AGENDA
GREEN PRACTICES COMMISSION MEETING
Thursday, October 11, 5:30 – 7:00 p.m.
Heman Park Community Center, 975 Pennsylvania Avenue

1. Roll Call
2. Opening Round
3. Approval of Minutes
   a. 08/09/18 Green Practices Commission Meeting Minutes
   b. 09/13/18 Green Practices Commission Meeting Minutes
4. Special Presentations
   a. Public Comments (Limited to 3 minutes for individual’s comments and 5 minutes for representatives of groups or organizations)
5. New Business
   a. Solid Waste Diversion Grant opportunity
6. Old Business
7. Commission Reports
   a. Council Liaison Update
   b. Quarterly Report – Water/Stormwater (Jonathan Stitleman)
8. Closing Round
9. Adjournment

www.ucitymo.org
Meeting Minutes – University City Green Practices Commission

August 9, 2018 DRAFT

Location: Heman Park Community Center

Attendees Present: Jonathan Stitleman (Chairperson), John Solodar, Mary Gorman, Barbara Brain, Tim Cusick (Council Liaison), Adam Brown (acting Staff Liaison)

Absent: Adam Staudt

1. Roll Call

2. Opening Round:
   a. Barbara is a new member of Forest ReLeaf
   b. Mary reported HopCat is composting; possibly invite them to discuss with the GPC.
   c. Jenny indicated the next Electronics Recycling Event is October 13th.

3. Approval of Minutes
   a. 06/14/18 Green Practices Commission Meeting Minutes approved as written.
   b. 07/12/18 Green Practices Commission Meeting Minutes approved with amendment.

4. Special Presentations
   a. Public Comments: Barbara Pickard discussed the collaborative talks between U City and Washington University and what is needed to move forward. Barbara also discussed a movie produced by Renew Missouri about renewable energy that would benefit the Green Practices Commission and University residents to see.

5. New Business
   a. The commission voted for John Solodar to become the new Chairperson.
   b. Jenny reported on a proposal to sign a Memorandum of Understanding to enter into a 6 month pilot program with Lime Bikes.

6. Old Business
   a. Jenny discussed the draft Sustainable Practices Guidelines with the commission. Tim Cusick suggested the guidelines be sent to the Stormwater Task Force.
7. Commission Reports
   a. Council Liaison Update: Tim Cusick reported that August 23rd there will be a TIF meeting at the high school.
   b. Quarterly Report – Waste/Resource Conservation: Jenny Wendt reported on the state of recycling and the critical need to keep contamination out of the single stream recycling.
   c. Quarterly Report – Community Gardens: Barbara Brain discussed the following things local governments can do to encourage community gardens:
      - Make sure zoning allows community gardens
      - Inventory open spaces and vacant land
      - Create a municipal community garden
      - Promote community gardens
      - Allow leasing of vacant land for nominal fee
      - Provide access to water
      - Form partnership with gateway greening
      - Use floodplain for gardens
8. Closing Round
9. Adjournment at 7:01pm
Meeting Minutes – University City Green Practices Commission

September 13, 2018 DRAFT

Location: Heman Park Community Center

Attendees Present: Jonathan Stitleman (Chairperson), John Solodar, Barbara Brain, Adam Staudt, Tim Cusick (Council Liaison), Janet Carter (acting Staff Liaison), Liz Essman (proposed Green Practices Commissioner)

Absent: Mary Gorman

1. Roll Call

2. Opening Round:
   a. New Member Liz Essman is attending the meeting and will be sworn in soon.
   b. Washington University/University City talks – City Manager has requested Washington University provide a letter of support for the talks.

3. Approval of Minutes
   a. 08/09/18 Green Practices Commission Meeting Minutes were not provided so were not reviewed.

4. Special Presentations
   a. Public Comments: None

5. New Business
   a. Renew Missouri – Green Tariff Program: The Commission voted unanimously for the City Manager/City Council to proceed with the non-binding letter for an expression of interest in the program.

   - Environmental Justice component – Idling occurs in commercial areas or along streets in areas of lower income housing; police cars, public transit, etc.
   - Idling uses more gas, reduces quality of spark plugs, increases exhaust system corrosion, etc.
   - Public Health impacts – Idling vehicles lead to increased pollution and increased respiratory problems, asthma, allergies.
• Need to educate residential, city, and commercial drivers.
• Installing signs in the Loop and around Washington University.
• Suggestion to add an article to ROARS with idling facts.
• Adam Staudt asked: Are there after-market product that can turn off the vehicle after a certain amount of time when at a stop? (This is a standard feature on some newer cars) Timothy will look into this.

7. Old Business
   a. Sustainable Practices Guidelines (Developmental Green Practices): Review document and grid, how can success be measured – Commission would like to discuss this with Jenny, possibly break down the discussion over several meetings. Tabled until next meeting.

8. Commission Reports
   a. Council Liaison Update: Tim Cusick – Asked if any proposal would have impact on any other commissions, possibly traffic and plan commissions.
   b. TIF approved resolution to proceed with Olive/170. In the next month something formally will be presented to Council.
   c. University City in Bloom will hold their Plein Air Art Event on September 23.
   d. University City Historic Society hold a event on September 20 in rotunda of City Hall and will attempt to light the beacon at City Hall.

