural gas bills; peak load charges
- Carbon emission reductions
- Occupant comfort/productivity improvements
- Enhanced academic quality

**Costs of Goal #1 Strategies**

- Capital expenditure increase possible
- Maintenance cost increase possible

Notes and Definitions

1. “Low impact” will be defined in the proposed OHIO Low Impact Building Standards.
2. Transportation fossil fuel energy is from gasoline & diesel used to operate OHIO fleet vehicles, as well as fuels used in commuting by faculty, staff & students, as required by the SIMAP Reporting Platform.

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Moving forward

**Goal 2:** Decrease reliance on fossil fuel energy (Metric: Percent of energy from fossil fuels: electricity, heating, cooling, and transportation)

- FY17: 18% renewable energy
- FY26: 36% renewable energy

- Pursue innovative and sustainable renewable energy options for all or parts of campus energy
- Consider regional campuses for siting of large on-site renewables

**Benefits of Goal #2 Strategies**

- Operating cost reductions possible
- Carbon emission reductions
- Resiliency benefits

**Costs of Goal #2 Strategies**

- Capital expenditure increases
- Maintenance costs increases

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Caption: Alex Burke, MSES student, with PV array at Building 22. Photo credit: Voinovich School of Leadership and Public Affairs
Waste
Hub: Infrastructure

Aspiration: Responsibly manage all waste; become a Zero Waste institution

Where we are now

- Benchmark 5: Reduce solid waste. Target exceeded. 8.2% annual reduction surpassing the 5% reduction target.
- Benchmark 7: Increase recycling rates. Currently not meeting target.
- Benchmark 15: Improve identification and proper handling of hazardous waste. Target met. Approval, tracking and notification system in place.
- Benchmark 32: Increase food donations to local service organizations. Target met and in progress.
- Benchmark 34: Implement notification system for local service organizations regarding availability of surplus items. Target met and in progress (website).

Moving forward

Goal 1: Reduce municipal and Universal Solid Waste
(Metric: tons solid waste per weighted user)

<table>
<thead>
<tr>
<th>FY17</th>
<th>FY26</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.24 tons/weighted user</td>
<td>0.22 tons/weighted user</td>
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</tbody>
</table>

Potential Strategies
- Educational campaigns for zero waste dining/events: Learning Communities; university events; orientations
- Resource sharing/reuse incentives
- Regional nonprofit salvage/circular economy opportunities
- Print reduction campaigns
- Dining Hall food waste reduction competitions
- Self-serve vs staff-served food portions in dining halls
- Laboratory chemical reuse
- Waste reduction through sustainable procurement; including sustainability goals in new/renewing contracts

Abbreviated TBL CBA for Waste Category

<table>
<thead>
<tr>
<th>Benefits of Goal #1 strategies</th>
<th>Costs of Goal #1 strategies</th>
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</thead>
<tbody>
<tr>
<td>Operating cost reduction</td>
<td>Staff time</td>
</tr>
<tr>
<td>Emissions reduction</td>
<td>Job retraining</td>
</tr>
<tr>
<td>Reduced resource extraction</td>
<td></td>
</tr>
<tr>
<td>Circular economic benefits</td>
<td></td>
</tr>
</tbody>
</table>

Notes and Definitions
1"Weighted user" as defined by AASHE STARS
2"Universal" includes batteries, pesticides, mercury-containing equipment (thermostats, lamps)
3Construction & Demolition Debris (C&DD) tracking is currently only in place for LEED projects, though C&D materials are recycled whenever possible for all construction projects. By 2026, OHIO Low Impact Building standard will replace LEED for all buildings.
4"Hazardous" waste audits will be conducted on an annual basis to correct and calculate percentage targets.

