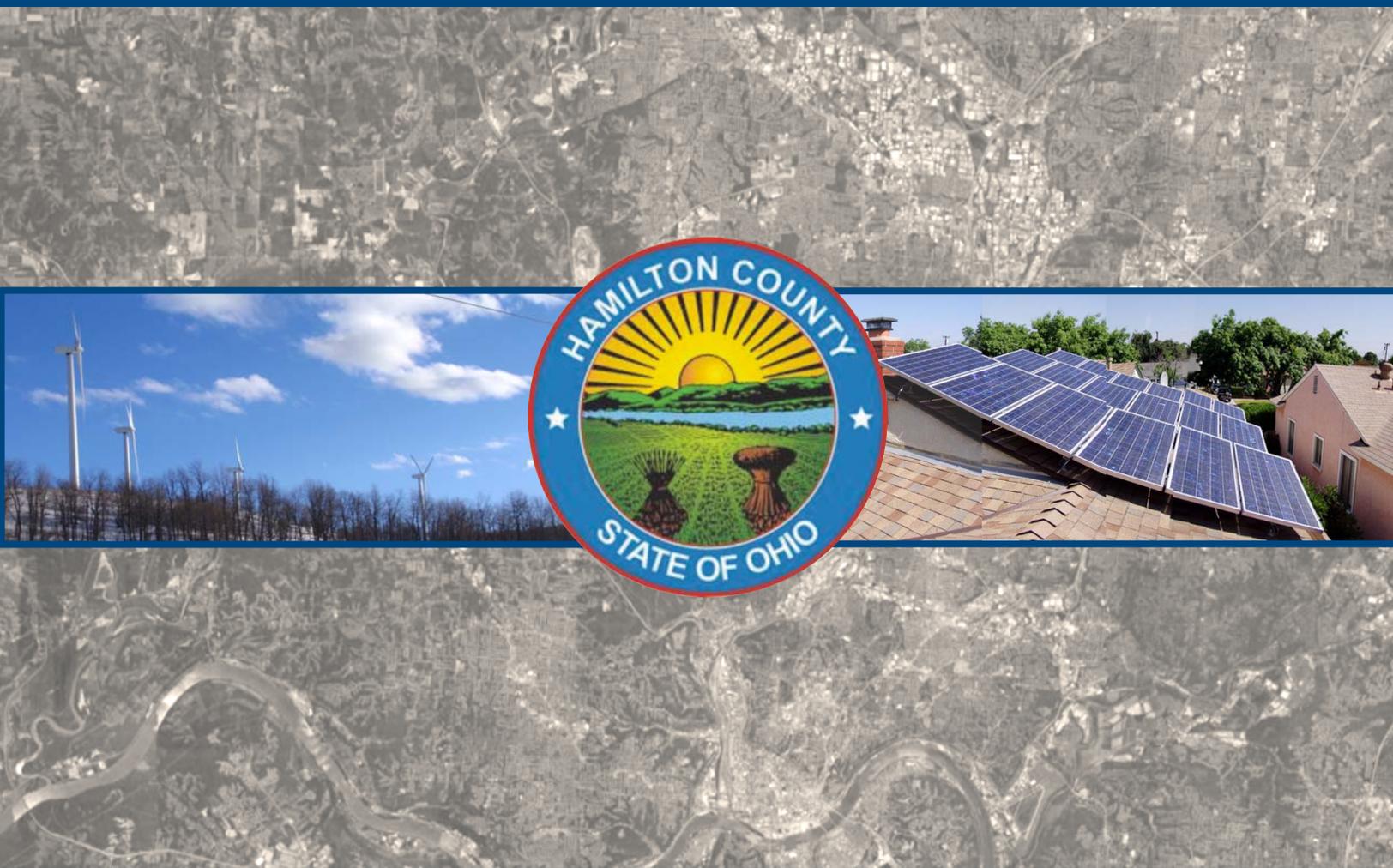


*Hamilton County*

# Development Regulations Analysis for Energy Efficiency and Sustainability Diagnostic Report and Recommendations



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# Executive Summary

## PROJECT OVERVIEW

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In recent years, Hamilton County has worked diligently to make the County a more sustainable and energy efficient place to live, play, and do business. These efforts touch many different facets of County government, including environmental, community, and economic development initiatives. One of the most notable County-wide sustainability-related achievements thus far is the Hamilton County Climate Initiative (HCCI). The HCCI is a cooperative effort of political subdivisions working together to promote cleaner, healthier communities, reduced costs, and job creation through energy conservation and the reduction of greenhouse gas emissions in Hamilton County.

Community COMPASS, the Master Plan for Hamilton County, also provides a foundation for the County's recent sustainability and energy efficiency endeavors. The plan sets forth a shared vision for the 49 municipalities within Hamilton County, and establishes long-range goals related to the physical, economic, and social issues and opportunities in the region. Implementation of the COMPASS plan is still underway, and is guided by the 2030 Plan and Implementation Framework which identifies a series of initiatives, strategies, and implementation campaigns to realize the vision for the County's future, and introduces concept plans for land use, transportation, and greenspace, in an attempt to merge the various individual plans from across the County.

Intended to further the goals of the Hamilton County Climate Initiative, Community COMPASS, and 2030 Plan and Implementation Framework, the Development Code Analysis for Energy Efficiency and Sustainability is a groundbreaking project commissioned by the Hamilton County Planning and Development Department and funded by a grant from the U.S. Department of Energy through the Energy Efficiency and Conservation and Block Grant Program (EECBG Formula Grant). The purpose of the project is to incorporate sustainability into the County's zoning, building, and subdivision ordinances.

## MAJOR THEMES

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Several major themes emerged from stakeholder interviews and discussions with County staff conducted as part of the project initiation phase.

- Build on the Hamilton County Climate Initiative efforts.
- Lead by example.
- Provide flexibility and incentives.
- Address infill and redevelopment in addition to new development.
- Address local opportunities in addition to State building code requirements.

In addition to the overarching themes outlined above, detailed recommendations related to each topic also emerged. These more topic-specific recommendations have been incorporated, as appropriate, throughout this Diagnosis Report.

## SUMMARY OF RECOMMENDED CHANGES

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### Overview

Based on an initial review of County policies and goals, the project team identified five over-arching topic areas to serve as organizing elements for this Diagnosis Report. These topics include: 1) Energy and Resource Management; 2) Development Patterns; 3) Mobility and Connectivity; 4) Urban Agriculture; and 5) Building and Energy Code. For each topic, the Diagnosis addresses the following:

- **Current development regulations** relevant to each topic;
- Potential **barriers** in the adopted codes and regulations related to each topic and possible revisions to remove those barriers;
- Potential **incentives** for consideration to encourage reductions in fossil energy use; and
- Specific **recommendations to fill regulatory “gaps.”**

Due to the interrelated nature of a number of these topics, some overlap between the analysis of current regulations and recommendations may occur between topics. We have retained this redundancy to ensure that each topic may be reviewed independently, if desired.

## PRIORITY RECOMMENDATIONS SUMMARY

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### Background

Building on its recent and current sustainability initiatives, Hamilton County can make even greater progress towards its sustainability objectives through changes in its land use regulatory framework. This section contains a summary of priority recommendations for changes to the County’s adopted development codes and policies.

### Priority Recommendations

Recommendations in each of the five topic areas outlined in this Diagnosis were reviewed by the consultant team and evaluated in terms of their feasibility, potential effectiveness in addressing the issues identified, and resources required to implement. Listed below is a sample of the items that the team identified as ready to implement in the near-term—meaning that these regulatory changes are ready to be drafted and potentially incorporated into the County’s codes and ordinances:

- Consolidate regulations for the installation of small-scale renewable energy systems (e.g., solar, wind, and geothermal) into one location in the Zoning Resolution.
- Add regulations to address green roofs and allow green roofs to count towards landscaping requirements or reduced ISR.
- Change the review process to allow certain densities of alternative single-family dwelling types and multi-family dwellings as of right in the office and employment zone districts to encourage mixed uses without requiring a PUD.

## EXECUTIVE SUMMARY | PRIORITY RECOMMENDATIONS SUMMARY

- Add a definition of mixed use to define it as a primary use type, add mixed use to appropriate districts as a permitted use, and make explicit how setbacks, height, density, etc., are to be calculated for mixed use development
- Reduce the threshold for in-fee right-of-way dedication for redevelopment or infill projects for smaller sites.
- Modify regulations in residential areas to provide more flexibility on lots smaller than five acres, including allowing farm stands in residential areas, with appropriate size limits, and reducing setback requirements for agricultural uses and structures.



# 1. Introduction

## PROJECT OVERVIEW

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In recent years, Hamilton County has worked diligently to make the County a more sustainable and energy efficient place to live, play, and do business. These efforts touch many different facets of County government, including environmental, community, and economic development initiatives. One of the most notable County-wide sustainability-related achievements thus far is the Hamilton County Climate Initiative (HCCI). The HCCI is a cooperative effort of political subdivisions working together to promote cleaner, healthier communities, reduced costs, and job creation through energy conservation and the reduction of greenhouse gas emissions in Hamilton County. A major outcome of the HCCI is an action plan for reducing the impact of local governments and communities on global climate changes. A series of “Green Guides” provide strategy alternatives for communities to customize their individual action plans.

Community COMPASS, the Master Plan for Hamilton County, also provides a foundation for the County’s recent sustainability and energy efficiency endeavors. The plan sets forth a shared vision for the 49 municipalities within Hamilton County, and establishes long-range goals related to the physical, economic, and social issues and opportunities in the region. The COMPASS vision and policies address topics ranging from the management of natural resources to a framework for land use and development that will help revitalize communities.

Implementation of the COMPASS plan is still underway, and is guided by the 2030 Plan and Implementation Framework. The 2030 Plan and Implementation Framework includes various reports that spell out the current state of the County, and also identifies a series of initiatives, strategies, and implementation campaigns to realize the vision for the County’s future. The 2030 Plan also introduces concept plans for land use, transportation, and greenspace, in attempt to merge the various individual plans from across the County. As with the COMPASS plan, the County remains committed to implementing the 2030 Plan and monitoring its progress and outcomes over time.

Intended to further the goals of the Hamilton County Climate Initiative, Community COMPASS, and 2030 Plan and Implementation Framework, the Development Code Analysis for Energy Efficiency and Sustainability is a groundbreaking project commissioned by the Hamilton County Planning and Development Department and funded by a grant from the U.S. Department of Energy through the Energy Efficiency and Conservation and Block Grant Program (EECBG Formula Grant). The purpose of the project is to incorporate sustainability into the County’s zoning, building, and subdivision ordinances.

The project involves three phases: 1) stakeholder interviews and background document review; 2) review and analysis of the County’s development and building codes; and 3) development of a training workshop to assist municipalities throughout the County to conduct their own tailored sustainable code diagnosis. This Diagnosis Report constitutes the second phase in the process. It summarizes the review and analysis of the County’s development and building codes and identifies a series of recommended amendments to existing codes and practices in order to enhance energy efficiency and sustainability in Hamilton County. This report also offers examples of best practices from communities and organizations throughout the country that have undertaken similar efforts or that have integrated sustainability topics in development regulations in creative ways.

## INTRODUCTION | MAJOR THEMES

In preparation for this phase, consulting team members from Clarion Associates interviewed key County staff and numerous stakeholders (developers, representatives from various County organizations, sustainability advocates, and others) to discuss the County's current development regulations and efforts, and to identify possible ways for the County to become more sustainable and energy efficient. Following this Diagnosis Report, the consulting team will work with the County to develop a training workshop that will assist municipalities throughout the County in evaluating and enhancing their own codes from a sustainability perspective.

## MAJOR THEMES

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Several major themes emerged from stakeholder interviews and discussions with County staff conducted as part of the project initiation phase.

- **Build on the Hamilton County Climate Initiative efforts** – In 2008 and 2009 Hamilton County, in coordination with Miami University, and other political subdivisions in the County, embarked on a cooperative effort to promote cleaner, healthier communities, with reduced costs and job creation through energy conservation and reduction of greenhouse gas emissions. The Hamilton County Climate Initiative effort resulted in a series of action plans, called “green guides” for individuals, businesses, governments, and schools. These guides identify best practices for a variety of topics including development, energy, solid waste, food, and transportation, and are a resource that should be tapped into during the evaluation of the County's development codes and practices.
- **Lead by example** – Hamilton County's jurisdiction over zoning regulations is limited to a handful of Townships, while the subdivision regulations apply to all unincorporated areas of the County. However, despite this fragmentation, the County has the opportunity to provide strong leadership regarding energy efficiency and sustainability initiatives to all areas within its boundaries. This can be achieved by developing clear guidelines and regulations that apply to areas within Hamilton County's jurisdiction, but that also can be modeled and implemented in other jurisdictions throughout the County.
- **Provide flexibility and incentives** – Stakeholders acknowledged that in many instances, new requirements would be needed in the development regulations to address sustainable development practices; however, it was noted that flexible requirements and/or incentives were preferable to allow applicants to address a particular requirement in the most cost efficient and practical manner for each project. In addition, stakeholders noted that many sustainable technologies (e.g., solar, geothermal, pervious pavement) are advancing and changing very rapidly and that some flexibility should be built into the Code to allow for administrative approval of new materials and technologies that are equal to or better than what's actually required as these opportunities arise.
- **Address infill and redevelopment in addition to new development** – A particular challenge noted by stakeholders was that the development regulations generally apply the same requirements to infill development and the adaptive reuse of an existing building or site as they would to an undeveloped site. They noted that this one-size-fits-all approach may reduce the viability of reuse and revitalization in existing developed areas, leading to a continued reliance on green-field development to meet the County's future needs.

- **Address local opportunities in addition to State building code requirements** – While the Hamilton County Building Code largely mirrors the State of Ohio Building Code, opportunities exist to supplement the State requirements with amendments that reflect local conditions and efforts to enhance energy efficiency and improve sustainability in Hamilton County.

In addition to the overarching themes outlined above, detailed recommendations related to each topic also emerged. These more topic-specific recommendations have been incorporated, as appropriate, throughout this Diagnosis Report.

## DOCUMENT ORGANIZATION

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In addition to this introductory section, this document contains two primary sections:

### Diagnosis

Based on an initial review of County policies and goals, and discussion with County staff and interviews, the project team identified five over-arching topic areas to serve as organizing elements for this Diagnosis Report. These topics include: 1) Energy and Resource Management; 2) Development Patterns; 3) Mobility and Connectivity; 4) Urban Agriculture; and 5) Building and Energy Code.

This section contains a diagnosis of relevant code provisions as they pertain to each of the five topic areas. For each topic, the Diagnosis addresses the following:

- **Current regulations** relevant to each topic;
- Potential **barriers** in the Zoning and Subdivision regulations as well as other adopted regulations (including the Building and Energy Code) related to energy use or sustainability, possible revisions to remove those barriers, and examples of other communities that have adopted or are considering similar regulatory changes;
- Potential **incentives** for consideration to encourage reduced fossil energy use and support community sustainability; and
- Specific **recommendations to fill regulatory “gaps.”**

In addition, examples from other communities across the country are provided to demonstrate the range of potential regulatory solutions that exist.