9. Closing Round

10. Adjournment at 6:15 pm
Sustainable Development Guidelines
City of University City

Developed by the U City Green Team (Jenny Wendt, Senior Project Manager)

Overview: The Sustainable Development Guidelines are a working document in development by the University City Green Team, an interdepartmental work group committed to promoting sustainable practices in U City through all government functions. The Green Team is working in collaboration with regional partners (listed below).

Purpose: The purpose of these guidelines is to give developers a comprehensive list of sustainable practices that University City recommends, incentivizes, or requires for development. By providing a clear list of options and resources, the document will present the wide array of opportunities for environmentally-conscious building practices. This is part of our effort to reach the OneSTL sustainable targets set for the OneSTL Plan for Sustainable Development recently approved by Council.

The Guidelines are a working document, meant to be updated and improved going forward. The Green Team will continue to seek new ways to incentivize sustainable practices in ways that do not hinder development. University City has long been a leader of sustainable practices in the St. Louis region. Our regional partners have expressed their support and excitement that U City is leading the way with this forward-thinking set of guidelines. Staff will continue to work with our partners, City Council, and developers to strengthen this document and facilitate green development in our community.

Using the Document: The document is envisioned to eventually be part of the City’s website. Developers would be directed to the site in the early stages of their planning process for guidance. The grid is a “menu” of options for making any development more environmentally-friendly. These are demarcated as required, incentivized, or recommended, and the supporting document gives the developer resources to further explore the feasibility of these options. Ultimately, the guidelines will provide a clear, user-friendly way for developers to incorporate more sustainable elements into their work.

Regional Partners:
- Jean Ponzi, Green Resource Manager, Botanical Garden Earthways Center
- Emily Andrews, Executive Director, US Green Building Council Missouri Gateway Chapter
- Aaron Young, Sustainability Planning Manager, East/West Gateway OneSTL
- Lois Sechrist, Environmental Stewardship Analyst, Ascension Health Care System
- Elizabeth Farr, Associate Project Manager, Economic Development Bi-State Development
- Joe Martinich, Professor Emeritus of Supply Chain Management and Analytics, University of Missouri – St. Louis, And Energy & Environment Committee Chairperson, City of Creve Coeur, MO
- The University City Green Practices Commission
### Compliance Options for New Developments and Major Renovations*

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*May also apply toward repairs and smaller renovation per code

**Federal tax credit for contractors who sell or lease a home that has met the 50% energy efficient standard
### Compliance Options for New Developments and Major Renovations*

#### Water and Green Infrastructure

1.1 Erosion Control During Construction
1.2 Post-Construction Stormwater Solutions
   - 1.2.1 Permeable Pavement
   - 1.2.2 Runoff Landscaping for Parking Lots
   - 1.2.3 Vegetated Roof
1.3 Water Conservation
   - 1.3.1 Rain Barrels, Rainwater Tanks, and Cisterns
   - 1.3.2 Rain Gardens
   - 1.3.3 Indoor Water Efficiency

#### Energy and Emissions

2.1 Renewable Energy
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   - 2.1.2 Wind Power
   - 2.1.3 Geothermal Power
2.2 Energy Efficiency
   - 2.2.1 Efficient Building Envelope
   - 2.2.2 Energy Efficient Lighting Strategies
2.3 Energy Efficiency
   - 2.3.1 Energy Efficient HVAC
   - 2.3.2 Cool Roofs

#### Monitoring/Commissioning

2.4 Monitoring/Commissioning

#### Electric Vehicle Solutions

2.5 Electric Vehicle Solutions

#### Integrative Transit (Ped, Bike, Bus, Light Rail)

3.1 Integrated Transit (Ped, Bike, Bus, Light Rail)

#### Bicycle and Pedestrian Access and Amenities

3.2 Bicycle and Pedestrian Access and Amenities
   - 3.2.1 Bike Storage and Changing Facilities

#### Site Layout

3.3 Site Layout

#### Construction/Demolition Waste Diversion

4.1 Construction/Demolition Waste Diversion

#### Environmentally Preferable Building Materials

4.2 Environmentally Preferable Building Materials

#### Sustainable Maintenance Practices

4.3 Sustainable Maintenance Practices
   - 4.3.1 Waste Disposal and Recycling
   - 4.3.2 Low-Emitting Materials
   - 4.3.3 Green Cleaning/Janitorial Supplies

#### Tenant and Employee Education

6.1 Tenant and Employee Education

#### Indoor Air Quality

6.2 Indoor Air Quality

#### Dark-Sky Friendly Lighting

6.3 Dark-Sky Friendly Lighting

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**Required Practices**

- 1 Acre and Over
- *May also apply toward repairs and minor renovation per code*
- Under 1 Acre
- *Tax Credits/Abatement
- *Public Recognition/PR
- *Utility Incentives

**Incentivized Practices**

- *Tax Credits/Abatement
- *Public Recognition/PR
- *Utility Incentives

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*May also apply toward repairs and minor renovation per code*

**Only available to systems that become operational on or after Jan. 1st, 2019**

***Federal tax credit for contractors who sell or lease a home that has met the 50% energy efficient standard***

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*For 2012 IECC
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   - 1.2 Post Construction Stormwater Solutions
     - 1.2.1 Permeable Pavement
     - 1.2.2 Runoff Landscaping for Parking Lots
     - 1.2.3 Vegetated Roofs
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2. **ENERGY AND EMISSIONS**
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   - 2.2 Energy Efficiency (per 2012 IECC)
     - 2.2.1 Efficient Building Envelope
     - 2.2.2 Energy-Efficient Lighting Strategies
   - 2.3 Energy Efficiency (exceeding 2012 IECC)
     - 2.3.1 Energy-Efficient HVAC
     - 2.3.2 Cool Roofs
   - 2.4 Monitoring/Commissioning
   - 2.5 Electric Car Solutions