Moving forward

Goal 2: Increase diversion from landfill to reuse, recycling and composting (Metric: Percent diversion from landfill)

<table>
<thead>
<tr>
<th>Subgoals and Targets</th>
<th>FY17</th>
<th>FY26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal</td>
<td>56.1%</td>
<td>60%</td>
</tr>
<tr>
<td>- Food (estimated)</td>
<td>70%</td>
<td>75%</td>
</tr>
<tr>
<td>- Landscape</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Universal (estimated)</td>
<td>90%</td>
<td>95%</td>
</tr>
<tr>
<td>C&amp;DD LEED certified</td>
<td>77.5%</td>
<td>80%</td>
</tr>
<tr>
<td>C&amp;DD non-LEED certified</td>
<td>N/A</td>
<td>25%</td>
</tr>
<tr>
<td>Hazardous^3</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Potential Strategies
- Continued co-location of recycling and trash across all campus operations
- Waste diversion videos for orientation programs
- Food recovery programs
- Composting pilot programs (student/faculty/staff)
- Pallet recycling
- Low-cost C&D recycling program; with salvage included in timeline for community partners
- Waste management plan requirement in contracts for construction and demolition projects
- Waste reduction emphasis at athletic events
- Hazardous waste spill tracking
- Bobcat Buy tracking and notification system for hazardous waste

Abbreviated TBL CBA for Waste Category

<table>
<thead>
<tr>
<th>Benefits of Goal #2 strategies</th>
<th>Costs of Goal #2 strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions reduction</td>
<td>Increased operational costs</td>
</tr>
<tr>
<td>Reduced resource extraction</td>
<td>Staff time</td>
</tr>
<tr>
<td>Enhanced community engagement</td>
<td></td>
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<tr>
<td>Circular economic benefits</td>
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Water
Hub: Infrastructure
Aspiration: Maintain high quality drinking water and reduce flooding potential

Where we are now

- Benchmark 13: Prohibit the installation of permanent irrigation systems that rely on potable water. **Target met: Prohibition exists**
- Benchmark 17: Institute storm water management plan. **Target met: Plan exists**

Moving forward

**Goal 1:** Work with communities to protect ground water quality and surface waters (Metric: storm drain discharge analysis in channelized reaches; wellhead emergency planning collaboration with City of Athens)

- FY17: No data available
- FY26: All dry weather discharges analyzed; 1 wellfield collaboration/year

- Collaborate with faculty and community members to monitor & eliminate dry weather storm drain discharges
- Collaborate with City of Athens on wellfield protection regulations and emergency planning

**Benefits of Goal #1**

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Costs of Goal #1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public health benefits</td>
<td>Employee time</td>
</tr>
<tr>
<td>Enrollment benefits</td>
<td>Maintenance costs</td>
</tr>
</tbody>
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**Goal 2:** Reduce impacts from storm water (Metric: gal storm water retained on campuses)

- FY17: 7 million gal
- FY26: 20 million gal

- Increase pervious groundcover, including native plantings
- Use rain barrels, cisterns, or ponds to capture & reuse water
- Use low impact development (LID) strategies\(^1\) in site designs
- Collaborate with community partners to reduce impacts from the channelized section of the Hocking River
- Continue OHIO’s Storm Water Management Program

**Benefits of Goal #2**

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Costs of Goal #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations cost reduction</td>
<td>Capital cost increase</td>
</tr>
<tr>
<td>Emissions reduction</td>
<td>Maintenance costs increase</td>
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<tr>
<td>Flooding risk mitigation</td>
<td></td>
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</tbody>
</table>

**Goal 3:** Reduce potable water usage and water used for irrigation (Metric: kilo-gallons per weighted user\(^2\) of potable water, kilo-gallons per acres of vegetated land\(^3\) of potable + non-potable water used for irrigation)

- FY17: 10.1 kgal/user potable; 170 kgal/acre total
- FY26: 9.6 kgal/user potable; 160 kgal/acre total

- Increase native and xeriscaped\(^4\) plantings
- Use rain barrels or cisterns to capture and reuse water
- Consider capturing boiler water to use in cooling towers
- Use low-flow fixtures in building renovations and construction where practical
- Create on-site recycling water system for at least one building on one campus

**Benefits of Goal #3**

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Costs of Goal #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations cost reduction</td>
<td>Capital cost increase</td>
</tr>
<tr>
<td>Emissions reduction</td>
<td></td>
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</table>

**Notes and Definitions**

\(^1\)Example low impact development strategies are outlined in the [ODNR Rainwater and Land Development standards](#).
\(^2\)Weighted users as defined by AASHE STARS.
\(^3\)Vegetated grounds as reported to AASHE STARS
\(^4\)Xeriscaping is the practice of designing landscapes to reduce or eliminate the need for irrigation.

Emissions from wastewater are the only water-based carbon emissions reported by OHIO. They are a very small percentage of our emissions.