### Priority Recommendations

The final section of the report highlights priority recommendations for each of the five key topics addressed in this report. Priority recommendations generally include recommendations identified as part of the diagnosis that could be readily implemented in the near-term through targeted amendments to adopted codes or that would remove significant barriers to the County’s sustainability goals.

# 2. Diagnosis and Recommendations

## OVERVIEW

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Based on discussions with County staff and through interviews with key stakeholders, the project team identified five primary topic areas as a foundation for this Diagnosis, each of which contains a number of related topics. The topic areas include:

- **Energy and Resource Management** (renewable energy sources, energy conservation, water use, stormwater management, and waste management);
- **Development Patterns** (mix of land uses, compact development, and infill development);
- **Mobility and Connectivity** (multi-modal transportation options, community connectivity, and context-sensitive design of transportation infrastructure);
- **Urban Agriculture** (small-scale commercial-scale urban agriculture as well as backyard agricultural activity); and
- **Building and Energy Code** (the building and energy code regulations adopted by Hamilton County largely under the purview and control of the State of Ohio).

This section first reviews key background facts about each topic and discusses relevant County goals and policies. It then inventories current regulations that either support or hinder realization of the County's goals related to each topic. In keeping with the County's sustainability policies and goals, this section also offers specific recommendations intended to remove barriers, create incentives, or establish new standards to encourage a more sustainable and energy efficient pattern and practice of development over time. Best practices and examples from other communities are provided for reference.

Due to the interrelated nature of a number of these topics, some overlap between current regulations and recommendations may occur between topics. Redundancy has been retained to ensure that each topic may be reviewed and applied independently, if desired.

Our findings indicate that Hamilton County should consider a variety of building and land use regulatory provisions to help address energy and sustainability. A summary of our key findings and recommendations is provided in the following section of this report.

## ENERGY AND RESOURCE MANAGEMENT

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### Introduction

The topics of energy use and the management of resources such as water and solid waste are at the forefront of conversations in communities throughout the country. Innovative and creative management of these resources can lead to cost-savings and other positive economic, environmental, and social benefits for communities. Because of the diverse nature of these topics, this section addresses each individually, although it is important to note that they are quite inter-related with each other and the built environment.

## ENERGY

According to the U.S. Department of Energy, more than 85% of the energy consumed in the United States comes from fossil fuels, more than half of which is imported, a trend that has led to growing concerns about national security, in addition to concerns about the costs of energy.

Energy generation from fossil fuels is the single largest contributor to greenhouse gas emissions, which have been linked to global warming and health impacts from air pollution. Awareness and interest in these issues have also increased as funding and incentives for renewable energy and energy efficiency projects have become more readily available to local governments and residents.

The U.S. Department of Energy estimates that the 2009 average energy use per person was 90,310 kilowatt hours, and average energy costs that year were \$3,460.72 per person. In Ohio, the 2009 average energy use per person was 92,346 kilowatt hours, and the average energy costs were \$3,546.66 energy per person – both higher than the U.S. average.

As use and costs of energy continue to rise, communities are seeking ways to integrate alternative sources as well as ways to improve energy efficiency and conservation. Energy conservation techniques—taking actions to reduce energy use through resource conservation measures—are showing great results already in many communities. Similarly, energy efficiency efforts—getting the most productivity out of each usable unit of fuel—are already offering substantial returns. Interestingly, conservation of other resources, such as water, will also help conserve energy due to the fact that the water industry is a large user of power in the United States.



*The use of small-scale renewable energy systems, including wind turbines, solar, and geothermal systems is becoming increasingly popular in communities across the nation as energy costs from traditional sources continue to rise.*

In recent years, Hamilton County has made concerted efforts to address energy use and opportunities, through use of the current Energy Efficiency and Conservation and Block Grant funding, as well as other separate initiatives spearheaded by the County and energy provider Duke Energy. The 2004 Community COMPASS (the County’s Comprehensive Master Plan) and the related 2030 Plan and Implementation Framework established the initial groundwork by calling for coordination among various levels of planning to promote the use of environmentally sensitive building practices (including reduced energy use).

The City of Cincinnati’s Office of Environmental Quality’s Energy Management Team, formed in 2007, is emerging as a regional leader in the efforts to reduce utility and fuel usage and promote energy conservation. To meet those objectives, the City has initiated energy services auditing and performance contracting in City-owned facilities. Other City projects that address energy include energy efficiency retrofits with the Greater Cincinnati Energy Alliance and an electric vehicle “free parking” pilot program.

Recently the Hamilton County Climate Initiative launched a cooperative effort of the County’s political subdivisions to promote cleaner, healthier communities, reduced costs, and job creation through energy conservation and the reduction of greenhouse gas emissions. One outcome of the initiative is a series of Green Guides that address various environmental topics. The Energy Green Guide addresses how to reduce energy use in new and existing buildings, management of heating and cooling systems, reducing energy use by equipment and appliances, electricity and lighting, and other various energy efficiency management techniques and resources. It is a valuable resource that spells out various options for local

## DIAGNOSIS AND RECOMMENDATIONS | ENERGY AND RESOURCE MANAGEMENT

governments, businesses, individuals, and schools to choose to reduce energy consumption and costs. It does not, however, address specific development regulations or possible incentives to encourage conservation or renewable energy systems.

Current use of renewable energy systems is limited, in part, due to the climate and topography of the Hamilton County region. However, despite the somewhat cloudy climate and hilly terrain, renewable energy systems including solar, wind, and geothermal systems are feasible in many parts of the County.

Therefore, this section focuses on energy use and conservation on a large site-level scale, as addressed in the County's development regulations. This includes the roles of outdoor lighting, building orientation, water conservation, and trees and landscaping as part of the County's overall strategy to conserve energy and reduce consumption. It also addresses the generation of energy through renewable sources including wind, solar, and geothermal systems. Also, see the Building Section for a discussion about energy use, generation, and conservation at the individual building level.

### WATER

Ensuring a safe and adequate supply of water is an important focus in all communities, and although water is a plentiful resource in Hamilton County, proper management of existing resources is essential in ensuring that quality water is available in the future. Additionally, conservation of water will also assist other sustainability objectives including energy conservation, due to the fact that the water industry is a major energy user. The water supply is not simply a technological issue but an ecological issue as well. For example, the quantity and quality of stormwater runoff significantly impacts the quality of streams, water bodies, and natural habitats.

The careful and multi-layered management of water resources is supported by policies in the County's Community COMPASS. The policies aim to protect and sustain groundwater, surface water resources, and other natural systems through coordinated efforts in watershed planning, natural systems planning, land use planning, and budgeting.

In accordance with COMPASS policy directions, partners in the Hamilton County region have been working hard to manage water systems and uphold water quality. The Metropolitan Sewer District of Greater Cincinnati (MSD) is the publicly-operated wastewater utility that provides sewerage collection and treatment services to the majority of Hamilton County's political subdivisions. Project Groundwork, a major initiative of MSD, is one of the largest public works projects in the County's history, formed in response to a mandate from the U.S. EPA. The project aims to enhance sustainability in the County's communities by reducing or eliminating sewage overflows into local rivers and streams and sewage backups into basements. The project involves hundreds of sewer improvement and stormwater control projects across the area, and presents many opportunities for new sustainable infrastructure and best management practices to be introduced throughout the County.

A close partner with MSD, the Hamilton County Storm Water District, works to manage stormwater quality and address stormwater regulations. Other partners involved in managing and monitoring the



*Not only does the use of innovative stormwater management techniques such as green-roofs to address and control stormwater runoff ultimately help improve the quality of streams and water bodies, but such techniques can also result in energy conservation and more efficient development patterns.*

County's water quality include the Hamilton County Soil and Water Conservation District, General Health District, and the County Engineering, Public Works, and Planning and Development offices.

In collaboration with the Communities of the Future Advisory Committee (CFAC) Policy Subcommittee, the Metropolitan Sewer District of Greater Cincinnati (MSD), Hamilton County Planning and Development, and the City of Cincinnati Planning Department conducted a draft Sustainable Infrastructure Policy Gap Analysis in late 2011. The purpose of the Policy Gap Analysis is to analyze the current rules and regulations, codes, policies, and incentives that regulate sustainable infrastructure practices and determine how they may either impede or encourage their widespread use and minimize the degradation of water resources in Cincinnati and Hamilton County. While the draft Policy Gap Analysis largely focuses on the City of Cincinnati Municipal Code, it also addresses the rules and regulations of the Metropolitan Sewer District of Greater Cincinnati (MSD). Looking forward, this effort may lead to development of a new manual of stormwater best management practices for the County. For this reason and to avoid duplication of efforts, MSD policies were not reviewed in detail as part of this Diagnosis Report.

Review of the draft Sustainable Infrastructure Policy Gap Analysis showed many similar and related observations and recommendations as contained within this Diagnosis Report. Several of the initiatives and recommendations identified in the Policy Gap Analysis relate to, but are not directly covered by this Diagnosis Report. They include the Green Roof Loan Program, which provides low interest loans to install green vegetative roofs within the MSD service area, the recommendation for coordination between the City of Cincinnati and Hamilton County regarding the disconnection of downspouts from stormwater drains, and current research by the Green Partnership for Greater Cincinnati on the use of harvested rainwater.

The water section of this Diagnosis Report addresses various facets of the management of water resources through development regulations including the distribution and use of water for residential, commercial, and landscaping purposes; the treatment of wastewater; and the management of stormwater runoff. Please refer to the Building Section for discussion about plumbing systems and codes.

### WASTE

The high volume and often unnecessary disposal of solid waste is a significant contributor to greenhouse gases. Waste buried in landfills produces high levels of methane gas that often escapes into the atmosphere and waste incinerators release carbon dioxide. Furthermore, waste that is not reused or recycled must be replaced with virgin materials that require the consumption of additional energy, primarily from fossil fuels, and create greenhouse gas emissions. In a sustainable community, used materials ideally should not become waste until the community has decided there is no other possible use for the materials.

One particularly important area of waste reduction is the recycling of food and other organic wastes. It is the decomposition of organic materials that produce the high levels of methane in landfills. In addition, the composting of organic wastes is a simple process that can often be done with little technology and at low cost by individuals at their homes or businesses. The rich soil that is produced can be used in the garden or for landscaping.



*Construction-related activities tend to generate significant quantities of waste. The recycling of construction-related materials is becoming more popular due to increasing costs associated with landfill disposal and raw materials.*

Increasing the percentage of food and organic waste recycling should thus be a major priority in any sustainable community. The United States, however, recycles only about 5% of its food waste compared to about 95% in South Korea, where strict laws require separation of food waste from all other waste. Despite the low national average, some American communities are making a difference. For example, Alameda County, CA, in which food waste (food scraps and food-soiled paper) is the single largest item in its waste stream, collects organic waste in separate large containers that are picked up weekly with the trash. Many other California communities, such as Oakland, have similar programs. For Hamilton County, recycling and reducing waste will result in long term cost savings and extended landfill life.

Prepared through the Hamilton County Climate Initiative, the Solid Waste and Food Production Green Guide provides a checklist of options for governments, businesses, individuals, and schools to reduce solid waste through measures such as the recycling and reuse of various materials, reduction of waste, and educational initiatives.

While not directly supported as a policy direction in the Community COMPASS, waste management and reduction is central to the mission of the County's Recycling and Solid Waste District. The District is currently in the process of updating its 15-Year Solid Waste Management Plan. The plan will address all State requirements including a 25% waste reduction/recycling rate for the residential/commercial sector and a 66% waste reduction/recycling rate for the industrial sector. The plan will also address other key issues including organics diversion, social marketing, multi-family recycling, economic incentives, and alternative waste management technologies.

The City of Cincinnati is emerging as a leader in the County for its recycling efforts. All single-family households and multi-unit complexes with four units or less that receive curbside garbage collection are eligible for curbside recycling, at no additional cost. This has led to record amounts of recycling in the City; on average 14% of the waste from each household was recycled in 2010. In addition to curbside service, other City recycling initiatives include RecycleBank, a rewards program, and a construction recycling program through a partner company.

The waste section of this Diagnosis Report addresses waste management as it relates to the construction and removal of buildings and as a necessary land use to be accommodated in communities. It also explores ways to reduce waste or divert it from landfills through development regulations and other incentives.

### Current Regulations

The following table cites the primary current regulations in the Zoning Resolution, Subdivision Regulations and other regulations adopted by Hamilton County related to energy and resource management. It is not meant to be all-inclusive, but to highlight some of the key provisions currently on the books that are directly related to this topic.

Each regulation is labeled according to the source document, using the corresponding article or section number from the source document. The following abbreviations are used for each source document: "SUB" refers to the County's 2008 Subdivision Rules and Regulations, "ZON" refers to the County's 2010 Zoning Resolution, and "ENG" refers to the County Engineer's Regulations for Subdivisions. Other relevant County codes and regulations are noted within the table as necessary.