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      4.3.2 Low-Emitting Materials
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5. BIO-DIVERSITY
   5.1 Preservation of Native Species
   5.2 Introduction of Native Species
      5.2.1 Pollinator-friendly Plants
   5.3 Wildlife-friendly Building Design

6. OTHER
   6.1 Tenant and Employee Education
   6.2 Indoor Air Quality
   6.3 Dark-Sky Friendly Lighting
1. WATER AND GREEN INFRASTRUCTURE

1.1 Erosion Control during Construction

Effective erosion controls handle surface runoff and are important techniques in preventing water pollution, soil loss, wildlife habitat loss and human property loss. University City requires a plan to minimize sediment movement for all projects disturbing land.

Requirements:

- This is a required practice. Any land disturbance activity involving one (1) acre or more of land, or a site involving less than one (1) acre that is part of a proposed development that will ultimately disturb one (1) acre or more require Major Land Disturbance Permits through St. Louis County and the Department of Natural Resources.
- Site grading and erosion control is also required for land disturbance less than 1 acre. See Section 405.140, 405.280, 405.490, 405.510 of the municipal code for details.

Incentives:

- Not Available

Resources:

| Metropolitan St. Louis Sewer District (MSD) Site Design Guidance | https://www.stlmsd.com/sites/default/files/engineering/474685.PDF |

1.2 Post-Construction Stormwater Solutions

Post-construction stormwater management in areas undergoing new development or redevelopment is necessary because runoff from these areas has been shown to significantly affect receiving water bodies. Prior planning and design for the minimization of pollutants in post-construction stormwater discharges is the most cost-effective approach to stormwater quality management. Following construction of a new development or re-development, post construction stormwater solutions attempt to reduce pollutants in post-construction runoff.
Requirements:

- This is a required practice for land disturbance projects encompassing more than one acre. Post-Construction Stormwater Solutions shall apply to site design for any project which includes alteration of site drainage or floodplain areas, connection to storm sewer systems or open storm water channels, and all land disturbance projects encompassing one (1) acre or more of land, or a site involving less than one (1) acre that is part of a proposed development that will ultimately disturb one (1) acre or more.
- While specific stormwater solutions are not required for projects less than one (1) acre, every development shall be designed to control stormwater runoff. See section 405.490 – Utilities, Sanitary and Storm Sewers – of the municipal code for more details.

Incentives:

- In Planned Development Districts: Site coverage bonus: The Plan Commission may recommend and the City Council may approve an increase in maximum site coverage from seventy percent (70%) up to ninety percent (90%). In order to qualify for this bonus, the development plan must demonstrate compliance with four (4) or more of the performance criteria. Please see Section 400.780 – Density and Dimensional Regulations and Performance Standards – of the municipal code for more details.
- The Metropolitan Sewer District (MSD) offers a Non-Sewered Water Credit for businesses that divert some of the water they use away from the sewer system. This credit reduces the amount of wastewater services businesses are charged. Please visit MSD’s website or click [here](https://www.stlmsd.com/sites/default/files/engineering/Non-Sewered%20Water%20Credit%20June%202017%20Brochure.pdf) for more information on this credit.

Resources:

| Metropolitan St. Louis Sewer District (MSD) Site Design Guidance | https://www.stlmsd.com/sites/default/files/engineering/474685.PDF |
| Metropolitan St. Louis Sewer District (MSD) Non-Sewered Water Credit | https://www.stlmsd.com/sites/default/files/engineering/Non-Sewered%20Water%20Credit%20June%202017%20Brochure.pdf |
| University City Municipal Code section 400.490 | https://www.ecode360.com/28295514 |
| University City Municipal Code section 400.780 | https://www.ecode360.com/28293321 |
Below are also specific strategies to incorporate storm drainage/retention facilities for the site:

### 1.2.1 Permeable Pavement

Permeable pavements are alternative paving surfaces that allow stormwater runoff to filter through voids in the pavement surface into the underlying soil.

**Requirements:**
- Not specifically required; but may be used to satisfy post construction stormwater requirements. See section 1.2.

**Incentives:**
- See section 1.2 (Planned Development Districts)

**Resources:**

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<td>University City Municipal Code section 400.780</td>
<td><a href="https://www.ecode360.com/28293321">https://www.ecode360.com/28293321</a></td>
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### 1.2.2 Runoff Landscaping for Parking Lots

The most important function of parking lot landscaping is to provide natural drainage, a water collection network, and stormwater filtration. Landscaping can also enhance the aesthetic quality of the space and help reduce temperatures in the summer by providing shade.

**Requirements:**
- Not specifically required; but may be used to satisfy post construction stormwater requirements. See section 1.2.

**Incentives:**
- See section 1.2 (Planned Development Districts)

**Resources:**

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1.2.3 Vegetated Roofs

Vegetated roofs are roofs that include a layer of plant species that are used to absorb stormwater and reduce the heat island effect in urban communities. Vegetated roofs require caution to alleviate any damage to the existing roof, and involve high-quality waterproofing, a root repellent system, a drainage system, filter cloth, a lightweight growing medium, and plants.

