RRC BEST PRACTICE 2: ZONING CODE EXAMPLES

2.6: Green Infrastructure

A resource for Michigan communities looking to update their zoning ordinance
**INTRODUCTION**

**Best Practice 2.6** outlines the expectation that communities will incorporate environmental preservation and green infrastructure standards into the zoning code. Green infrastructure can be seen all around us. It is the parks, wetlands and trees we see every day as well as manmade green roofs, bioswales and rain gardens. Among green infrastructure’s myriad benefits are improved air quality, improved stormwater quality and a reduction in the amount of stormwater that enters a storm sewer.

**AIR QUALITY:** The vegetation that makes up green infrastructure absorbs carbon dioxide and other air pollutants, mitigating climate change and improving the air quality.

**STORMWATER QUALITY:** Green infrastructure minimizes the amount of pollutants and sediments reaching lakes and streams. As water infiltrates permeable surfaces, the soil naturally filters sediment and pollutants and replenishes groundwater supplies. Green infrastructure also ensures water temperature remains at natural levels. Stormwater runoff exposed to warm or hot impervious surfaces can raise the temperature of stormwater runoff—adversely affecting ecosystems.

**STORMWATER QUANTITY:** Conventional stormwater infrastructure (gray infrastructure) is intended to quickly drain stormwater into our rivers and streams—increasing peak flows and flood risk. By retaining rainfall, green infrastructure slows and reduces stormwater discharges—thus mitigating flood risks.

**ADDITIONAL BENEFITS:** In addition to its contribution to environmental quality, green infrastructure is increasingly being recognized for its contribution to placemaking, economic vitality and healthy communities. Green infrastructure can improve neighborhood aesthetics and provide green connections between parks and open space. Further, vegetated curb “bump outs” can improve pedestrian and bicycle safety and calm traffic.

Communities that incorporate green infrastructure components in the zoning code demonstrate a forward-thinking approach to development which is attractive to investors and residents alike. Sustainable infrastructure investments also reduce a community’s long-term costs by reducing the need for more costly “gray” infrastructure.

**HOW TO USE THIS DOCUMENT**

This document provides examples of Redevelopment Ready Communities® that have green infrastructure standards in their zoning code. Please note that zoning codes are highly customized documents designed to advance each community’s vision. Therefore, these zoning code examples should be used to generate ideas only. Any zoning code language adopted locally should undergo a rigorous review to ensure it addresses the community’s specific desires. To learn more about incremental zoning code revisions and related processes check out the “RRC Users’ Guide to Zoning Reform.”

Zoning code updates should always be reflective of goals in your community’s master plan and other relevant plans.
RRC Best Practice 2.6 – Green Infrastructure

Green infrastructure can be seen all around us. It is the parks, wetlands and trees we see every day, as well as man-made green roofs, bioswales, and rain gardens. Green infrastructure is increasingly being recognized for its contribution not only to environmental quality, but also to placemaking, economic vitality and healthy communities. The RRC Best Practices expect communities to administer at least three regulations pertaining to green infrastructure. This will position communities to realize green infrastructure’s numerous benefits.

<table>
<thead>
<tr>
<th>CRITERIA: The zoning ordinance includes standards for green infrastructure.</th>
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</thead>
<tbody>
<tr>
<td>ESSENTIALS EXPECTATIONS</td>
</tr>
<tr>
<td>N/A</td>
</tr>
</tbody>
</table>

**Rain Gardens / Bioswales**

**Williamston Zoning Ordinance**
Parking Design Standards

Consolidated Landscape Areas. Parking spaces and rows shall be organized to provide consolidated landscape areas and opportunities for on-site stormwater management. The use of bioswales and/or rain gardens is encouraged.
Williamston Zoning Ordinance
Parking Design Standards

Perimeter Barrier Required. There shall be a curb or wheel stop provided along the perimeter of a parking lot. The curb or wheel stop shall be at least six inches in height and designed to prevent any portion of a vehicle from encroaching upon a sidewalk, right-of-way, landscaped area, or adjoining property. Curbs shall be continuous except as part of an overall stormwater management design incorporating bioswales and/or rain gardens.

Pervious Pavement

Portage Zoning Ordinance
Sec. 42-521 – Design, Construction and Maintenance of Parking Areas

Low impact parking lot design alternatives such as rain gardens, bio-swales, pervious pavement, charging stations for electric vehicles and other green/sustainable techniques.