REGULATIONS ADDRESSING ENERGY AND RESOURCE MANAGEMENT	
REF.	REGULATION
<b>Energy</b>	
ZON: Section 17-7, 12, 15.2	<p><b>Solar Panels</b> – Solar Panels (photovoltaic) are permitted as conditional residential uses in all residential districts (see Section 17-12). Section 17-15.2 defines the terms “solar panel” and “solar facility.” Additional regulations pertaining to solar panels:</p> <ul style="list-style-type: none"> <li>• Solar facilities cannot be located in the front or side yard;</li> <li>• Accessory structures supporting solar panels are required to conform to regulations for accessory uses and structures;</li> <li>• Solar panels located on the roof of a residential structure may not extend above the highest point of the existing roof;</li> <li>• Solar panels detached from the principal residential structure cannot exceed 14.5 feet in height and no more than 30% of the required area of the rear yard; and</li> <li>• Solar panels attached or located on the roof or wall of a building and that lie flat on the surface are exempt from obtaining a zoning certificate.</li> </ul>
ZON: Section 17-7, 12, 15.2	<p><b>Wind Energy Conservation Systems</b> – Wind Energy Conservation Systems (WECS) are permitted as conditional uses in all residential districts (see Section 17-12). Section 17-15.2 defines the terms “wind energy conservation system,” “small wind system,” “wind facility,” and “wind turbine.” Additional regulations pertaining to WECS:</p> <ul style="list-style-type: none"> <li>• Wind facilities cannot be located in the front or side yard;</li> <li>• Wind facilities cannot exceed 100 feet in height (the height is measured from natural grade to the tip of the rotor blade at its highest point);</li> <li>• Wind facilities cannot be located closer to a property line, street right-of-way, or above an electric line than 1 ½ feet for each foot of height;</li> <li>• Accessory structures supporting wind facilities are required to conform to regulations for accessory uses and structures;</li> <li>• Noise levels shall be controlled, as appropriate; and</li> <li>• Wind facilities must conform to all Federal Aviation Administration (FAA) regulations when located near an airport.</li> </ul>
ZON: Section 8-6.2	<p><b>Modifications for Energy Conservation</b> – Allows modifications to the supplemental regulations for Special Public Interest (SPI) District to be granted (such as removal of height limitations or gross density increases), provided such modification results in public benefit through substantial improvements, including but not limited to improvements in energy conservation.</p>

REGULATIONS ADDRESSING ENERGY AND RESOURCE MANAGEMENT	
REF.	REGULATION
ZON: Section 12-7, A-3.3	<b>Outdoor Lighting</b> – Establishes various requirements for outdoor lighting, including maximum illumination levels by activity level, glare control measures, and height ranges. Appendix specifies metal halide or quartz incandescent luminaries as the preferred option in instances where the color quality may affect the public interest; high pressure sodium luminaries can be used in instances when cost and energy efficiency are essential and color quality will not adversely affect the public interest.
ZON: Section 12-6.4	<b>Parking Lot Landscaping</b> – Establishes the minimum number of canopy trees for parking lot interior landscaping to support urban tree canopy cover.
ZON: Section 14.10	<b>Woodland Preservation</b> – Establishes criteria for the quality and location of woodland preservation in order to receive credits for landscape requirements. Credit may be granted for landscape reduction, parking reduction, and intensity reduction bonuses.
ZON: Section 15.6	<b>Credit for Existing Landscape Materials</b> – Establishes standards to provide for the protection of existing woodlands and established plant material.
SUB: Section 132.3.17	<b>Shade Tree Areas</b> – Requires shade tree easement areas (parkways) located on both sides of the street only in areas that have been specified as part of a local or regional plan.
<b>Water</b>	
ZON: Section 2-3	<b>Definitions</b> – Section 2-3 defines the terms “floodplain,” “floodway,” “flood fringe,” “impervious surface,” “impervious surface ratio (ISR),” “special flood hazard area,” “stream,” “watercourse,” “waterway,” and “wetlands.”
ZON: Section 4-4.6	<b>Manufactured Home Park District Requirements</b> – Requires manufactured home parks to adhere to standards for a public water supply and distribution system, and to connect to a public sanitary sewer system, where reasonable (or other alternatives may be considered except for an individual sewage disposal system). Manufactured home parks must also be graded and drained to prevent the standing of stormwater.
ZON: Section 7-2	<b>Riverfront District</b> – A separate district is established to protect and enhance water quality, public safety, recreational opportunities, and land uses along the County’s waterways. Standards address permitted and conditional uses in the floodway and flood fringe areas, and other standards for development and redevelopment in the district.
ZON: Section 8-1.3	<b>Special Public Interest Districts</b> – Special public interest regulations are required in areas with special and distinctive characteristics including slopes, views, or other natural or physical features, in order to protect the public and property owners in the district from various impacts, including from significant damage or destruction of prominent wetlands, and from soil erosion, stream filtration, and development on unstable land.

REGULATIONS ADDRESSING ENERGY AND RESOURCE MANAGEMENT	
REF.	REGULATION
ZON: Section 12-4.5, 6.3	<b>Parking Surface and Drainage</b> – Requires an all-weather, durable, and dustless surface for every off-street parking area. Allows for pervious pavement materials for required parking areas, except for in any loading area or as part of an access drive, subject to Public Works review and approval. Requires grading of parking stalls to drain to dispose of surface water in accordance with regulations, and permits use of interior landscaped areas for surface drainage when employing stormwater best practices design. Natural or landscaped detention basins may count towards minimum square footage landscaping requirements for parking lot interior landscaping when the basins are in a front or side yard.
ZON: Section 14-11	<b>Riparian Buffer Area</b> – Establishes buffer requirements for riparian buffer areas and the ability to reduce or eliminate landscape requirements if buffer requirements are followed, in order to reduce erosion and protect water quality of streams and rivers.
ZON: Section 15-3	<b>Plant Installation Standards</b> – All new plant material installed as part of a buffer must adhere to the plant installation standards set forth in this section including, species, quality, installation, and size. Establishes a list of recommended plant materials suitable for the region, or approval from a licensed Landscape Architect or Certified Horticulturist.
SUB: Section 2.4-6	<b>Duties of Certain Offices</b> – Establishes the County Department of Public Works as the reviewing agency of storm sewer, detention/retention structures, erosion control, and water course improvements, as well as water distribution/supply improvements for locations not served by Cincinnati Water Works. Establishes the Metropolitan Sewer District (MSD) as the reviewing agency of planned sanitary systems within subdivisions. Establishes the Cincinnati Water Works (CWW) as the reviewing agency of planned water systems in the “County Water Area” and “Supplemental County Water Areas.”
SUB Section 3.2	<b>Definitions</b> – Defines the terms “capped system,” “dry lines,” “floodway,” “flood fringe,” and “grade.”
SUB: Section 5.3.2	<b>Subdivision Applications</b> – Upon determination of a complete application for a major subdivision, the Subdivision Administrator will distribute plans to the MSD, CWW, and other impacted regulatory agencies and Townships. In situations where all or part of the proposed subdivision cannot be served by public sanitary sewer systems (as determined by MSD) MSD will refer the matter to the County Board of Health for review and recommendation. The County Board of Health will also review sanitary disposal systems for single-family subdivisions with less than 10 lots and for all two-family and three-family dwellings. In situations where the subdivision cannot be served by existing public water mains, as determined by the CWW, CWW will refer the matter to the Hamilton County Board of Health for review and recommendation.

REGULATIONS ADDRESSING ENERGY AND RESOURCE MANAGEMENT	
REF.	REGULATION
SUB: Section 5.6	<b>Preliminary Subdivision Plan</b> – Establishes requirements for preliminary subdivision plans, including existing sewers, water mains and culverts, flood hazard areas, wetlands, floodplain management areas, detention basins, concept for any proposed wastewater pump station or treatment facility, concept approval from applicable water and/or sewer authority, and the Department of Public Works (storm drainage facilities). Also establishes additional information required for household sewage treatment system plans.
SUB: Section 12.6	<b>Water Supply</b> – Requires developments within 1,000 feet of an existing public water system to connect to the system or provide satisfactory justification to the local water authority and Department of Public Works. Also requires the review and approval of plans for water systems (including new public community water supplies, installation of dry lines, and use of wells and other sources).
SUB: Section 12.7	<b>Sanitary Sewers</b> – Requires development to connect to existing public sanitary sewer systems or provide justification and individual subsurface disposal systems instead. Requires the design but not construction of a capped system (“dry lines”) with appropriate easements if a public system is not in place or the current system cannot be extended, and all houses within the proposed subdivision must be designed to ultimately be served by public sanitary sewer systems. Also requires the review and approval of all designs for sanitary sewer systems (public or individual).
SUB: Section 12.8	<b>Private Sewage and Disposal Systems</b> – Prohibits private sewage treatment and disposal systems and the subdivision of land requiring the use of septic tanks and/or aerobic systems where necessary to protect the health, comfort, safety and welfare of the population or water supply. Establishes requirements and approval process for the creation of private central sewer systems for subdivisions with 10 lots or more, as well as process and requirements for private individual sewage systems. Identifies the Hamilton County Board of Health as the authority responsible for reviewing and approving such plans.
SUB: Section 12.10	<b>Drainage Easements</b> – Calls for the dedication of easements on the final plat as necessary for utility, access, and drainage purposes.
<b>Waste</b>	
ZON: Section 2-3	<b>Definitions</b> – Section 2-3 defines the terms “landfill,” “recycling drop-off facility,” “sanitary landfill,” “solid waste,” and “transfer station.”
ZON: Section 3-2	<b>Permitted Uses</b> – Recycling facilities, transfer stations, and drop-off centers allowed as permitted industrial uses in SW district at low intensity, and are permissible with PUD approval in the O, E, F, G, H, OO, EE, FF, and GG Districts, depending on level of intensity. Solid waste facilities are permitted uses in the E, F, G, SW, EE, FF, and GG Districts; processes are dependent upon intensity.

REGULATIONS ADDRESSING ENERGY AND RESOURCE MANAGEMENT	
REF.	REGULATION
ZON: Section 3-7.3	<b>Agricultural Accessory Uses</b> – Compost pile or bins are permitted as accessory uses in districts where agricultural uses are permitted, provided that they are located in the rear yard and at least three feet from every property line. On lots that are five acres or less, a Zoning Certificate may be required for agricultural accessory uses such as compost piles or bins.
ZON: Section 5-1.2b, 6-1.2b	<b>Refuse Control</b> – Limits the temporary storage of refuse materials in various districts and requires the covering and screening of outdoor refuse containers.
ZON: Section 7-3	<b>Solid Waste Facility District</b> – A separate district is established for the siting of solid waste facilities. Standards address screening, requirements for sanitary landfills, reclamation plans, and approvals.
ZON: Section 10-5	<b>Dumpsters and Trash Handling Areas</b> – Establishes setbacks and screening requirements for dumpsters, trash handling areas, and related service entrances for non-single-family districts.

## Diagnosis

The following table contains the analysis and diagnosis of regulations addressing energy and resource management. Items in the table are grouped according to recommended revisions: addressing barriers in existing development codes, creating incentives, and filling regulatory gaps.

The energy and resource management diagnosis table addresses the following sub-topics:

- Renewable Energy (wind, solar, geothermal)
- Energy Conservation
- Water Use (greywater reuse, water conservation)
- Stormwater Management (innovative stormwater approaches)
- Waste Management (waste reduction, reuse of materials, recycling)

Each recommendation is labeled according to the type of recommendation, where “ERM” means energy and resource management; “B” refers to barriers, “I” refers to incentives, and “G” refers to gaps; each is numbered in sequence for ease of reference.

In addition to possible revisions to address the barriers, potential incentives, and gaps, examples from other communities and organizations are provided for reference and further information. In some instances references are also made to the Leadership in Energy and Environmental Design (LEED) for Neighborhood Development (ND) rating system, which is a point-based system established by the U.S. Green Building Council (USGBC) to guide and evaluate the sustainability of neighborhood developments.

DIAGNOSIS: ENERGY AND RESOURCE MANAGEMENT		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<b>Remove Barriers</b>		
<b>Renewable Energy</b>		
<p><b>ERM-B1:</b> Conditional Use process for solar and wind facilities may discourage widespread installation.</p>	<ul style="list-style-type: none"> <li>Allow small-scale wind, solar, and geothermal facilities that conform to established regulations as permitted Accessory Uses (Section 10) instead of Conditional Uses, provided facilities conform to established regulations and a Zoning Certificate is issued.</li> </ul>	<ul style="list-style-type: none"> <li>State of Massachusetts has developed a model ordinance for “as-of-right” siting for small and large wind energy facilities.</li> <li>Denver, CO, permits solar energy systems as an accessory structure subject to the building form standards for accessory structures.</li> </ul>
<p><b>ERM-B2:</b> Standards for solar and wind energy facilities are scattered throughout various pages/sub-sections and may be difficult to follow.</p>	<ul style="list-style-type: none"> <li>All standards addressing solar, wind, and geothermal energy facilities should be consolidated in one section.</li> <li>All standards for renewable energy systems should address facilities in residential and non-residential districts.</li> </ul>	<ul style="list-style-type: none"> <li>Monroe County, PA, has developed a model ordinance for on-site usage of solar energy systems for Townships and municipalities in the County.</li> </ul>
<p><b>ERM-B3:</b> Subdivision regulations do not address homeowner covenants that restrict solar, wind, or geothermal installations.</p>	<ul style="list-style-type: none"> <li>Consider adding provisions to subdivision regulations (Section 12.14) and/or zoning regulations that prohibit homeowner covenants that ban residential solar, wind, and geothermal systems allowed by zoning and building regulations. (Note: additional legal research may be necessary to explore this issue at a Statewide level.)</li> </ul>	<ul style="list-style-type: none"> <li>States of Virginia and Colorado prohibit new restrictive covenants banning solar installations on private property (does not invalidate bans in existing homeowner covenants).</li> </ul>

DIAGNOSIS: ENERGY AND RESOURCE MANAGEMENT		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<b>Energy Conservation</b>		
<p><b>ERM-B4:</b> Subdivision regulations do not address homeowner covenants that restrict clothes lines or other energy conservation measures.</p>	<ul style="list-style-type: none"> <li>Consider adding provisions to subdivision regulations (Section 12.14) that prohibit homeowner covenants that ban outdoor clothes lines and other energy-conservation techniques allowed by zoning regulations. (Note: additional legal research may be necessary to explore this issue at a Statewide level.)</li> </ul>	<ul style="list-style-type: none"> <li>Fort Collins, CO, promotes energy conservation by not allowing prohibitions or limits to be set in homeowner covenants on clothes lines.</li> </ul>
<p><b>ERM-B5:</b> Engineering regulations do not permit the planting of trees in the right-of-way along County-maintained roadways.</p>	<ul style="list-style-type: none"> <li>Consider revising engineering and subdivision regulations to allow approved species of street trees to be planted within the right-of-way of County roadways to reduce the heat-island effect of paved roadways through enhanced shade cover.</li> </ul>	<ul style="list-style-type: none"> <li>Miami-Dade County, FL has a Street Tree Master Plan to address the challenges and benefits associated with trees along streets and highways.</li> <li>The Ohio Department of Natural Resources Forestry Division’s Street Tree Evaluation Project examined which trees grow best in Ohio’s urban areas.</li> </ul>
<b>Waste Management</b>		
<p><b>ERM-B6:</b> Zoning regulations indicate that small-scale compost bins or piles on lots five acres or less are subject to issuance of a Zoning Certificate, which may inhibit composting in residential and non-agricultural areas.</p>	<ul style="list-style-type: none"> <li>Consider amending the regulations to require Zoning Certificates only for large or commercial-scale compost facilities, and allowing small-scale backyard compost bins or piles as accessory uses in all areas.</li> </ul>	<ul style="list-style-type: none"> <li>Chapter 409 of the City Code for Roseville, MN, details requirements for composting in residential areas. Requirements address compost containers, location on property, materials, and maintenance.</li> </ul>