Requirements:

- Not specifically required; but may be used to satisfy post construction stormwater requirements. See section 1.2.

Incentives:

- See section 1.2 (Planned Development Districts)

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1.3 Water Conservation

Fresh, clean water is a limited resource. While most of the planet is covered in water, most is salt water that can only be consumed by humans and other species after undergoing desalination, which is an expensive process. Occurrences such as droughts further limit access to clean and fresh water, meaning people need to take steps to reduce water use and save as much water as possible. In some areas of the world, access to water is limited due to contamination. People who have access to fresh water can take steps to limit their use of water to avoid waste. University City has adopted the International Plumbing Code (IPC) of 2012; along with the ideas and regulations for gray water recycling systems in the IPC, below are a few recommended practices for rainwater recycling systems.
Requirements:

- Not Required.

Incentives:

- The Metropolitan Sewer District (MSD) offers a Non-Sewered Water Credit for businesses that divert some of the water they use away from the sewer system. This credit reduces the amount of wastewater services businesses are charged. Please visit MSD’s website or click here for more information on this credit.

<table>
<thead>
<tr>
<th>Whole Building Design Guide – Protect and Conserve Water</th>
<th><a href="https://www.wbdg.org/design-objectives/sustainable/protect-conserve-water">https://www.wbdg.org/design-objectives/sustainable/protect-conserve-water</a></th>
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1.3.1 Rain Barrels, Rainwater Tanks, and Cisterns

Rain barrels, rainwater tanks, and cisterns all capture and store rainwater for later use.

Required:

- Not specifically required; but may be used to satisfy post construction stormwater requirements. See section 1.2.

Incentives:

- Not available

Resources:

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1.3.2 Rain Gardens

Rain gardens are gardens of native shrubs, perennials, and flowers planted in a small depression designed to temporarily hold and soak in rainwater runoff.

Required:

- Not specifically required; but may be used to satisfy post construction stormwater requirements. See section 1.2.
Incentives:
- See section 1.2 (Planned Development Districts)

Resources:

<table>
<thead>
<tr>
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<tr>
<td>Rain Garden Alliance Calculator</td>
<td><a href="http://raingardenalliance.org/right/calculator">http://raingardenalliance.org/right/calculator</a></td>
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1.3.3 Indoor Water Efficiency

A great deal of potable water is used indoors, with Americans using about 70% of their water inside their homes, according to the US EPA. In fact, the American Water Works Research Foundation performed a 1999 study in which they found that Americans use 26.7% of indoor water in the toilet, 21.7% in the clothes washer, 16.8% in the shower, and 15.7% from faucets. Nearly 14% is attributed to leaks and 5.3% is from other sources. Water-efficient plumbing fixtures (ultra low-flow toilets and urinals, waterless urinals, low-flow and sensored sinks, low-flow showerheads, and water-efficient dishwashers and washing machines) are some ways to increase water conservation.

Required:
- Not Required

Incentives:
- Not Available

Resources:

<table>
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<tr>
<th>Resource</th>
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<tbody>
<tr>
<td>EPA WaterSense</td>
<td><a href="https://www.epa.gov/watersense">https://www.epa.gov/watersense</a></td>
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2. ENERGY AND EMISSIONS

2.1 Renewable Energy

Renewable energy is energy that is collected from renewable resources that are naturally replenished, such as sunlight, wind, and geothermal heat. The energy code as laid out in the International Energy Conservation Code (IECC) of 2012 is in effect for University City. Below are some examples, resources, and available incentives.

2.1.1 Solar Power

Solar power is the conversion of energy from sunlight into electricity, either directly using photovoltaics or indirectly using concentrated solar power.

Required:

- Not required.

Incentives:

- The Bipartisan Budget Act of 2018 extended the federal tax credit for renewable energy, and federal tax credits are available for solar power. Please see the Bipartisan Budget Act of 2018 for information on renewable tax credits.
- Ameren Missouri’s solar programs will be updated in the form of solar rebates and utility owned solar effective on and after January 1, 2019. Please see Senate Bill 564 for more information.
- Property Assessed Clean Energy (PACE) funding is available for energy efficiency and renewable energy projects to eligible property owners.

Resources:

<table>
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<tr>
<th>Resource</th>
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<tr>
<td>Ameren Energy Efficiency Programs</td>
<td><a href="https://www.ameren.com/missouri/energy-efficiency">https://www.ameren.com/missouri/energy-efficiency</a></td>
</tr>
<tr>
<td>Bipartisan Budget Act of 2018 Energy Investment Tax Credit Summary</td>
<td><a href="http://programs.dsireusa.org/system/program/detail/658">http://programs.dsireusa.org/system/program/detail/658</a></td>
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<tr>
<td>PACE Funding Opportunities for University City Properties</td>
<td><a href="http://www.mo-esp.com/">http://www.mo-esp.com/</a> <a href="https://www.mced.mo.gov/">https://www.mced.mo.gov/</a></td>
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<td><a href="http://www.showmepace.org/">http://www.showmepace.org/</a></td>
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</table>
2.1.2 Wind Power

Wind power is the ability to make electricity using the air flows that occur naturally in the Earth’s atmosphere.

Required:

- Not required.