Three Oaks Zoning Ordinance
Section 4.210 PARKING LOT CONSTRUCTION

SURFACING. The entire parking area, including parking spaces and maneuvering lanes, shall have asphaltic or concrete surfacing; or porous pavers in accordance with specification approved by the Village Engineer. Such facilities shall provide on-site drainage to dispose of all surface water accumulated in the parking area, unless otherwise approved by the Village Engineer. Permeable or porous paving methods are encouraged, including open joined pavers, porous concrete/asphalt, and other methods of increasing stormwater infiltration. These methods may only be used when the permeable paving will have sufficient strength to bear expected vehicle loads for the parking area. All off-street parking areas are encouraged to use light-colored materials such as concrete, white asphalt, or light-colored pavers to reduce surface temperatures and to reduce the heat island effect.

Street Trees

Williamston Zoning Ordinance
Supplemental Zoning District Standards

Canopy Trees. One canopy tree shall be provided along the Williamston Road street frontage for every 35 feet of frontage. Canopy trees should be planted in the tree lawn between the
multi-use pathway and the curb, or within 7 feet of the multi-use pathway if planted on the property.

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**Three Oaks’ Zoning Ordinance**  
Section 4.304 STREET FRONTAGE LANDSCAPING STANDARDS

STREET TREES. One deciduous tree shall be planted for each 35 feet (or fraction thereof) of total road frontage and may be planted in a tree lawn (the area in between the sidewalk and the curb or edge of pavement).

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**Marshall Zoning Ordinance**

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**Cassopolis Zoning Ordinance**

§370-406 Minimum landscaping requirements

D. Tree Preservation.

(1) Tree preservation credits shall be given for deciduous and evergreen trees in healthy condition preserved as part of a new development or any renovation, alteration, or expansion of an existing development. The number of credits awarded shall be in accordance with the table presented below. Trees intended to be preserved shall be indicated on the landscape plan and type and size shall be noted.
<table>
<thead>
<tr>
<th>Diameter of Preserved Tree*</th>
<th>Number of Trees credited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 24 inches</td>
<td>4</td>
</tr>
<tr>
<td>12 – 24 inches</td>
<td>3</td>
</tr>
<tr>
<td>8 – 11.9 inches</td>
<td>2</td>
</tr>
<tr>
<td>2 – 7.9 inches</td>
<td>1</td>
</tr>
</tbody>
</table>

*Diameter of the tree shall be measured at 4 feet above existing grade.

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### Comstock Charter Township Zoning Ordinance

300.2163 - Preservation of existing trees.

Sec. 21.63. Credit shall be awarded for preserving canopy trees. By preserving canopy trees, tree planting requirements can be significantly reduced. The number of credits awarded for tree preservation shall be in accordance with Table 21F. Trees intended to be preserved shall be indicated on the landscape plan and type and size shall be noted. Tree protection fencing shall be required according to Section 21.65.

#### Table 21F - Tree Preservation Credits

<table>
<thead>
<tr>
<th>Diameter of Preserved Tree*</th>
<th>Number of Trees credited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 24 inches</td>
<td>4</td>
</tr>
<tr>
<td>12 inches to 24 inches</td>
<td>3</td>
</tr>
<tr>
<td>8 inches to 11.9 inches</td>
<td>2</td>
</tr>
<tr>
<td>2 inches to 7.9 inches</td>
<td>1</td>
</tr>
</tbody>
</table>

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### Parking Lot Landscaping

#### Three Oaks Zoning Ordinance
Section 4.307 PARKING LOT LANDSCAPING

Landscaping shall be located within parking lots to improve the appearance and screen lot edges, reinforce circulation routes, define pleasing pedestrian routes through the parking lot, and maximize shade and stormwater benefits. All off-street parking areas shall include internal landscaping as follows: A. Landscaping Ratio. Off-street parking areas containing greater than
10 spaces shall incorporate at least 30 square feet of interior landscaping per parking space.

Interior parking lot landscaping shall include the following:
1. Internal islands and medians.
2. Landscaped areas surrounded on three sides by a parking area (i.e., peninsulas or fingers).
3. Landscaped areas at the corners of a parking area and bordered by parking on at least two sides.

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**Comstock Charter Township Zoning Ordinance**

300.2158 - Parking lots.

Sec. 21.58. Parking lot landscaping shall be designed and situated to define safe access and circulation routes, provide shade and visual relief, and diminish the scale of large lots.

Landscape features, including end islands, peninsulas, and strips shall be installed in the interior of parking lots to delineate on-site circulation, ensure adequate sight distance at the intersection of aisles and interior roadways, and to prevent diagonal vehicular movement through parking lots. Features shall be designed with sufficient radii to ensure drivers are able to make 90-degree right turns without encroaching upon landscaping or adjacent traffic lanes.