DIAGNOSIS: ENERGY AND RESOURCE MANAGEMENT		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<p><b>ERM-B7:</b> Subdivision regulations do not address homeowner covenants that restrict backyard compost piles or bins.</p>	<ul style="list-style-type: none"> <li>Consider adding provisions to subdivision regulations (Section 12.14) that prohibit homeowner covenants that ban backyard residential compost bins or piles as allowed by zoning regulations. (Note: additional legal research may be necessary to explore this issue at a Statewide level.)</li> </ul>	<ul style="list-style-type: none"> <li>Texas Statutes Section 202.007 restricts property owners’ associations from prohibiting composting, but does allow property owners’ associations to regulate the size, type, and location of composting devices.</li> </ul>
<b>Create Incentives</b>		
<b>Renewable Energy</b>		
<p><b>ERM-II:</b> County policies do not contain any incentives for renewable energy installations.</p>	<ul style="list-style-type: none"> <li>Consider offering expedited reviews and/or fee reductions/waivers for Zoning Certificates for the installation of renewable energy systems.</li> </ul>	<ul style="list-style-type: none"> <li>States of California and Colorado place limits on the amount of local fees that can be imposed on permits for domestic solar energy systems.</li> </ul>
<p><b>ERM-I2:</b> County policies do not contain any incentives for protecting solar access.</p>	<ul style="list-style-type: none"> <li>Consider adding more formal regulations for protecting solar access and/or establishing a Solar Rights Act for the County.</li> </ul>	<ul style="list-style-type: none"> <li>Laramie, WY, allows registration of solar panels that triggers protection.</li> </ul>
<b>Stormwater Management</b>		
<p><b>ERM-I3:</b> No incentives or encouragement of “green roofs” in development codes or processes.</p>	<ul style="list-style-type: none"> <li>Consider allowing green roofs credit to count towards a portion of stormwater or landscape requirements.</li> </ul>	<ul style="list-style-type: none"> <li>Portland, OR, identifies vegetated roof systems (ecorooft) as a means to comply with the City’s Stormwater Management Manual for new and redevelopment projects.</li> </ul>
<b>Waste Management</b>		
<p><b>ERM-I4:</b> Current code does not provide incentives for recycling.</p>	<ul style="list-style-type: none"> <li>Offer incentives for rehabilitation of existing buildings.</li> <li>Allow additional seating, less parking, or other bonus to restaurants, grocery stores or institutional users if a composting facility is provided on-site or used off-site.</li> </ul>	<ul style="list-style-type: none"> <li>Henderson, NV, grants two points in its sustainability point review system for providing an on-site composting station for all occupants.</li> <li>See LEED-ND Green Infrastructure and Buildings Credit 15: Recycled Content in Infrastructure and Credit 16: Solid Waste Management Infrastructure.</li> </ul>

DIAGNOSIS: ENERGY AND RESOURCE MANAGEMENT		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<b>Filling Regulatory Gaps</b>		
<b>Renewable Energy</b>		
<p><b>ERM-G1:</b> No zoning regulations to address solar panels or small-scale wind energy conversion systems as permitted or conditional uses in non-residential districts.</p>	<ul style="list-style-type: none"> <li>Update regulations to permit solar, wind, and geothermal energy systems in non-residential districts (using same or different standards as such uses in residential standards).</li> </ul>	<ul style="list-style-type: none"> <li>Lancaster, PA, has a comprehensive municipal guide to planning for and regulating various alternative energy systems.</li> <li>Denver, CO, permits solar and photo-voltaic energy systems as an accessory structure subject to the building form standards for accessory structures.</li> <li>Seattle, WA, permits by-right solar collectors, solar greenhouses, and other solar devices as an accessory use with specific design criteria for each district. The area covered or enclosed by solar collectors in some districts may be counted toward the required open space.</li> </ul>
<p><b>ERM-G2:</b> No zoning or subdivision regulations to address geothermal energy (individual or group systems).</p>	<ul style="list-style-type: none"> <li>Add provisions to clarify that small-scale geothermal energy systems are allowed as permitted uses in all zone districts (as accessory or conditional uses), and add standards to permit ground-source heating and cooling systems for individual properties and shared group systems.</li> </ul>	<ul style="list-style-type: none"> <li>North Dakota requires a permit for all nonresidential geothermal projects (allowing them without a permit for private residential uses) to ensure proper design and to minimize risk of environmental problems.</li> <li>Portland, OR, defines “Small Scale Energy Production” where energy is collected from solar, wind, geothermal, and more. This is considered a basic utility use and is allowed in most districts as an accessory use.</li> <li>Lake County, IL, has a model ordinance for the location, installation, operation, and main-</li> </ul>

DIAGNOSIS: ENERGY AND RESOURCE MANAGEMENT		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
		tenance of geothermal systems.
<p><b>ERM-G3:</b> No mandatory minimum percentage of energy generation from alternative sources for buildings/ developments.</p>	<ul style="list-style-type: none"> <li>Establish a target or mandatory minimum percentage of alternative energy generation (or purchase of credits or GHG reduction), especially for non-residential projects.</li> </ul>	<ul style="list-style-type: none"> <li>LEED-ND awards one point if 5% of energy is generated from renewable sources (Green Infrastructure and Buildings Credit 11).</li> <li>Henderson, NV, awards five points in sustainability point system if 20% of energy is generated on-site from renewable sources; three points if off-site.</li> <li>Boulder County, CO, established BuildSmart criteria for new one and two family dwellings and accessory buildings. The ordinance requires on-site renewable energy generation for specific uses. The amount of on-site renewable energy generation is determined according to the use and its size.</li> </ul>
<b>Energy Conservation</b>		
<p><b>ERM-G4:</b> No zoning or subdivision regulations to address the appropriate siting of buildings or orientation of buildings to take advantage of natural lighting or solar access.</p>	<ul style="list-style-type: none"> <li>Consider adding provisions to require minimum percentage of lots in larger subdivisions to be solar oriented (i.e., longer east-west axis to provide more exposure to sun), perhaps with flexibility to account for existing site constraints and topography.</li> <li>Consider adding solar-ready requirements to commercial buildings.</li> </ul>	<ul style="list-style-type: none"> <li>Multnomah County, OR, and Ft. Collins, CO, require 20-30% of lots in new subdivisions to be solar-oriented.</li> <li>LEED-ND Green Infrastructure and Buildings Credit 10 awards one point for solar oriented building or block design.</li> <li>Henderson, NV, grants points in its sustainability point review system for proper solar orientation.</li> <li>See Kettles, A Comprehensive Review of Solar Access Laws in Use and Suggested Standards for a model ordinance.</li> </ul>

DIAGNOSIS: ENERGY AND RESOURCE MANAGEMENT		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
		<ul style="list-style-type: none"> <li>• State of New Mexico has a Solar Rights Act that enables all who use and record their active or passive solar use to retain their access.</li> <li>• Marin County, CA, requires that new subdivisions are designed to accommodate passive solar heating and cooling. To accomplish this, the code mandates that streets, lots, and building setbacks be arranged so that the buildings are oriented with the long axis running east-west to maximize sunlight on the rooftop.</li> <li>• Ashland, OR, establishes solar setback provisions to ensure that shadows from a northern property do not block a southern property’s access to sunlight. Landowners can apply for a solar access permit to protect their property from shading by vegetation.</li> </ul>
<p><b>ERM-G5:</b> No zoning regulations to address electric vehicle (EV) charging stations.</p>	<ul style="list-style-type: none"> <li>• Consider requiring certain percentage/number of parking spaces to have EV charging stations or be prewired to provide in future.</li> <li>• Possibly require certain types of buildings (e.g., larger commercial) to be prewired with EV chargers.</li> </ul>	<ul style="list-style-type: none"> <li>• State of Oregon outright permits installation of electronic vehicle charging stations on already developed properties.</li> <li>• Salt Lake City allows charging stations as an accessory use.</li> <li>• San Francisco, CA, building code requires new construction to be prewired for electric car chargers.</li> </ul>

DIAGNOSIS: ENERGY AND RESOURCE MANAGEMENT		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<p><b>ERM-G6:</b> No requirement for provision of priority spaces for alternative fuel vehicles, car-pool vehicles, car-sharing vehicles, and shuttles.</p>	<ul style="list-style-type: none"> <li>Require provision of priority parking spaces for alternative fuel vehicles, carpool vehicles, car-sharing vehicles, and shuttles. Special electric vehicle parking spaces with chargers should be provided as well.</li> </ul>	<ul style="list-style-type: none"> <li>Buckeye, AZ, requires all developments with more than 20 off-street parking spaces to reserve a minimum of 5% of those spaces for alternative energy vehicles and/or car-pools.</li> <li>Los Angeles, CA, provides preferential parking for hybrid vehicles.</li> <li>LEED-ND awards three points out of 40 for basic certification for provision of preferential alternative fuel vehicle parking.</li> </ul>
<p><b>ERM-G7:</b> No zoning standards to address cool or vegetated/green roofs.</p>	<ul style="list-style-type: none"> <li>Add provisions for cool, green, and/or vegetated roofs as permitted uses (accessory or other).</li> <li>Add provisions to landscape standards for materials, installation, and maintenance of vegetated/green roofs.</li> </ul>	<ul style="list-style-type: none"> <li>LEED-ND awards one point for a cool or shaded roof.</li> <li>Chicago requires green roofs on all new downtown buildings.</li> <li>Henderson, NV, grants points in its sustainability point review system for cool or vegetated roofs.</li> </ul>
<p><b>ERM-G8:</b> Shade tree easements (parkways) are required only in specified areas during the platting process. No subdivision, zoning, or engineering regulations address the type of shade trees desired in parkway areas.</p>	<ul style="list-style-type: none"> <li>In order to reduce the “heat island” effect of roadways, revise subdivision regulations (Section 132.3.17) to require shade tree easements (parkways) along all new roadways and specify shade tree species and planting requirements.</li> </ul>	<ul style="list-style-type: none"> <li>LEED-ND Neighborhood Pattern and Design Credit 14 establishes standards for and provides credits for tree-lined and shaded streets.</li> </ul>

DIAGNOSIS: ENERGY AND RESOURCE MANAGEMENT		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<p><b>ERM-G9:</b> Outdoor lighting standards do not encourage the use of bulbs, fixtures, or mechanisms to conserve energy.</p>	<ul style="list-style-type: none"> <li>Consider amendments to the outdoor lighting standards in Section 12-7 and Appendix A-3.3 to require photovoltaic (PV)-powered outdoor lighting, LED and other modern, energy-saving lighting fixtures and bulbs.</li> <li>Add requirements for LED street lights for new developments (in coordination with Duke Energy).</li> <li>Also consider adding regulations that limit outdoor lighting during daylight hours and/or promote automatic controls to improve conservation.</li> </ul>	<ul style="list-style-type: none"> <li>Consider adoption of model regulatory provisions recommended by the Illuminating Engineers Society of America (IES) and International Dark-Sky Association (IDA).</li> <li>Plymouth, MN, has adopted an outdoor lighting ordinance that restricts illumination levels and establishes site lighting budgets.</li> <li>Shelburne, VT, requires commercial signs to be turned off if a business is not open.</li> </ul>
<p><b>Water Use</b></p>		
<p><b>ERM-G10:</b> No mentioning of designing water/sanitary sewer systems for future greywater systems in current subdivision standards.</p>	<ul style="list-style-type: none"> <li>Add provisions to facilitate the review/approval of greywater systems if developers wish to pursue/install such a system.</li> </ul>	<ul style="list-style-type: none"> <li>Arizona’s Greywater Law provides a tiered approach to the review and approval of greywater systems.</li> <li>Oasis Designs’ Greywater Policy Center provides a Model Greywater Ordinance on its website, and also provides information about inspecting greywater stub-outs.</li> </ul>
<p><b>ERM-G11:</b> No mentioning of water conservation, drought-tolerant species, or xeriscaping in landscaping standards.</p>	<ul style="list-style-type: none"> <li>Add provisions to landscaping and plant installation zoning standards (section 15-3) that identify the goal of water conservation and promote the use of drought tolerant, native plants and/or xeriscaping (non-irrigated landscape areas).</li> </ul>	<ul style="list-style-type: none"> <li>State of California has adopted legislation requiring all local governments to adopt new water-efficient landscape regulations with water budgets and other next-generation requirements.</li> </ul>

DIAGNOSIS: ENERGY AND RESOURCE MANAGEMENT		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<b>Stormwater Management</b>		
<p><b>ERM-GI2:</b> Subdivision requirements do not address proper grading techniques and/or the preservation of native vegetation to mitigate stormwater impacts.</p>	<ul style="list-style-type: none"> <li>• Add provisions to address the preservation of native vegetation and/or the multitude of grading techniques in subdivisions, including but not limited to use of swales, ditches, berms, storm sewers, detention and retention ponds, etc. as necessary to promote drainage and improve quality of stormwater runoff.</li> </ul>	<ul style="list-style-type: none"> <li>• LEED-NC Smart Location and Linkage Credit 6 provides one point for the protection of steep slopes. Green Infrastructure and Buildings Credit 8 awards up to four points for stormwater management.</li> </ul>
<p><b>ERM-GI3:</b> Regulations do not specifically address the collection of rainwater.</p>	<ul style="list-style-type: none"> <li>• Consider adding regulations to allow structures associated with a rainwater collection (e.g., rain barrel) as permitted accessory uses in all districts.</li> </ul>	<ul style="list-style-type: none"> <li>• Portland, OR, allows water collection cisterns under 6' in height in side and rear setback areas.</li> <li>• Santa Fe, NM, encourages rainwater collection as part of its green building code checklist.</li> </ul>
<b>Waste Management</b>		
<p><b>ERM-GI4:</b> No provisions for comprehensive recycling in current regulations.</p>	<ul style="list-style-type: none"> <li>• Consider adding provisions to require recycling in multi-family areas and non-residential districts.</li> <li>• Require outdoor refuse enclosures in multi-family areas and non-residential to be sized appropriately for trash and recycling containers.</li> </ul>	<ul style="list-style-type: none"> <li>• Austin, TX, requires an easily-accessible and clearly-marked area for recycling serving the entire facility in its green building commercial program.</li> <li>• Salt Lake City is considering regulations requiring recycling sites in commercial and multi-family buildings and recycling bins in all residential structures.</li> </ul>

DIAGNOSIS: ENERGY AND RESOURCE MANAGEMENT		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<p><b>ERM-GI5:</b> No encouragement of or requirements for the recycling of construction waste or deconstruction rather than demolition of existing buildings in current regulations.</p>	<ul style="list-style-type: none"> <li>Require that construction management plans be required for projects of certain size and that the handling of construction waste be detailed in the plan.</li> <li>Or, if a reasonable facility exists to recycle or compost construction waste, the County could require a certain percentage of construction waste be recycled.</li> <li>Consider adopting a requirement that existing buildings of an existing size be deconstructed rather than demolished, with the materials separated for recycling, reuse, and/or resale.</li> </ul>	<ul style="list-style-type: none"> <li>LEED-ND (Green Construction and Technology Credit 18) addresses construction waste management; Credit 19 addresses composting stations.</li> <li>San Mateo, CA, has a comprehensive ordinance requiring the diversion or recycling of construction and demolition debris. California state law requires all jurisdictions to have major waste reduction programs or pay penalties.</li> <li>Pitkin County, CO, requires construction management plans that must address construction site waste reduction and recycling. They also require deconstruction instead of demolition and separation of materials for recycling or resale.</li> </ul>
<p><b>ERM-GI6:</b> No encouragement of mulch or recycled-content groundcover materials in landscaping regulations (as opposed to rock or gravel).</p>	<ul style="list-style-type: none"> <li>Develop a list of recommended landscape/groundcover materials as a more sustainable, local, and low-energy option than gravel and rock.</li> </ul>	<ul style="list-style-type: none"> <li>The University of Minnesota’s Sustainable Urban Landscape Information Series provides information about mulch and plant selection in the Midwest.</li> </ul>

## DEVELOPMENT PATTERNS

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### Introduction

This section of the diagnosis addresses the topic of development patterns, and how they are related to energy and climate change, and identifies regulatory options for addressing this issue. Climate change will require the creation of policies and solutions to address the problem. The earth's climate is predicted to change because of human activities altering the chemical composition of the atmosphere. There most likely will be increases in temperature and changes in precipitation, soil moisture, and sea level, which could have adverse effects on many ecological systems, as well as on human health and the economy.