Incentives:

- The Bipartisan Budget Act of 2018 extended the federal tax credit for renewable energy, and federal tax credits are available for wind power. Please see the Bipartisan Budget Act of 2018 for information on renewable tax credits.
- Property Assessed Clean Energy (PACE) funding is available for energy efficiency and renewable energy projects to eligible property owners.

Resources:

<table>
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<tr>
<th>Wind Power Cost and Efficiency Calculators</th>
<th><a href="http://www.energygroove.net/energy-cost/wind-turbine-calculator/">http://www.energygroove.net/energy-cost/wind-turbine-calculator/</a></th>
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<td><a href="http://www.energyefficientchoices.com/resources/wind-power-system-sizing-calcualtor.html">http://www.energyefficientchoices.com/resources/wind-power-system-sizing-calcualtor.html</a></td>
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<td><a href="http://www.showmepace.org/">http://www.showmepace.org/</a></td>
</tr>
<tr>
<td>Bipartisan Budget Act of 2018 Energy Investment Tax Credit Summary</td>
<td><a href="http://programs.dsireusa.org/system/program/detail/658">http://programs.dsireusa.org/system/program/detail/658</a></td>
</tr>
</tbody>
</table>

2.1.3 Geothermal Power/Heating and Cooling

Geothermal power is the ability to make electricity using heat from underneath the surface of the Earth. Heat pumps use the fact that a few feet below the surface, the ground is a constant temperature year round. Heat pumps allow the release of heat to the earth from a building in the summer and absorption of heat in the winter.

Required:

- Not required.

Incentives:

- Ameren Missouri program offers cash incentives for virtually any cost-effective energy efficiency project.
- The Bipartisan Budget Act of 2018 extended the federal tax credit for renewable energy, and federal tax credits are available for geothermal power. Please see the Bipartisan Budget Act of 2018 for information on renewable tax credits.
• Property Assessed Clean Energy (PACE) funding is available for energy efficiency and renewable energy projects to eligible property owners.

Resources:

<table>
<thead>
<tr>
<th>Clean Energy Emission Reduction(CLEER) Tool</th>
<th><a href="https://www.cleertool.org/">https://www.cleertool.org/</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ameren Energy Efficiency Programs</td>
<td><a href="https://www.ameren.com/missouri/energy-efficiency">https://www.ameren.com/missouri/energy-efficiency</a></td>
</tr>
<tr>
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</tr>
</tbody>
</table>

2.2 Energy Efficiency (per 2012 IECC)

University City has committed to complying with the International Energy Conservation Code (IECC) of 2012, which details multiple strategies for increasing energy efficiency for any building.

Required:

• This is a required practice. As University City has adopted the 2012 IECC, projects must be energy efficient per the 2012 IECC.

Incentives:

• Ameren Missouri program offers cash incentives for virtually any cost-effective energy efficiency project.
• Spire offers rebates for energy efficiency measures as well as Energy audits.
• Property Assessed Clean Energy (PACE) funding is available for energy efficiency and renewable energy projects to eligible property owners.
• The Energy Efficient Home Credit is a federal tax credit extended by the Bipartisan Budget Act of 2018, and is used to claim a credit for each qualified energy efficient home sold or leased to another person.
## Resources:

<table>
<thead>
<tr>
<th>Resource</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean Energy Emission Reduction(CLEER) Tool</td>
<td><a href="https://www.cleertool.org/">https://www.cleertool.org/</a></td>
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<tr>
<td>Ameren Energy Efficiency Programs</td>
<td><a href="https://www.ameren.com/missouri/energy-efficiency">https://www.ameren.com/missouri/energy-efficiency</a></td>
</tr>
<tr>
<td>Spire Rebates and Offers</td>
<td><a href="https://www.spireenergy.com/rebates-offers">https://www.spireenergy.com/rebates-offers</a></td>
</tr>
<tr>
<td>PACE Funding Opportunities for University City Properties</td>
<td><a href="http://www.mo-esp.com/">http://www.mo-esp.com/</a></td>
</tr>
<tr>
<td></td>
<td><a href="https://www.mced.mo.gov/">https://www.mced.mo.gov/</a></td>
</tr>
<tr>
<td></td>
<td><a href="http://www.showmepace.org/">http://www.showmepace.org/</a></td>
</tr>
</tbody>
</table>

### 2.2.1 Efficient Building Envelope

An efficient building thermal envelope (assuming all other thermal insulation/conductance issues are satisfied) is one that has the fewest gaps possible through which air can flow. To minimize the amount of gaps, builders may install insulation, sealed duct shafts, air sealing between a garage and conditioned spaces, and more. The 2012 IECC (Residential only) has a checklist called Table R402.4.1.1 ”Air Barrier and Insulation Installation” that provides information on this aspect of an efficient building thermal envelope.

**Required:**

- Building envelopes must be energy efficient per the 2012 IECC.

**Incentives**

- Ameren Missouri program offers cash incentives for virtually any cost-effective energy efficiency project.
- Spire offers rebates for energy audits.
- Property Assessed Clean Energy (PACE) funding is available for energy efficiency and renewable energy projects to eligible property owners.
2.2.2 Energy-Efficient Lighting Strategies

Efficient lighting is to use as little energy as possible in order to adequately light a space. Strategies such as replacing existing lighting bulbs to LED and using energy-efficient windows that allow for more natural light will increase the efficiency of lighting practices in a business or residency.

Required:

- Lighting must be energy efficient per the 2012 IECC.

Incentives:

- Ameren Missouri offers a wide range of incentives and rebates related to replacements of interior lighting.