1. Area Requirements based on the number of parking spaces are indicated in Table 21-C.

**Table 21C - Parking Lot Landscaping**

<table>
<thead>
<tr>
<th>Spaces</th>
<th>Land area per parking space</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 or less</td>
<td>10 square feet</td>
</tr>
<tr>
<td>10—49</td>
<td>15 square feet</td>
</tr>
<tr>
<td>51—99</td>
<td>25 square feet</td>
</tr>
<tr>
<td>100+</td>
<td>30 square feet</td>
</tr>
</tbody>
</table>
Cassopolis Zoning Ordinance

§370-406 Minimum landscaping requirements

C. Landscaping Standards. All areas to be landscaped shall meet the following standards:

(2) At least 75 percent of required trees shall be native to Lower Michigan. At least 30 percent of all other required landscape material shall be native to Lower Michigan. For information on native plants and lists of trees and shrubs, see the following websites:
www.nativeplants.msu.edu
www.plant.native.org
www.wildflower.org/collections/Michigan

Village of Spring Lake:
Section 16B.6 MINIMUM LANDSCAPE MATERIAL STANDARDS.

A. All plant material shall be hardy to Ottawa County, be free of disease and insects and conform to the American Standard for Nursery Stock of the American Association of Nurserymen.

Lawton Zoning Ordinance

4.26 LANDSCAPING STANDARDS
All landscaped areas shall meet the following standards:

ix. Whenever possible, use of species native to Michigan is required.

Decatur Zoning Ordinance
Section 8 – Storm Water Retention

Stormwater drainage in excess of natural conditions shall be retained on site. This provision may require stormwater retention ponds where appropriate and the use low impact development techniques, such as, rain gardens, green roofs, bioswales, pervious pavement, and native, noninvasive landscaping. An exception may be made for water leaving the site via an adequately sized existing stormwater ditch, stormwater pipe or through other stormwater facilities that will be developed at the same time as the proposed new use. Stormwater management efforts shall be consistent with the provisions of the Van Buren County Stormwater and Soil Erosion Control Program.

Williamston Zoning Ordinance
PUD – Planned Unit Development

Utilities. PUDs shall meet the municipal standards for utilities for the City of Williamston. Provisions shall be made for construction of storm sewer facilities including grading, gutters, piping, and treatment of turf to handle storm water, and to prevent erosion and the formation of dust. This shall include the establishment of retention/detention basins in order to minimize storm water runoff. Retention/detention basins shall be designed to maximize environmental characteristics and can include strategies such as bioretention, native plantings, and other innovative techniques which reduce or eliminate hard surface construction.

Cluster Subdivisions

Milan Zoning Ordinance
Section 10.30 – One-Family Cluster Option

Storm Water

West Branch Zoning Ordinance
Section 3.31 Stormwater Management/Onsite Drainage & Runoff

A. No premises shall be filled or graded so as to discharge surface runoff on abutting premises in such a manner that will cause inconvenience or damage to adjacent properties. When property is developed adjacent to existing properties previously developed, existing grades shall have priority.

B. Uses other than Single-Family and Two-Family Dwellings.

1. The property owner or developer is required to retain on site all stormwater drainage in excess of natural conditions. This provision may require stormwater retention ponds where appropriate. An exception can be made for water leaving the site via an existing stormwater pipe or through other stormwater facilities which will be developed at the same time as the proposed new use. All stormwater facilities, including detention or retention ponds, shall be designed at minimum to handle a storm with the projected frequency of once every ten (10) years (ten year design storm).

2. Storm water management conveyance, storage and infiltration measures and facilities shall be designed to prevent flood hazards and water pollution related to storm water runoff and soil erosion from the proposed development.

3. The use of swales, rain gardens, and vegetated buffer strips is encouraged in cases where the Planning Commission deems it to be safe and otherwise appropriate as a method of storm water conveyance so as to decrease runoff velocity, allow for natural infiltration, allow suspended sediment particles to settle, and to remove pollutants. Such systems shall be permitted within required setbacks.

4. Rainwater collection systems on roofs may be utilized to fulfill some stormwater management requirements.

5. Permeable parking lots may be utilized to fulfill some stormwater management requirements.

Other

Comstock Charter Township Zoning Ordinance
ARTICLE 20.00

300.2000 - OPEN WETLANDS DISTRICT

300.2001 - Intent.

Sec. 20.01. Pursuant to Section 52 of Article 4 of the Constitution of the State of Michigan and the Township Rural Zoning Act, being Act 184 of the Public Acts of 1943, as amended, wherein the conservation and development of natural resources of the State are of paramount public concern in the interest of health, safety and general welfare of the people of the State of Michigan, the within Open Wetlands District Classification is designed to support, encourage and provide for necessary natural resources of the Township and for the conservation and development thereof so as to prevent substantial, immeasurable, permanent and irreparable injury of and damage to the inhabitants and property of the Township.