Greenhouse gases, with their heat-trapping properties, are increasingly linked to and seen as the leading cause of global warming. Greenhouse gases (GHGs) are primarily made up of carbon dioxide, methane, nitrous oxides, and chlorofluorocarbons. They contribute to global warming by trapping infrared radiation and heat from the sun within the earth's atmosphere. The bulk of greenhouse gasses emitted in the U.S. are associated with transportation, energy generation, and energy usage. The burning of fossil fuels — coal, oil, and natural gas — for energy is the primary source of emissions. Energy burned to run vehicles, heat homes and businesses, and power factories is responsible for about 80% of global carbon dioxide emissions, about 25% of U.S. methane emissions, and about 20% of global nitrous oxide emissions.

Along with the issues of GHGs and its cause and effect relationship with climate change is the overarching issue of total air quality, where ozone and particulate matter add additional challenges to the goal of cleaner air and meeting U.S. Environmental Protection Agency (EPA) standards. Poor air quality impacts public health, the natural environment, economic interests, and business attraction, issues that are important to Hamilton County. GHG reduction can be accomplished through a combination of operational, technological investment, and educational initiatives. Land development regulations that govern new growth, development, and redevelopment can also play a key role. Promoting development patterns that lead to less auto-dependent mobility, reduced vehicle miles traveled, and a corresponding reduction in GHGs, should be part of Hamilton County's energy efficiency strategy.

Sustainable urban development patterns can be promoted by zoning strategies that encourage mixed use development (residential and commercial uses in the same area), reduced parking requirements, transportation alternatives, walkable communities, compact/denser building design, and provision of trees/green space. Such approaches can enable a community to fight climate change (and improve quality of life) by reducing personal automobile dependence, increasing trees and green space, and encouraging renewable energy usage. Improved urban design through regulations and incentives, with attention to trees, landscaping, and shading, have the added benefit of mitigating what people experience — the urban heat island effect and poor air quality.



*Accessory dwelling units, or ADUs, offer one way to retrofit traditional suburban neighborhoods with more compact and affordable housing options.*

Several studies have linked denser, compact communities with reduced driving and in turn, reduced GHG emissions. For example, a study by Reid Ewing of 83 metro areas found that residents in compact regions such as Portland and Boston drive 25% less than sprawling

regions such as Atlanta and Raleigh.<sup>1</sup> Higher-density urban areas, especially those incorporating mixed uses, make public transit and people-powered transportation more practical, while reducing emissions and encouraging exercise.

The vision statement of the Community COMPASS Plan adopted by Hamilton County sets forth statements for multiple topics, including land development patterns. The Land Use and Development Framework vision encourages “well-planned, controlled growth that, in the context of the greater region, balances downtown, neighborhood and community development with open space and natural areas to encourage revitalization of existing communities, and aid in economic and racial integration.” The COMPASS Plan finds that land consumption per person within Hamilton County is increasing as housing buyers choose low-density new developments over compact older communities. This pattern results in declining population levels in older communities and the core area.

Implementation of the COMPASS plan is still underway, and is guided by the 2030 Plan and Implementation Framework. The 2030 Plan and Implementation Framework identifies 30 initiatives to achieve the recommendations of the COMPASS plan, including an initiative on Countywide Growth Plan. The strategies included in this initiative include promotion of compact development and mixed use zoning to use infrastructure more efficiently, and development of land use policies and model zoning ordinances that include mixed use and town center development patterns. These strategies remain relevant and can be advanced by the analyses presented in this report.

The COMPASS Plan indicates that studies on costs of development patterns have found that low-density development is costlier for the provision of infrastructure and services. The fiscal capacity of older communities in Hamilton County is diminished as growth moves outward. The cost per capita for maintenance and expansion of infrastructure increases as the population in the County decreases. The Hamilton County Climate Initiative Development Green Guide identifies a number of strategies that should be considered to address the development pattern concerns identified in the Community COMPASS Plan. These strategies include smart growth, mixed use, compact development, incentives for green development, and zoning to decrease carbon emissions.

### Current Regulations

The following table cites some of the main current development regulations related to development patterns. It is not meant to be all-inclusive, but to highlight some of the key provisions currently on the books that are directly related to urban form and development.

Each regulation is labeled according to the source document, using the corresponding article or section number from the source document. The following abbreviations are used for each source document: “SUB” refers to the County’s 2008 Subdivision Rules and Regulations, “ZON” refers to the County’s 2010 Zoning Resolution, and “ENG” refers to the County Engineer’s Regulations for Subdivisions. Other relevant County codes and regulations are noted within the table as necessary.

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<sup>1</sup> Ewing, Growing Cooler: The Evidence on Urban Development and Climate Change (2009).

REGULATIONS ADDRESSING DEVELOPMENT PATTERNS	
REF.	REGULATION
<b>Development Patterns</b>	
ZON: Section 1-1	<b>Authority and Purpose</b> – The purpose statement establishing the intent of the Zoning Resolution includes reference to facilitating “revitalization and redevelopment of blighted areas”, and encouraging “compatibility between different proposed land uses” to protect the character of the different areas of the County.
ZON: Section 2-3	<b>Definitions</b> – Section 2-3 contains several definitions for terms related to compact and mixed use development patterns, including “accessory apartment”, “density bonus”, “granny cottage”, “home occupation”, “park and ride”, “patio residential dwellings”, “single-family clustered residential”, and “zero lot-line residential”.
ZON: Section 3-2, Table 3-2	<p><b>Permissible Uses</b> – Alternative single-family detached dwellings, such as patio, zero lot-line, and clustered dwelling units, are permitted in the AA, A, A-2, B, B-2 and C Residential, D Multi-Family Residential, H Riverfront, O Office, and E Retail Districts.</p> <ul style="list-style-type: none"> <li>• Development of these options in the AA, A, A-2, B, B-2 and C Residential Districts at the densities of the underlying zone require a public hearing process involving review and approval by the Rural Zoning Commission (RZC) of a Planned Unit Development “PUD-1”. Lot design flexibility can be granted, but not density increases.</li> <li>• Development of these alternative dwelling types in the D Multi-Family Residential District at densities not exceeding 7.26 du/ac do not require a public hearing or PUD plan.</li> <li>• Development of these options for “moderate density – maximum of 9.7 du/ac.” requires a public hearing process involving review and approval by the RZC of a Planned Unit Development “PUD-1”.</li> <li>• Development of these alternative dwelling types at “high density – maximum of 14.5 du/ac” in the D Multi-Family Residential District requires a public hearing process involving review and recommendation by the RZC, and review and approval by the Board of County Commissioners (BCC) of a Planned Unit Development “PUD-2.”</li> <li>• Development of these alternative dwelling types at any density in the O Office or E Retail Districts requires a public hearing process involving review and approval by the RZC of a Planned Unit Development “PUD-1.”</li> </ul>
ZON: Section 3-2, Table 3-2	<b>Permissible Uses</b> – “Accessory apartments” and “granny cottages” are permitted in the AA, A, A-2, B, B-2 and C Residential and H Riverfront Districts as a conditional use requiring a public hearing and review and approval by the Board of Zoning Appeals (BZA).

REGULATIONS ADDRESSING DEVELOPMENT PATTERNS	
REF.	REGULATION
ZON: Section 3-2, Table 3-2	<p><b>Permissible Uses</b> – Multi-family dwellings of various densities are permitted in the D Multi-Family Residential District and in the O Office and E Retail Districts.</p> <ul style="list-style-type: none"> <li>• “Low density – maximum 7.26 du/ac” multi-family dwellings are permitted as-of-right in the D Multi-Family Residential District.</li> <li>• “Moderate density – maximum 9.7 du/ac” multi-family dwellings in the D Multi-Family Residential District require a public hearing process involving review and approval by the RZC of a Planned Unit Development “PUD-1.”</li> <li>• “High density – maximum 14.5 du/ac” multi-family dwellings in the D Multi-Family Residential District require a public hearing process involving review and recommendation by the RZC, and review and approval by the BCC of a Planned Unit Development “PUD-2.”</li> <li>• Multi-family dwellings at any density in the O Office and E Retail Districts require a public hearing process involving review and approval by the RZC of a Planned Unit Development “PUD-1.”</li> </ul>
ZON: Section 3-2, Table 3-2	<p><b>Permissible Uses</b> – Office uses with an intensity not to exceed 0.60 impervious surface ratio (ISR) are permitted in the D Multi-Family Residential District as a conditional use requiring a public hearing and review and approval by the BZA, allowing a mixture of non-residential uses in a residential district.</p>
ZON: Section 3-2, Table 3-2	<p><b>Permissible Uses</b> – Office or retail development projects with an intensity that exceeds 0.60 ISR require a public hearing process involving review and approval by the RZC of a Planned Unit Development “PUD-1.” This applies to new construction as well as redevelopment, expansion or modification of existing developments.</p>
ZON: Section 3-2, Table 3-2	<p><b>Permissible Uses</b> – Limited institutional and public service uses are permitted in the AA, A, A-2, B, B-2 and C Residential and D Multi-Family Residential Districts.</p> <ul style="list-style-type: none"> <li>• Nursing homes are permitted in the D Multi-Family Residential, O Office and E Retail Districts. If the ISR exceeds 0.60, a public hearing process involving review and approval by the RZC of a Planned Unit Development “PUD-1” is required.</li> </ul>
ZON: Section 3-5.16	<p><b>Pavement in Required Front Yards of Residential Districts</b> – The maximum impervious surface ratio of the required front yard in a residential district is 0.50.</p>
ZON: Section 4-1.1	<p><b>Statement of Intent; Residential Districts</b> – The statement of intent describes a desire to provide a “range of housing choices,” “balance of housing types and densities,” and to “implement housing policies.”</p>

REGULATIONS ADDRESSING DEVELOPMENT PATTERNS	
REF.	REGULATION
ZON: Section 4-1.5, Tables 4-6 and 4-7	<p><b>Lot Area, Lot Width, Building Height and Yard Standards</b> – Establishes lot area and width, building height, and yard requirements for residential uses permitted as-of-right (Table 4-6) and for single-family detached dwellings in PUDs (Table 4-7).</p> <ul style="list-style-type: none"> <li>• The A-A District has the largest minimum lot area requirement for as-of-right single-family dwellings – 43,560 square feet.</li> <li>• The C District has the smallest minimum lot area requirement for as-of-right single-family dwellings – 6,000 square feet.</li> <li>• Patio dwellings (within a PUD) are allowed on minimum lots of 2,750 square feet, however, the density cannot exceed the allowable density of the underlying district (unless a “density bonus” is approved – see review of ZON: Section 4-2.6 below).</li> </ul>
ZON: Section 4-1.5(a)	<p><b>Front Yard Setback Alignment with Adjacent Lots</b> – Allows front yard setback to be within the context of adjacent properties.</p>
ZON: Section 4-2.3, 2.5, 2.6	<p><b>Planned Unit Developments</b> – Establishes that PUDs may be used in the AA, A, A-2, B, B-2 and C Residential Districts for alternative single-family detached dwellings, such as patio, zero lot-line, and clustered dwelling units, and that the density of the underlying district shall be met. Standards for minimum lot size, minimum lot width, minimum setbacks and building separation are established for each alternative single-family dwelling type.</p> <ul style="list-style-type: none"> <li>• A “density bonus” allowing an increase of 5% of the net density is permitted where at least 40% of the net acreage of the development is preserved as dedicated open space.</li> </ul>
ZON: Section 4-3, 3.6	<p><b>D Multi-Family Residential Dwellings; Standards for Townhouse Dwellings</b> – Standards for townhouse dwellings are defined, including minimum lot area, maximum number of attached units, minimum lot width, minimum front and rear yards, and minimum setback from right-of-way.</p>
ZON: Section 5-1.7, Table 5-5	<p><b>Commercial Districts; Lot Area, Bulk and Yard Standards</b> – Establishes a maximum impervious surface ratio of 0.60 within O and E Districts. This threshold may be exceeded if a PUD-I is approved which involves a public hearing review and approval by the RZC. This applies to new construction as well as redevelopment, expansion or modification of existing developments.</p>

REGULATIONS ADDRESSING DEVELOPMENT PATTERNS	
REF.	REGULATION
ZON: Section 7-7	<b>Specific Plan Districts (“Double Letter” Districts)</b> – Defines the intent of specific plan districts to “encourage innovative design and efficiency in the use of land” using a unified, legally binding plan to assure “harmonious relationship with existing and potential development” using “flexible standards based on public review and legislative approval”, after a zoning map amendment, requiring review by Regional Planning Commission (RPC), recommendation by RZC, and action by BCC. This section establishes the authority of the BCC to modify maximum height and bulk, and minimum lot area and yard requirements in the Specific Plan Districts, but not to increase the density for residential developments. The BCC also have the authority to further restrict regulations for land use, and to relax or further restrict regulations within Specific Plan Districts, including parking, landscaping and other development standards. “Double Letter” districts are commonly used for multi-family, office, retail, and industrial developments.
ZON: Section 8-1.3, 1.7	<b>Special Public Interest (SPI) Districts</b> – The stated purpose for the SPI Districts is to protect the public and property owners from “blighting influences,” “damage to neighborhoods,” “destruction of prominent natural features,” “damage to the economic value and efficiency of operation of existing properties and/or new developments due to the interdependence of their visual and functional relationships,” and “the detrimental cumulative effects of incremental development decisions in suburban centers, corridors, neighborhoods and villages.” SPI strategies may contain standards for location of buildings; architectural character of buildings; streetscape; building and land use mix, diversity and unifying elements; and pedestrian and vehicular circulation.
ZON: Section 8-3	<b>Special Public Interest – Neighborhood Quality Districts</b> – Establishes the ability for the County to create SPI Districts in order to protect specific neighborhoods, and to balance the benefits of growth and development of institutions and neighborhood support services with the livability of adjacent residential neighborhoods. The County has not applied this SPI District.