Resources:

<table>
<thead>
<tr>
<th>Resources</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Metal Building Insulation Calculator</td>
<td><a href="https://www.remodelingexpense.com/costs/cost-metal-building-insulation/">https://www.remodelingexpense.com/costs/cost-metal-building-insulation/</a></td>
</tr>
<tr>
<td>Cost to Install Wall Insulation Calculator</td>
<td><a href="https://www.homewyse.com/services/cost_to_install_wall_insulation.html">https://www.homewyse.com/services/cost_to_install_wall_insulation.html</a></td>
</tr>
<tr>
<td>Ameren Energy Efficiency Programs</td>
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<tr>
<td>Spire Rebates and Offers</td>
<td><a href="https://www.spireenergy.com/rebates-offers">https://www.spireenergy.com/rebates-offers</a></td>
</tr>
</tbody>
</table>
| PACE Funding Opportunities for University City Properties | http://www.mo-esp.com/  
https://www.mced.mo.gov/  
http://www.showmepace.org/ |
| Electricity Usage of a CFL Light Bulb Calculator | http://energyusecalculator.com/electricity_cfllightbulb.html         |
| Ameren Energy Efficiency Programs              | https://www.ameren.com/missouri/energy-efficiency                     |
2.3 Energy Efficiency (exceeding 2012 IECC)

The minimum requirements by University City for new developments or major renovations is to follow the 2012 IECC, but by exceeding the requirements outlined by the 2012 IECC, projects can earn incentives that help reduce costs, streamline permitting applications, and more.

**NOTE:** There is a federal energy efficiency credit for household contractors!

The Energy Efficient Home Credit is a federal tax credit extended by the Bipartisan Budget Act of 2018, and is used to claim a credit for each qualified energy efficient home sold or leased to another person.

### 2.3.1 Energy-Efficient HVAC

HVAC units are one of the most energy-intensive systems in a building. Retrofitting existing HVAC systems to more efficient units could drastically improve energy efficiency in a conditioned space. Please see the International Mechanical Code of 2012 (adopted by University City) for regulations of HVAC systems.

**Required:**

- HVAC must be energy efficient per the 2012 IECC.

**Incentives:**

- The Energy Efficient Home Credit is a federal tax credit extended by the Bipartisan Budget Act of 2018, and is used to claim a credit for each qualified energy efficient home sold or leased to another person.
- Ameren offers multiple incentives for HVAC equipment, ranging from refrigeration, electric water heating, and steam cookers.
- Spire offers rebates ranging from saving $500 on HVAC system and components to saving $15,000 on boiler heating systems and components.

**Resources:**

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<tr>
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<tbody>
<tr>
<td>Ameren Energy Efficiency Programs</td>
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<td>Spire Rebates and Offers</td>
<td><a href="https://www.spireenergy.com/rebates-offers">https://www.spireenergy.com/rebates-offers</a></td>
</tr>
</tbody>
</table>

### 2.3.2 Cool Roofs

A cool roof is a roof that has been designed in such a way as to reflect more sunlight and absorb less heat than a standard roof. Cool roofs can be made of a highly reflective type
of material, a sheet covering, or highly reflective tiles and shingles. Cool roofs are instrumental in reducing the heat island effect in urban communities.

Required:

- Not required.

Incentives:

- Ameren offers custom rebates for any energy saving measures at the commercial level, and these incentives may include cool roofs.
- Spire offers rebates for measures taken that reduce the heating load.

Resources:

<table>
<thead>
<tr>
<th>Resource</th>
<th>URL</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><a href="https://rsc.ornl.gov/">https://rsc.ornl.gov/</a></td>
</tr>
<tr>
<td>Ameren Energy Efficiency Programs</td>
<td><a href="https://www.ameren.com/missouri/energy-efficiency">https://www.ameren.com/missouri/energy-efficiency</a></td>
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<tr>
<td>Spire Rebates and Offers</td>
<td><a href="https://www.spireenergy.com/rebates-offers">https://www.spireenergy.com/rebates-offers</a></td>
</tr>
</tbody>
</table>

2.4 Monitoring/Commissioning

University City recommends that all projects maintain a suitable monitoring/commissioning process to ensure the development is meeting the design, whether systems are installed and operating correctly, and whether the development meets the requirements laid out before construction.

Required:

- Not required.

Incentives:

- Spire offers rebates for savings up to $750 on energy audits.
- Ameren Missouri custom incentives may apply for commissioning or installing building controls.

Resources:

<table>
<thead>
<tr>
<th>Resource</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Commissioning Guide</td>
<td><a href="https://www.gsa.gov/real-estate/design-construction/commissioning/commissioning-program">https://www.gsa.gov/real-estate/design-construction/commissioning/commissioning-program</a></td>
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<td>Spire Rebates and Offers</td>
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</tr>
</tbody>
</table>
2.5 Electric Car Solutions

An electric vehicle charging station is an element in an infrastructure that supplies electric energy to recharge electric vehicles, and is similar to charging a handheld device. There are three different levels of car charging stations that vary in how long it takes to recharge an electric vehicle and some electric vehicles may not be able to recharge at all three. Electric vehicle charging stations could make a sponsoring business more attractive to electric vehicle users as electric vehicle sales continue to climb.

Required:

- Not required.

Incentives:

- Not Available.

Resources:

<table>
<thead>
<tr>
<th>Vehicle and Infrastructure Cash-Flow Evaluation Model</th>
<th><a href="https://www.afdc.energy.gov/vice_model/">https://www.afdc.energy.gov/vice_model/</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>St Louis Regional Clean Cities</td>
<td><a href="http://stlcleancities.org/index.php/about-us/">http://stlcleancities.org/index.php/about-us/</a></td>
</tr>
</tbody>
</table>
3. TRANSIT ORIENTED DEVELOPMENT (TOD)

3.1 Integrated Transit

Integrated transit aims to develop roads that promote public and pedestrian transportation by eliminating dependence on private vehicles for an area and instead make a pedestrian-oriented and public-use vehicle community.

Required:
- Not required.

Incentives:
- Businesses located within one thousand (1000) feet of a public transit station will have their off-street parking requirements reduced by fifteen percent (15%). See Section 400.2130 of the municipal code for more details.
- Businesses located within five hundred (500) feet of a public transit stop will have their off-street parking requirements reduced by ten percent (10%). See Section 400.2130 of the municipal code for more details.
- In Planned Development Districts: Site coverage bonus: The Plan Commission may recommend and the City Council may approve an increase in maximum site coverage from seventy percent (70%) up to ninety percent (90%). In order to qualify for this bonus, the development plan must demonstrate compliance with four (4) or more of the performance criteria. Please see Section 400.780 – Density and Dimensional Regulations and Performance Standards – of the municipal code for more details.

Resources:

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>University City Municipal Code section 400.2130</td>
<td><a href="https://www.ecode360.com/28294464">https://www.ecode360.com/28294464</a></td>
</tr>
<tr>
<td>University City Municipal Code section 400.780</td>
<td><a href="https://www.ecode360.com/28293321">https://www.ecode360.com/28293321</a></td>
</tr>
</tbody>
</table>

3.2 Bicycle and Pedestrian Access and Amenities

A bicycle and pedestrian access and amenities plan attempts to encourage bicycle users to make stops at businesses with bicycle storage and changing facilities as well as bike sharing sponsorships. University City is committed to assisting bicycle users and has incentivized businesses that plan for bicycle storage and changing facilities.
3.2.1 Bike Storage and Changing Facilities

Bicycle parking, storage, and changing rooms are important ways to provide convenience and security for cyclists at businesses and other destinations.

Required:

- Not required.

Incentives:

- University City will lower the parking space requirements by one (1) vehicle parking space for each five (5) bicycle parking spaces provided a maximum reduction of three (3) vehicle parking spaces. See Section 400.2130 of the municipal code for more details.

Resources:

| Information and minor cost analysis of bike storage facilities | http://www.pedbikeinfo.org/planning/facilities_bike_bikeparking.cfm |
| University City Municipal Code section 400.2130 | https://www.ecode360.com/28294464 |

3.3 Site Layout

Site layout plans are prepared by contractors as part of their mobilization activities before work on site commences. By taking a transit-oriented development approach to site layout, such as the construction of separate-grade pedestrian and bicycle paths, businesses can benefit from increased traffic from pedestrians and public-use vehicles.

Required:

- Not required.

Incentives:

- Businesses located within one thousand (1000) feet of a public transit station will have their off-street parking requirements reduced by fifteen percent (15%). See Section 400.2130 of the municipal code for more details.
- Businesses located within five hundred (500) feet of a public transit stop will have their off-street parking requirements reduced by ten percent (10%). See Section 400.2130 of the municipal code for more details.
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### Resources:

| University City Municipal Code section 400.2130 | [https://www.ecode360.com/28294464](https://www.ecode360.com/28294464) |
| University City Municipal Code section 400.780 | [https://www.ecode360.com/28293321](https://www.ecode360.com/28293321) |
4. MATERIALS

4.1 Construction/Demolition Waste Diversion (50%)

Construction and demolition waste diversion attempts to eliminate as much waste as possible during the construction phase or demolition phase of a project. Multiple outlets for recycling are in or nearby University City.

Required:

- Not required.

Incentives:

- Not Available

Resources:

<table>
<thead>
<tr>
<th>Resource</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete and Asphalt Recycling Facility Location</td>
<td>6515 Page Ave, St. Louis, MO 63133</td>
</tr>
<tr>
<td>Cardboard and Single Stream Recycling Location</td>
<td>975 Pennsylvania, University City, MO 63130</td>
</tr>
<tr>
<td>Metals Recycling Location</td>
<td>6540 Dr. Martin Luther King Dr., St. Louis, MO 63133</td>
</tr>
<tr>
<td>LEDR Construction and Demolition Recycling Facility Location</td>
<td>60 MB Corporate Park Ct, St Charles, MO 63301</td>
</tr>
</tbody>
</table>

4.2 Environmentally Preferable Building Materials

An environmentally preferable building material plan attempts to use sustainably sources materials during the construction phase of a project.

Required:

- Not required.

Incentives

- Not Available

Resources:

<table>
<thead>
<tr>
<th>Resource</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Information Search Engine</td>
<td><a href="https://spot.ui.com/">https://spot.ui.com/</a></td>
</tr>
</tbody>
</table>
4.3 Sustainable Maintenance Practices

After a project has been constructed, it is important to have sustainable maintenance practices as the building is occupied and being used. Below are some of the strategies available to commit to sustainable maintenance practices:

4.3.1 Waste Disposal and Recycling

Planning for efficient and effective waste disposal and recycling process can help a business or residency maintain cleanliness while also removing waste in a sustainable and appropriate manner. It is important to make sure infrastructure is in place prior to construction for efficient trash and recycling collection and disposal during construction and for the life of the development.