REGULATIONS ADDRESSING DEVELOPMENT PATTERNS	
REF.	REGULATION
ZON: Section 8-4, 8-4.1, 4.2, 4.4, 4.5, 4.6, 4.7, 4.8	<p><b>Special Public Interest – Suburban Center/Corridor Districts</b> – Establishes the ability for the County to create SPI Districts for business districts and corridors in order to prevent deterioration of property and extension of blight, to encourage and protect private investment, and to prevent the “creation of influences adverse to the physical character of the area.” The County has created three Suburban Corridor and two Suburban Center SPI Districts. Specific regulations adopted within these SPI Districts include:</p> <ul style="list-style-type: none"> <li>• Vehicular connections with adjoining property are required (Harrison &amp; Dry Fork/Harrison Township SPI-SC 2003-03, Harrison Southeast/Harrison Township SPI-SC 2003-04, Plainville Road/Columbia Township SPI-SC 2006-03, Ridge and Highland/Columbia Township SPI-SC 2006-08).</li> <li>• Permissible uses altered to allow apartments/attached condominiums in E Retail Districts on the 2<sup>nd</sup> or 3<sup>rd</sup> floor above a commercial use on the first floor, increasing the maximum allowable density to 21.78 du/ac, and increasing the maximum ISR to 0.85 (Plainville Road/Columbia Township SPI-SC 2006-03).</li> <li>• Lot area, bulk and yard requirements modified to increase building height, reduce minimum lot area, reduce minimum lot width, and reduce the yard requirements (Plainville Road/Columbia Township SPI-SC 2006-03, Ridge and Highland/Columbia Township SPI-SC 2006-08).</li> <li>• Off-street parking requirements reduced by 50% (Plainville Road/Columbia Township SPI-SC 2006-03).</li> <li>• Buffer yard and streetscape planting requirements modified (Plainville Road/Columbia Township SPI-SC 2006-03).</li> <li>• Architectural standards added such as building façade transparency, standards for roof design, and façade offsets (Plainville Road/Columbia Township SPI-SC 2006-03 and Ridge and Highland/Columbia Township SPI-SC 2006-08).</li> <li>• Pervious pavement is permitted for up to 25% of required parking spaces, and spaces with pervious pavement do not require landscaping requirements (Ridge and Highland/Columbia Township SPI-SC 2006-08).</li> <li>• Interior landscaping requirements for vehicular use areas are increased and specific landscape materials are identified (Ridge and Highland/Columbia Township SPI-SC 2006-08).</li> <li>• Pedestrian connections required along the street, from the building to the street and through vehicular use areas (Ridge and Highland/Columbia Township SPI-SC 2006-08).</li> </ul>

REGULATIONS ADDRESSING DEVELOPMENT PATTERNS	
REF.	REGULATION
ZON: Section 8-5	<b>Special Public Interest – Suburban Village Districts</b> – Establishes the ability for the County to create SPI Districts in order to conserve areas with village and hamlet character. The objective of these districts is to encourage daily activities, including dwellings, shopping, and working, within walking distance in order to minimize traffic congestion, reduce the need for road construction, encourage public transit, provide a sense of place, and integrate economic class and age groups in a range of housing types and workplaces. The County has not applied this SPI District.
ZON: Section 10-4	<b>Home Occupations</b> – Establishes the restrictions for home occupations as a permitted accessory use to any permitted dwelling unit, including the limitation that no persons shall be employed other than members of the immediate family residing on the premises.
ZON: Section 12-2.1	<b>Vehicular Use Areas – Applicability; New and Expanded Uses</b> – Off-street parking and loading space requirements apply to new buildings. For change in use, alterations or expansions, the requirements apply only to the area of alteration, addition or change of use.
ZON: Section 12-3, Table 12-9	<b>Vehicular Use Areas – Number of Off-Street Parking Spaces</b> – Sets forth off-street parking space requirements for land uses.
ZON: Section 12-3.3	<b>Vehicular Use Areas – Shared Parking</b> – Allows up to a 50% reduction if adjacent parcel uses do not share the same hours of operation or demand when a shared parking agreement is provided.
ZON: Section 12-4.5	<b>Vehicular Use Areas – Surface and Drainage</b> – Allows use of pervious pavement in vehicular use areas.
ZON: Section 12-6.4	<b>Vehicular Use Areas – Planting Requirements</b> – Requires additional tree planting in vehicular use areas for nonretail and retail uses that provide more than 120% of the required number of parking spaces.
ZON: Section 14-5	<b>Buffer Yards and Resource Protection – Modifications and Waivers</b> – RZC or BZA approval is needed to modify buffer requirements.

REGULATIONS ADDRESSING DEVELOPMENT PATTERNS	
REF.	REGULATION
ZON: Section 17-7, 17-12, Table 17-12	<p><b>Specific Criteria Pertaining to Conditional Uses; List of Conditional Uses</b> – Establishes criteria for accessory apartments and granny cottages as a conditional use.</p> <ul style="list-style-type: none"> <li>• Criteria for accessory apartments include limiting exterior alterations of an existing structure to maintain the residential character; compatibility of new structures with surrounding neighborhood; no identification signage; the apartment shall be subordinate to the principal use; and evaluation of the intensity apartment in regard to the location, size and configuration of the parcel.</li> <li>• Criteria for granny cottages include no identification signage; architectural design and site layout of the structure and location, nature, and height of walls, screens and fences are to be compatible with adjoining land uses and residential character of the neighborhood; coverage of the rear yard not to exceed 10%; coverage of the entire lot not to exceed 20%; unit to be a maximum of 900 SF and 15 feet in height; and the terms of continuation of the granny cottage and for removal or termination are to be specified in the application and within the approving resolution.</li> </ul>
ZON: Section 18-3.3	<p><b>PUD Overlay and Review Procedures; Approval of Modification of Specific Requirements</b> – Allows the RZC or BCC to modify development standards for specific PUD applications, except does not allow a modification to the “average net density” for residential projects. This section specifically references “provision of compact car spaces,” however there are no standards within the vehicular use standards for such spaces.</p>
ENG: Section 104	<p><b>County/State Road Right-Of-Way</b> – Establishes that all subdivisions abutting a County or State road shall provide in-fee right-of-way width in accordance with the current Thoroughfare Plan.</p>
SUB: Section 2.1	<p><b>Duties of Certain Offices – Regional Planning Commission</b> – Establishes the authority of the RPC to review and approve preliminary subdivision plans, final plats, and to grant or deny variations to the subdivision Rules and Regulations for Plats and Subdivisions of Land.</p>
SUB: Section 6.1.2	<p><b>Variations – Additional Authority in Planned Unit Developments</b> – Defines that the PUD approach to development is encouraged, and that the Subdivision Regulations may be “modified to the degree necessary to accomplish the objectives and standards set forth in applicable zoning resolutions for planned unit development of residential, commercial or industrial subdivisions.”</p>
SUB: Section 12.2.2	<p><b>Subdivision Design Standards – Lot Arrangement and Design</b> – Establishes that every lot in a subdivision shall abut a publicly-dedicated street with at least 50 feet of frontage, excepting rear or panhandle lots.</p>
SUB: Article 13	<p><b>Site Protection and Buffering</b> – Topsoil preservation, debris removal, and protection of “fine specimens” (trees) during subdivision activity are required. The RPC may require buffering when there is a need to shield neighboring property from adverse impacts from adjacent development, impacts from adjacent streets or railroads, or to screen public views of rear yards.</p>

## Diagnosis

The following table contains a diagnosis of regulations addressing development patterns in Hamilton County, and is grouped according to recommended revisions to address the barriers, create incentives, and fill gaps. The table is organized into the following subheadings:

- Mix of land uses;
- Compact or clustered development; and
- Infill development.

Each recommendation is labeled according to the type of recommendation, where “DP” means development patterns; “B” refers to barriers, “I” refers to incentives, and “G” refers to gaps; each is numbered in sequence for ease of reference.

DIAGNOSIS: DEVELOPMENT PATTERNS		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<b>Remove Barriers</b>		
<b>Mix of Land Uses</b>		
<p><b>DP-BI:</b> Alternative single-family dwelling types are permitted in the O Office and E Retail Districts, but the review process involves a public hearing process. (This is also a requirement in the AA-C Residential Districts, but alternative single-family dwelling types might be more desirable /feasible/compatible in areas that are predominantly non-residential in nature).</p>	<ul style="list-style-type: none"> <li>• Change the review process to allow certain densities of alternative single-family dwelling types as of right in the O and E Districts without requiring a PUD, but with compatibility and design standards as a means to encourage mixed uses.</li> <li>• Supplement the existing development standards and guidelines for each dwelling type to strengthen the review process by the zoning staff.</li> <li>• Require low density alternative single-family dwelling types in O and E Districts to go through a public hearing review process, while developments at higher densities – threshold to be determined – to be permitted as of right.</li> </ul>	<ul style="list-style-type: none"> <li>• Henderson, NV, has adopted building design standards for single-family, multi-family and mixed use projects, and residential compatibility standards for commercial districts that allow residential uses.</li> <li>• North Las Vegas, NV, has enacted small lot development standards for residential dwellings, including site layout and architectural design requirements.</li> </ul>

DIAGNOSIS: DEVELOPMENT PATTERNS		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<p><b>DP-B2:</b> Accessory apartments and granny cottages require a conditional use hearing and approval by the BZA in residential districts.</p>	<ul style="list-style-type: none"> <li>• Allow these uses as permitted accessory uses requiring staff review.</li> <li>• Modify existing conditional use standards in ZON Sec. 17-7 and Table 17-12, or develop new standards for these uses for staff review.</li> </ul>	<ul style="list-style-type: none"> <li>• Denver, CO, permits accessory dwelling unit buildings as an accessory structure subject to the building form standards for accessory structures.</li> <li>• Seattle, WA, allows accessory dwelling units in most residential areas with protective standards and with an annual cap on the number of units permitted.</li> <li>• Boise, ID, allows accessory dwelling units in all single-family zoning districts, and has restrictions that are intended to ensure that the visible and functional character of the neighborhood is not affected by accessory units. In general, accessory units may not be larger than 1-bedroom nor larger than 600 square feet in size, they may not have a front door that faces the street, they must be designed to match the architectural style of the house they are added to, they must have one off-street parking space, they may not be sold separately from the main dwelling, and either the main dwelling or the accessory dwelling unit must be owner-occupied.</li> </ul>
<p><b>DP-B3:</b> Multi-family dwellings in the O and E Districts require a public hearing process. D District does not allow for mixed uses.</p>	<ul style="list-style-type: none"> <li>• Change the review process to allow certain densities of multi-family dwellings as of right in the O and E Districts. Create development standards and guidelines for multi-family dwellings to allow review and approval by the zoning staff, with design standards.</li> <li>• Evaluate multi-family districts for potential mixed use options.</li> <li>• Allow higher density multi-family dwelling types in O and E Districts to be</li> </ul>	<ul style="list-style-type: none"> <li>• Overland Park, KS, has architectural design and site layout standards for multi-family residential uses.</li> <li>• Colorado Springs, CO, has mixed use zone districts and design standards that promote mixed use projects while protecting surrounding lower-scale residential neighborhoods.</li> <li>• Henderson, NV, has tiered mixed use zone districts with specific standards set for each zone.</li> <li>• Columbus, OH, has created the Traditional Neighborhood Development District to encourage development of transit-supportive mixed use neighborhoods.</li> </ul>

DIAGNOSIS: DEVELOPMENT PATTERNS		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
	permitted as of right, and that low density multi-family dwelling types to go through a public hearing review process.	
<b>DP-B4:</b> Home occupations are limited to employment of immediate related family.	<ul style="list-style-type: none"> <li>Modify existing accessory use regulations for home occupations to allow one non-family employee.</li> </ul>	<ul style="list-style-type: none"> <li>Williamson County, TN, allows up to two home occupations per single-family dwelling, and each occupation may employ one person in addition to the resident.</li> </ul>
<b>Compact Development</b>		
<b>DP-B5:</b> A variety of alternative single-family dwelling types are permitted in the AA-C Districts, however, the review process involves a public hearing process.	<ul style="list-style-type: none"> <li>Modify the review process to allow alternative single-family dwelling types that comply with the underlying zoning densities to be permitted as of right, with design standards.</li> </ul>	<ul style="list-style-type: none"> <li>Overland Park, KS, has a Planned Residential Neighborhood District that establishes a minimum percentage of three different dwelling types.</li> </ul>
<b>DP-B6:</b> Alternative single-family dwelling types that exceed 7.3 du/ac are permitted in the D District, but the review process involves one or more public hearings depending on proposed density.	<ul style="list-style-type: none"> <li>Allow alternative single-family dwelling types in the D District at increased densities as of right.</li> <li>Supplement the existing development standards and guidelines for each dwelling type to strengthen the review process by the zoning staff.</li> </ul>	<ul style="list-style-type: none"> <li>Overland Park, KS, allows density increases based on provision of specific types of site and design improvements.</li> </ul>
<b>DP-B7:</b> Multi-family dwellings that exceed 7.26 du/ac require a public hearing process.	<ul style="list-style-type: none"> <li>Modify the density threshold that requires a public hearing in the D District to increase the types of dwellings that are permitted as of right.</li> <li>Create development standards and guidelines for multi-family dwellings to allow review and approval by the zoning staff.</li> </ul>	<ul style="list-style-type: none"> <li>Henderson, NV, has adopted building design standards for multi-family dwellings.</li> <li>Franklin, TN, defines development standards for attached residential dwellings, addressing building orientation, design, height, facades, roof form and parking locations.</li> </ul>

DIAGNOSIS: DEVELOPMENT PATTERNS		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<p><b>DP-B8:</b> Off-street parking requirements do not define maximum amounts of parking spaces.</p>	<ul style="list-style-type: none"> <li>• Adopt maximum parking limits (i.e. as a defined amount per use, or as a percentage of minimum required parking spaces).</li> <li>• Strengthen existing regulations requiring additional landscaping for parking that exceeds 120% of required off-street parking.</li> <li>• Evaluate existing off-street parking standards and identify parking requirements that can be reduced.</li> <li>• Adopt standards for compact vehicle spaces.</li> </ul>	<ul style="list-style-type: none"> <li>• Existing SPI regulations adopted in the Plainville Road District allow the off-street parking requirements to be reduced by 50%.</li> <li>• Anderson Township, Hamilton County, OH, has an “optimal required parking spaces” standard that allows the zoning staff to permit 10% more or less than the required minimum number of parking spaces. Standards are provided if more than a 10% increase or decrease is requested.</li> <li>• Boone County, KY, has a provision that states that the maximum number of parking spaces which may be provided is 30% greater than the required minimum number, unless a parking study acceptable to the Zoning Administrator is provided which demonstrates that a specific use or proposal has a greater parking need or demand.</li> <li>• Irving, TX, limits commercial and industrial uses parking to 125% of the minimum parking spaces required.</li> </ul>
<p><b>Infill Development</b></p>		
<p><b>DP-B9:</b> Expansion or modification of an existing building or site that exceeds 0.60 ISR in a non-residential district requires a PUD-1 and public hearing process.</p>	<ul style="list-style-type: none"> <li>• Increase the ISR threshold for expansion and redevelopment projects to encourage infill development, allowing staff approval of such projects.</li> <li>• Consider creating “Infill Redevelopment Standards” for smaller sites, reducing requirements for compliance with certain development standards to encourage infill development without requiring a public review or hearing process.</li> </ul>	<ul style="list-style-type: none"> <li>• The Plainville Road Suburban Corridor District – SPI-SC 2006-03 (Columbia Township) contains provisions that reduce ISR thresholds, as well as other area and bulk requirements.</li> </ul>