Required:

- Not required

Incentives:

- Not Available

Resources:

| University City Solid Waste | https://www.ucitymo.org/690/Trash-Recycling-Yardwaste-Leaf-Collectio |

4.3.2 Low-Emitting Materials

Low-emitting materials help reduce the concentrations of chemical contaminants that can damage air quality, human health, productivity, and the environment. Reducing the amount of materials that emit volatile organic compounds keeps a business and the surrounding environment healthy.

Required:

- Not required

Incentives:

- Not Available

Resources:

4.3.3 Green Cleaning/Janitorial Supplies

A large part in keeping a healthy atmosphere for a business or residency is using sustainable and healthy cleaning and janitorial supplies.

Required:

- Not required

Incentives:

- Not Available

Resources:

<table>
<thead>
<tr>
<th>Safer Choice Standard Supplies Database</th>
<th><a href="https://www.epa.gov/saferchoice/products">https://www.epa.gov/saferchoice/products</a></th>
</tr>
</thead>
</table>
5. **BIO-DIVERSITY**

5.1 **Preservation of Native Species**

Preservation of native plant habitats is an important part of maintaining biodiversity. By selecting native plants when making landscaping decisions helps preserve native species that support functioning ecosystems and wildlife. Native plants are often superior to exotic plants in terms of stormwater management because they usually have deeper and more extensive root systems that prevent erosion and provide extra filtration. Since natives also require little to no fertilizer or chemical applications, both of which can harm stream ecosystems, they are also superior for improving water quality.

**Required:**

- Not specifically required; but may be used to satisfy post construction stormwater requirements. See section 1.2.

**Incentives**

- Allowance is made in the Municipal Code for height of native plants. See section 220.290.

**Resources:**

<table>
<thead>
<tr>
<th>Resource</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invasive Species List for Missouri</td>
<td><a href="https://www.invasive.org/species/list.cfm?id=52">https://www.invasive.org/species/list.cfm?id=52</a></td>
</tr>
<tr>
<td>University City Municipal Code Section 220.290</td>
<td><a href="https://www.ecode360.com/28291021">https://www.ecode360.com/28291021</a></td>
</tr>
</tbody>
</table>

5.2 **Introduction of Native Species**

Native plants are typically easy to take care of because they have evolved in local soils and climates to be resistant to local diseases and pests, require significantly less fertilizer, supplemental watering, and pesticides. Introducing native plants to the surrounding environment helps reduce the costs that go into maintaining the surrounding environment.

**Required:**

- Not specifically required; but may be used to satisfy post construction stormwater requirements. See section 1.2.

**Incentives**

- Allowance is made in the Municipal Code for height of native plants. See section 220.290.
5.2.1 Pollinator-friendly Plants

When making landscaping decisions on plants, it is very beneficial to the surrounding environment to use pollinator-friendly plants. Pollinators are vital to maintaining healthy ecosystems and are essential for plant reproduction, keeping commercial and residential gardens healthy and minimizing the cost of replacing plants.

Required:
- Not required

Incentives:
- Not Available

Resources:

<table>
<thead>
<tr>
<th>Resources:</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollinator-friendly Plants Database and Resources</td>
<td><a href="http://xerces.org/pollinators-south-central-region/">http://xerces.org/pollinators-south-central-region/</a></td>
</tr>
</tbody>
</table>

5.3 Wildlife-friendly Building Design

When in the designing phase of a project, it is important for the preservation of wildlife to design the building in a way that complements the surrounding ecosystem and wildlife. Designs such as bird-friendly windows and sites friendly to nests help minimize the impact on the surrounding wildlife.

Required:
- Not required

Incentives:
- Not Available

Resources:

<table>
<thead>
<tr>
<th>Resources:</th>
<th>Link</th>
</tr>
</thead>
</table>
6. OTHER

6.1 Tenant and Employee Education

Education of tenants and employees on sustainable practices is an integral part in making sure that maintenance facilities are being properly used and that sustainable actions are being taken appropriately. Things such as educational signage, meetings on sustainability and online modules are some effective ways of educating employees and tenants.

**Required:**

- Not required

**Incentives:**

- Not Available

**Resources:**

<table>
<thead>
<tr>
<th>Resource Description</th>
<th>URL</th>
</tr>
</thead>
</table>

6.2 Indoor Air Quality

Understanding and controlling common pollutants indoors can reduce the risk of indoor health concerns. Keeping buildings adequately ventilated, reducing volatile organic compounds, removing microbial contaminants, and source control are all strategies that can be used to improve indoor air quality in buildings.

**Required:**

- Not required

**Incentives:**

- Not Available

**Resources:**

<table>
<thead>
<tr>
<th>Resource Description</th>
<th>URL</th>
</tr>
</thead>
</table>
6.3 Dark-Sky Friendly Lighting

Making outdoor lighting choices that minimize glare, unnecessary brightness, and shield the light source help reduce the harmful effects of light pollution and complement the dark sky. Making sustainable outdoor lighting choices also helps reduce the amount of energy used and increases energy efficiency.

Required:

- Not required

Incentives:

- Not Available

Resources:

|------------------------------------|-------------------------------------|