DIAGNOSIS: DEVELOPMENT PATTERNS		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
	<ul style="list-style-type: none"> <li>Reduce the threshold for in-fee right-of-way dedication for redevelopment or infill projects for smaller sites.</li> </ul>	
<p><b>DP-B10:</b> A public review process is needed to allow a modification of landscape or buffer requirements for infill, expansion and redevelopment projects.</p>	<ul style="list-style-type: none"> <li>Allow the zoning staff to approve an alternative landscape plan for infill, redevelopment or expansion projects so that a public hearing is not required.</li> </ul>	<ul style="list-style-type: none"> <li>Pascagoula, MS, allows the zoning administrator to approve an alternative landscape plan under certain conditions and based on standards.</li> </ul>
<p><b>DP-B11:</b> Nonconforming use/structure requirements do not specify that “green” building renovations or expansions are permitted without bringing the existing use/structure into strict compliance.</p>	<ul style="list-style-type: none"> <li>Clarify that renovations or expansions related to “green building” design (e.g. adding solar panels) may be made without bringing entire site into compliance.</li> <li>Consider allowing expansions that reduce the degree of nonconformity or do not increase it, to proceed without full compliance.</li> </ul>	<ul style="list-style-type: none"> <li>Salt Lake City, UT, adopted administrative provision allowing “green building” improvements to nonconforming uses/structures without full site compliance.</li> <li>Many mature communities allow expansion of nonconforming uses/structures if the expansion does not increase the degree of nonconformity.</li> </ul>
Create Incentives		
Mix of Land Uses		
<p><b>DP-II:</b> No reduction in parking requirements provided for mixed use development projects.</p>	<ul style="list-style-type: none"> <li>Grant automatic reductions in off-street parking in mixed use projects (e.g. 25%), or allow applicant to submit a parking study supporting an increased parking reduction.</li> </ul>	<ul style="list-style-type: none"> <li>Austin, TX, grants vertical mixed-use buildings automatic 60% parking reduction.</li> <li>Anchorage, AK, grants automatic 25% reduction in parking for mixed-use projects.</li> </ul>

DIAGNOSIS: DEVELOPMENT PATTERNS		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<p><b>DP-12:</b> Zoning regulations for parking do not address parking or services for alternative fuel vehicles, car pool vehicles, Zipcar, or shuttles.</p>	<ul style="list-style-type: none"> <li>• Allow for creation of priority parking spaces for alternative fuel vehicles and shuttles.</li> <li>• Add provisions for electric vehicle charging stations in parking lots and structures.</li> </ul>	<ul style="list-style-type: none"> <li>• Puget Sound Regional Council (PSRC) Model Development Regulations and Guidance reserves parking spaces for electric vehicle charging stations and counts the spaces toward the minimum parking requirement. Regulations also specify location and design criteria.</li> <li>• Los Angeles, CA, provides preferential parking for hybrid vehicles.</li> <li>• LEED awards three points out of 40 for basic certification for provision of preferential alternative fuel vehicle parking. LEED BD+C also provide points for siting in areas with higher density, in proximity to transit, and within ¼ mile of 10 or more basic services.</li> <li>• Communities in Washington—Thurston Pierce, King, and Snohomish Counties, permit electronic vehicle charging stations in all zoning districts except those designated for residential and resource protection. The Electric Vehicle Infrastructure (EVI) Model Ordinance guided these counties.</li> </ul>
<p><b>DP-13:</b> Mixed use projects are given no preference over single-use projects.</p>	<ul style="list-style-type: none"> <li>• Adopt streamlined review process and/or reduction in application fees for mixed use projects.</li> </ul>	<ul style="list-style-type: none"> <li>• Miami-Dade County expedites processing of designated sustainable projects.</li> </ul>
Compact Development		
<p><b>DP-14:</b> A “density bonus” allows an increase in net residential density for alternative single-family dwelling developments when at least 40% of the net acreage is preserved as dedicated open space.</p>	<ul style="list-style-type: none"> <li>• The existing “density bonus” is intended to encourage open space, rather than higher density. Consider creating an alternative incentive to encourage higher density residential development subject to meeting other development standards.</li> </ul>	<ul style="list-style-type: none"> <li>• North Las Vegas, NV, provides a residential design incentive system that allows a density bonus for high-quality site and building designs, variety of housing types, and public amenities.</li> <li>• Overland Park, KS, has incentive site design standards that allow density bonuses for high levels of open space, use of “green” designs, and specific storm-water management techniques.</li> </ul>
<p><b>DP-15:</b> Strict front yard building setback</p>	<ul style="list-style-type: none"> <li>• Evaluate district development standards such as</li> </ul>	<ul style="list-style-type: none"> <li>• Several existing SPI Districts contain regulations that allow reductions in</li> </ul>

DIAGNOSIS: DEVELOPMENT PATTERNS		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
requirements in nonresidential districts discourage pedestrian-oriented development.	lot size and setbacks to allow development that is not auto-oriented in exchange for desirable development pattern, such as locating parking to the side or rear, or providing pedestrian amenities.	<p>building setbacks, lot size and width.</p> <ul style="list-style-type: none"> <li>Deerfield Township, Warren County, OH, allows reduction in front yard setbacks in office and retail districts, without a hearing, if parking is located to the side or rear of a building.</li> </ul>
<b>DP-16:</b> No incentives provide for use of green building design, such as cool or green roofs.	<ul style="list-style-type: none"> <li>Allow vegetated green roofs to count toward landscaping requirements, reduce ISR, or provide bonuses (e.g. height or density).</li> <li>Allow more flexibility for infill or redevelopment situations to allow for green renovations.</li> </ul>	<ul style="list-style-type: none"> <li>Hamilton, OH, has adopted Green Development Incentive Regulations to encourage energy efficient building design and construction, including incentives for green roofs.</li> <li>Austin, TX, has as an incentive mechanism in their commercial mixed-use design review, including a menu system of sustainability options to gain additional height and floor area.</li> <li>Portland, OR, grants FAR bonus for ecoroofs in selected zone districts.</li> <li>LEED-ND awards one point for a cool or shaded roof.</li> <li>Chicago requires green roofs on all new downtown buildings.</li> </ul>
<b>Infill Development</b>		
<b>DP-17:</b> A PUD is required to increase height and density within areas of the County.	<ul style="list-style-type: none"> <li>Require minimum densities as of right in areas of the County where infill development is encouraged, and require a hearing process for less intensive development in these locations.</li> <li>Work with Townships to identify areas within Township planning documents where infill and intensive development is encouraged.</li> </ul>	<ul style="list-style-type: none"> <li>The Plainville Road Suburban Corridor District SPI-SC-2006-03 (Columbia Township) allows height increases, lot size and width reduction, and front and side yard setback reductions to zero.</li> </ul>
<b>DP-18:</b> No reduction in parking requirements	<ul style="list-style-type: none"> <li>Allow reductions in off-street parking for infill</li> </ul>	<ul style="list-style-type: none"> <li>Milford, OH, requires that an applicant provide a written analysis of parking re-</li> </ul>

DIAGNOSIS: DEVELOPMENT PATTERNS		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
provided for infill development projects.	development for designated uses as of right, or by allowing applicant to submit a parking study supporting a parking reduction.	<p>quirements for their specific use, providing guidelines for preparation of the analysis. No minimum parking space requirements are provided in the zoning code.</p> <ul style="list-style-type: none"> <li>Sparks, NV, allows off-street parking space reduction for infill development in the downtown, for designated types of commercial uses, and for infill in industrial districts.</li> </ul>
<b>DP-I9:</b> No benefits currently offered for Transportation Management Demand (TMD).	<ul style="list-style-type: none"> <li>Offer density bonuses or parking reductions for TMD programs that include transit passes, car or bike sharing, car or van pools, work-at-home, and other options.</li> </ul>	<ul style="list-style-type: none"> <li>Oregon’s mandatory Employee Commuting Option (ECO) Program requires employers to provide commuting alternatives to employees to reduce VMT. See: <a href="http://www.deq.state.or.us/nwr/ECO/eco.htm">www.deq.state.or.us/nwr/ECO/eco.htm</a>.</li> <li>Arlington, VA, has a mandatory TDM requirement for all new major commercial development with a menu of techniques that can be adopted to qualify for approval.</li> </ul>
<b>DP-I20:</b> No incentives are provided for the use of green building design or energy efficient construction methods.	<ul style="list-style-type: none"> <li>Create incentives that encourage the use of LEED design and other types of energy efficient and green building and design methods.</li> </ul>	<ul style="list-style-type: none"> <li>Hamilton, OH, has adopted Green Development Incentive Regulations to encourage energy efficient building design and construction, including reimbursement of USGBC project registration fees and refunds of a percentage of the building permit fee based on certification levels.</li> <li>North Las Vegas, NV has adopted sustainability standards. The standards contain a range of options to enhance building and site design based on goals to promote energy and water efficiency, alternative means of transportation, projection of trees to absorb greenhouse gases, and local food production.</li> </ul>
Filling Regulatory Gaps		
Mix of Land Uses		
<b>DP-G1:</b> The Zoning Resolution does not	<ul style="list-style-type: none"> <li>Add a definition of mixed use to define it as a pri-</li> </ul>	<ul style="list-style-type: none"> <li>Colorado Springs, CO, has mixed use zone districts and design standards that</li> </ul>

DIAGNOSIS: DEVELOPMENT PATTERNS		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
explicitly provide for mixed use development.	<p>primary use type, with particular emphasis on increasing amount of residential use in commercial areas/projects.</p> <ul style="list-style-type: none"> <li>• Consider adding mixed use to appropriate districts as a permitted use.</li> <li>• Make explicit how setbacks, height, density, etc., are to be calculated for mixed use development so that developers can better plan sites and financing.</li> <li>• Consider including neighborhood compatibility standards for mixed use projects in/adjacent to existing developed areas.</li> <li>• Continue to utilize SPI Districts to allow and encourage mixed uses.</li> </ul>	<p>promote mixed use projects while protecting surrounding lower-scale residential neighborhoods.</p> <ul style="list-style-type: none"> <li>• Henderson, NV, has tiered mixed use zone districts with specific standards set for each zone.</li> <li>• Boise, ID, has a “Skinny House” ordinance that regulates the design of homes on narrow infill lots, including design standards for architectural design compatibility with adjoining homes, height, and garage placement.</li> <li>• Several existing SPI Districts specifically identify and encourage development of apartments and attached dwelling units above commercial uses. Expand use of these standards to other districts.</li> </ul>
<b>DP-G2:</b> Architectural standards that create and encourage context sensitive buildings do not apply to most development types.	<ul style="list-style-type: none"> <li>• Adopt architectural standards to require ground floor building transparency, roof and building forms that are compatible with neighborhood character, and building façade requirements that discourage “blank” walls and facades.</li> </ul>	<ul style="list-style-type: none"> <li>• Several existing SPI Districts incorporate architectural standards for roof design, façade offsets, and building transparency.</li> <li>• Deerfield Township, Warren County, OH, establishes architectural guidelines and standards that apply to nonresidential districts by staff review.</li> </ul>

DIAGNOSIS: DEVELOPMENT PATTERNS		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<b>Compact Development</b>		
<p><b>DP-G3:</b> There are no provisions related to allowable density based on access to public transportation.</p>	<ul style="list-style-type: none"> <li>Consider allowing increased density within designated public transportation corridors to encourage infill and redevelopment and a compact form.</li> </ul>	<ul style="list-style-type: none"> <li>Fort Collins, CO, has minimum density requirements in mixed use districts.</li> <li>Portland, OR, allows FAR and height bonuses for residential development around light rail stations in certain districts. For each square foot of floor area developed and committed as housing, a bonus of one square foot of additional floor area is earned.</li> <li>Salt Lake City, UT, has created a transit corridor district, which includes maximum building setbacks and no maximum residential densities.</li> </ul>
<p><b>DP-G4:</b> Alternative approaches to parking reduction are not available.</p>	<ul style="list-style-type: none"> <li>Create standards that allow for approval of alternative parking plans, expanding options for shared parking, allowance for off-site parking, on-street parking, and other approaches.</li> </ul>	<ul style="list-style-type: none"> <li>The Ridge and Highland SPI District allows pervious pavement for up to 25% of required parking spaces, and then provides relief from meeting interior parking landscaping for such areas.</li> <li>Anderson Township, Hamilton County, OH, identifies alternative parking approaches such as shadow parking, shared parking, and off-site parking.</li> </ul>
<p><b>DP-G5:</b> Zone districts specify maximum densities, but not minimum densities, or minimum mix of uses.</p>	<ul style="list-style-type: none"> <li>Consider requiring minimum densities, especially in public transportation, mixed use or commercial corridors to achieve more compact development patterns.</li> <li>Consider requiring a mix of commercial/office uses in some districts to provide employment and minimum mix of residential units in certain districts to provide housing close to jobs.</li> </ul>	<ul style="list-style-type: none"> <li>Many cities require minimum densities in areas designated for mixed-use and transit-oriented development, including Portland, OR; Sparks and Henderson, NV; and Denver, CO. Fort Collins, CO, requires minimum densities in all residential districts.</li> <li>Orange County, FL, proposed MXDAC mixed-use district specifies minimum use mix in designated areas.</li> <li>Salt Lake City, UT, has established a transit station area district that encourages mixed use and high density development.</li> </ul>
<p><b>DP-G6:</b> No incentives for creation of priority</p>	<ul style="list-style-type: none"> <li>Adopt priority parking space standards for hybrid vehicles, car pool ve-</li> </ul>	<ul style="list-style-type: none"> <li>Los Angeles provides preferential parking for hybrids in public spaces.</li> </ul>

DIAGNOSIS: DEVELOPMENT PATTERNS		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
parking spaces.	hicles, Zipcars and shuttles.	<ul style="list-style-type: none"> <li>LEED awards three points out of 40 for basic certification for provision of preferential alternative fuel vehicle parking. LEED BD+C awards points for siting in areas with high density, in proximity to transit, and within ¼ mile of 10 or more basic services.</li> </ul>
<b>DP-G7:</b> The Zoning Resolution does not contain definitions for vegetated and other environmentally sensitive roofs.	<ul style="list-style-type: none"> <li>Add definitions for “green”, “cool”, and “vegetated” roofs to the Zoning Resolution.</li> </ul>	<ul style="list-style-type: none"> <li>Hamilton, OH, contains a definition for green roof.</li> </ul>
<b>Infill Development</b>		
<b>DP-G8:</b> Most parking standards are suburban, auto-oriented and excessive for compact development, discouraging infill and redevelopment.	<ul style="list-style-type: none"> <li>Reduce base off-street parking requirements across the board for infill and redevelopment.</li> <li>Allow reduction for mixed use.</li> <li>Expand shared parking options in the zoning resolution.</li> </ul>	<ul style="list-style-type: none"> <li>Milford, OH, requires that an applicant provide a written analysis of parking requirements for their specific use, providing guidelines for preparation of the analysis. No minimum parking space requirements are provided in the zoning code.</li> <li>Anderson Township, Hamilton County, OH, has an “optimal required parking spaces” standard that allows the zoning staff to permit 10% more or less than the required minimum number of parking spaces. Standards are provided if more than a 10% increase or decrease is requested.</li> </ul>
<b>DP-G9:</b> Landscaping standards are tailored to suburban-type development, not infill.	<ul style="list-style-type: none"> <li>Consider adopting development standards for designated infill and redevelopment areas in the County.</li> </ul>	<ul style="list-style-type: none"> <li>Laramie, WY, Cedar Rapids, IA, and Winnipeg, Canada, have customized landscaping, parking, and open space standards for mature areas of city.</li> <li>Franklin, TN, has adopted traditional neighborhood development standards for older areas of city.</li> </ul>
<b>DP-G10:</b> There are no standards that address the unique aspects and challenges related to infill development, par-	<ul style="list-style-type: none"> <li>Consider creating “Infill Redevelopment Standards” for smaller sites that can be administered by staff.</li> </ul>	<ul style="list-style-type: none"> <li>Rock Hill, SC, has adopted infill design and development standards for residential and nonresidential uses.</li> <li>Franklin, TN, has building and site design standards that include regulations</li> </ul>

DIAGNOSIS: DEVELOPMENT PATTERNS		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<p>ticularly on small sites.</p>		<p>that guide how new infill buildings should relate to existing areas.</p> <ul style="list-style-type: none"> <li>• Aiken, SC, has standards in the Old Aiken Design Guidelines that define how infill development should occur, including explanations of appropriate and inappropriate designs.</li> </ul>

## MOBILITY AND CONNECTIVITY

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### Introduction

Communities around the country are increasingly realizing the importance of more closely coordinating policies for land use and transportation. Many Midwestern communities have followed the traditional growth model in which local governments approve new development projects under the assumption that all necessary new or expanded transportation facilities — mostly roads — would be provided automatically to service that growth. This approach has led to an over-reliance on expensive road networks that facilitate leap-frog development; negatively impact downtown areas; neglect healthier modes of travel, such as walking, biking, and transit; increase congestion; decrease safety; and increase air and water pollution. The key is to simultaneously set clear transportation goals (e.g., increase transit ridership or bicycle commuting) and land use goals (reduce sprawl and increase mixed use development) so that each set of goals reinforces the other. Few development codes, however, have been updated to put this new understanding into practice.

In particular, given that transportation accounts for a full one-third of carbon dioxide (CO<sub>2</sub>) emissions in the United States that contribute to global warming,<sup>2</sup> the need to carefully alter land use controls to better incorporate transportation impacts into the planning and development review process is more critical than ever. Despite technological advances and growing awareness, vehicle miles traveled (VMT) are expected to increase in the country, leading to a related increase in the consumption of fossil fuels, the production of CO<sub>2</sub> emissions, and the continued decline in public health.

In terms of VMT, Hamilton County is no exception. The 2005 per capita vehicle miles traveled (VMT) for the Cincinnati-Middletown region was 10,453 miles, ranking as the 42<sup>nd</sup> highest metropolitan area. The Cincinnati area has fewer per capita VMTs than Louisville, KY (10,640.8 miles) and Lexington-Fayette, KY (10,587.3 miles), but significantly more than Pittsburgh, PA (8,190.2 miles) and Cleveland-Elyria-Mentor, OH (7,501.1 miles). The OKI 2030 Regional Transportation Plan Update cites the following data from the 2007 Urban Mobility Report prepared by the Texas Transportation Institute, Texas A&M University:

- Cincinnati is the 39<sup>th</sup> most congested city in the U.S.
- Fifty-one percent of peak travel occurs under congested conditions.
- A Cincinnati peak period traveler is delayed 27 hours a year.
- On a per person basis, congestion wastes 19 gallons of fuel each year.
- The annual cost in delay and fuel in 2005 due to congestion was \$459 million.

The 2030 Plan and Implementation Framework Transportation Concept Plan identifies a range of long term improvements. These improvements include new interstate interchanges, widening of Interstates 75 and 275, and ramp and signal improvements to Interstate 71. These are all projects that address regional transportation issues. Other projects of regional importance include the replacement of the I-75/I-71 Brent Spence Bridge over the Ohio River, and the construction of light rail as part of the Eastern Corridor project. Both of these projects require a high level of regional coordination and cooperation involving multiple State, County and municipal jurisdictions.

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<sup>2</sup> ULI, *Growing Cooler*, 2008

## DIAGNOSIS AND RECOMMENDATIONS | MOBILITY AND CONNECTIVITY

The Community COMPASS Plan and the 2030 Implementation Plan contain findings related to mobility. The COMPASS Plan states that congestion is growing as automobile dependency increases and more single occupancy vehicles crowd Hamilton County's streets and highways than ever before. Another finding in the COMPASS Plan is that current design standards and patterns of development focus on the automobile, limiting the transportation options of Hamilton County residents. The COMPASS Plan finds that the lack of adequate regional, multi-modal public transportation systems increases dependency on automobiles and limits mobility of transit-dependent residents. As the population of Hamilton County ages, and as fuel and transportation costs continue to rise, the need for alternative modes of transportation will increase.

The vision statement for Mobility in the COMPASS Plan calls for "accessible, efficient and economical regional travel; clean, safe, multi-modal transportation choices including mass transit, bike lanes, pedestrian walkways, and vehicular travel to reduce traffic congestion." This vision is further supported by the Hamilton County Climate Initiative Transportation Green Guide that identifies strategies for non-motorized transportation. Initiative #26 of the Community COMPASS Plan addresses Pedestrian and Bicycle Friendly Communities. It calls for adoption of land use plans by communities in Hamilton County that foster pedestrian-oriented neighborhood development, encouraging development of pedestrian-friendly commercial centers, and creation of subdivision regulations that interconnect streets, bicycle paths, and pedestrian walkways.

A low VMT is a strong indicator of a sustainable transportation system. A study conducted of 83 metropolitan areas revealed that residents in compact regions drove 25% less than in areas with more sprawling land use patterns<sup>3</sup>. Higher densities in targeted locations, especially near transit stations along major corridors and surrounding major destinations, are required to achieve a compact community that can lead to more walkable areas of the city and help support a more sustainable transportation system. Reinforcing the topics discussed in the Development Patterns section, transportation networks that serve more compact development patterns are needed. But transit is not an issue that has unified support in the Cincinnati area. The streetcar system planned by the City of Cincinnati has both strong opposition and support, and has survived two ballot initiatives and is scheduled to begin construction in 2012. While there is policy support for compact development, the transit related transportation options are currently politically divisive.

An issue that often gets neglected in discussions about transportation is the high personal cost to residents of driving, which includes insurance, repairs, gas, and parking. This cost is most burdensome for low- and fixed-income individuals and families. Thus, land use decisions that encourage non-vehicular modes of travel will increase the financial and physical freedom of Hamilton County residents, allowing them to better choose where they live, work, and obtain critical services.



*National demographic trends show that the population is aging. Walkable and transit-ready development increases the independence of the elderly as they lose the ability to drive personal automobiles.*

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<sup>3</sup> ibid

## Current Regulations

The following table cites some of the main current regulations related to development patterns. It is not meant to be all-inclusive, but to highlight some of the key provisions currently on the books that are directly related to urban form and development.

Each regulation is labeled according to the source document, using the corresponding article or section number from the source document. The following abbreviations are used for each source document: “SUB” refers to the County’s 2008 Subdivision Rules and Regulations, “ZON” refers to the County’s 2010 Zoning Resolution, and “ENG” refers to the County Engineer’s Regulations for Subdivisions. Other relevant County codes and regulations are noted within the table as necessary.

REGULATIONS ADDRESSING MOBILITY AND CONNECTIVITY	
REF.	REGULATION
<b>Mobility and Connectivity</b>	
ZON: Section 2-3	<b>Definitions</b> – Section 2-3 contains several definitions for terms related to mobility and connectivity, including “drive, access,” “drive, entry,” “drive, private,” “driveway,” “easement of access,” “park and ride,” “right-of-way (r.o.w.),” “street, collector,” “street, major arterial,” “street, minor arterial,” “street, local,” “street, private,” and “street, public.”
ZON: Section 8-1.3, 1.7	<b>Special Public Interest (SPI) Districts</b> – The purpose for the SPI Districts is to protect the public and property owners from blighting influences, damage to the economic value and efficiency of operation of existing properties and/or new developments, and the detrimental cumulative effects of incremental development decisions in suburban centers, corridors, neighborhoods and villages. SPI strategies may contain standards for location of buildings; architectural character of buildings; streetscape; building and land use mix, diversity and unifying elements; and pedestrian and vehicular circulation.
ZON: Section 3-2, Table 3-2	<b>Permissible Uses</b> – “Park and ride facility” is permitted in the in the AA, A, A-2, B, B-2 and C residential and H Riverfront Districts as a conditional use requiring a public hearing and review and approval by the BZA. This use is permitted as-of-right in the O, E, F, G, SW, EX Districts if less than 0.60 ISR, and requires a public hearing process involving review and approval by the RZC of a Planned Unit Development “PUD-1” if the ISR exceeds 0.60.
ZON: Section 8-4, 8-4.1, 4.2, 4.5, 4.6, 4.7, 4.8	<b>Special Public Interest – Suburban Center/Corridor Districts</b> – Establishes the ability for the County to create SPI Districts for business districts and corridors in order to prevent deterioration of property and extension of blight, to encourage and protect private investment, and to prevent the “creation of influences adverse to the physical character of the area.” Specific regulations adopted within these SPI Districts include: <ul style="list-style-type: none"> <li>• Vehicular connections with adjoining property are required (Harrison &amp; Dry Fork/Harrison Township SPI-SC 2003-03, Harrison Southeast/Harrison Township SPI-SC 2003-04, Plainville Road/Columbia Township SPI-SC 2006-03, Ridge and Highland/Columbia Township SPI-SC 2006-08).</li> <li>• Maximum of one access point per public street frontage of a development site (Harrison Southeast/Harrison Township SPI-SC 2003-04) and limitation of one access point for sites with 100 feet or less of frontage (Ridge and Highland/Columbia</li> </ul>

REGULATIONS ADDRESSING MOBILITY AND CONNECTIVITY	
REF.	REGULATION
	<p>Township SPI-SC 2006-08).</p> <ul style="list-style-type: none"> <li>• Pedestrian connections required along the street, from the building to the street and through vehicular use areas (Ridge and Highland/Columbia Township SPI-SC 2006-08).</li> </ul>
ZON: Section 17-717-12, Table 17-12	<p><b>Specific Criteria Pertaining to Conditional Uses; List of Conditional Uses</b> – Establishes criteria for a park and ride facility as a conditional use.</p> <ul style="list-style-type: none"> <li>• Criteria for park and ride facilities include setbacks when adjacent to a residential use; direct access to an arterial or collector street; locate vehicular use areas to minimize impact on the neighborhood; measures to minimize impacts from noise to other properties; landscape boundary and streetscape buffers; 12 square foot sign; lighting to be directed away from adjacent properties; and evaluation of the intensity of the use based on location, size and configuration of the property.</li> </ul>
ENG: Section 101	<p><b>Sight Distance Study</b> – A sight distance study is required to be submitted with an improvement plan for a subdivision to demonstrate that the proposed access point and intersection complies with AASHTO requirements.</p>
ENG: Section 103	<p><b>Improvement Plan</b> – The requirements for an improvement plan for a subdivision are established.</p>
ENG: Section 104	<p><b>County/State Road Right-Of-Way</b> – Establishes that all subdivisions abutting a County or State road shall provide in-fee right-of-way width in accordance with the current Thoroughfare Plan.</p>
ENG: Section 105	<p><b>Township Maintained Right-Of-Way</b> – Minimum right-of-way widths are established for Township residential and commercial subdivision streets.</p>
ENG: Section 201	<p><b>Street Details – Plans</b> – Establishes that all subdivision street connections must meet the intent of the “Access Management” plan of the Hamilton County Engineer. Defines classifications of streets based on the number of parcels to be served by a street.</p>
ENG: Section 203	<p><b>Street Details – Typical Sections</b> – The minimum roadway pavement sections for public streets are defined to be 28 feet measured back of curb to back of curb. Curb and gutter are required unless an exception is granted. Separate standards are defined for PUDs.</p>
ENG: Section 205	<p><b>Street Details – Sidewalks</b> – Establishes minimum construction standards for sidewalks. Defines that all sidewalks within a subdivision shall be installed, without gaps, when certificates of occupancy have been issued for 85% of the buildings on the street in the subdivision.</p>
ENG: Section 210	<p><b>Street Details – Right-Of-Way Limitations</b> – The completed roadway between right-of-way lines shall be free of obstructions unless a revocable agreement has been approved by the inspecting and maintaining agencies. An exception is given for breakaway, non-decorative mailbox supports. The intent is “to control/prevent installation of items, which are or can become a hazard to motorists, pedestrians or agencies that may have to perform maintenance operations in the future.”</p>

REGULATIONS ADDRESSING MOBILITY AND CONNECTIVITY	
REF.	REGULATION
ENG: Article 4	<b>Review and Approval</b> – Outlines the procedures to be used for review and approval of subdivisions.
ENG: Article 6	<b>Frontage Subdivisions</b> – Establishes standards for frontage subdivisions on curbed roads and uncurbed roads (with ditches).
SUB: Section 12.3.1	<b>Subdivision Design Standards – Streets</b> – Proposed street rights-of-way are to be extended to the boundary lines of the tract to be subdivided, unless due to topography or other conditions, in the opinion of the RPC, such extension is not necessary or desirable. Proposed streets are to be platted with regard to topography, streams, wooded areas, soils, geologic constraints, and other natural features.
SUB: Section 12.3.10	<b>Subdivision Design Standards – Residential Streets – Cul-de-sacs; Stubs</b> – Residential cul-de-sac streets shall not provide access to more than 30 lots. RPC can make a finding based on criteria in the regulations to allow more than 30 lots.
SUB: Section 12.3.13, 12.3.14	<b>Subdivision Design Standards – Sidewalks</b> – Establishes that sidewalks may be required on both sides of County roads and major streets, and shall be required as identified on the Hamilton County Motorway Plan. Exceptions, waivers or modifications may be granted by the RPC in accordance with the provisions of a Township plan adopted by RPC or an adopted PUD.
SUB: Section 12.3.16	<b>Subdivision Design Standards – Bikeways</b> – Right-of-way or easements for bicycle paths shall be required only if such paths have been specified as part of Township plan or a local or regional bikeway plan adopted by the RPC.
SUB: Section 12.3.17	<b>Subdivision Design Standards – Shade Tree Areas</b> – Shade tree easement areas shall be located on both sides of and parallel to the street but shall only be required if shade tree areas or parkways have been specified as part of a local or regional plan adopted by the RPC.

## Diagnosis

The following table contains a diagnosis of regulations addressing mobility and connectivity in Hamilton County, and is grouped according to recommended revisions to address the barriers, create incentives, and fill gaps.

Each recommendation is labeled according to the type of recommendation, where MC means mobility and connectivity; “B” refers to barriers, “I” refers to incentives, and “G” refers to gaps; each is numbered in sequence for ease of reference.

DIAGNOSIS: MOBILITY AND CONNECTIVITY		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<b>Remove Barriers</b>		
<b>MC-BI:</b> Subdivision regulations do not reflect “complete streets”	<ul style="list-style-type: none"> <li>Consider adoption of “complete streets” standards to encourage de-</li> </ul>	<ul style="list-style-type: none"> <li>SmartCode provides alternative street standards oriented to pedestrians.</li> <li>Columbus, OH, city council has adopted</li> </ul>

DIAGNOSIS: MOBILITY AND CONNECTIVITY		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<p>guidelines and have little flexibility in design options.</p>	<p>velopment of multi-modal infrastructure on all new or redeveloped streets. Complete streets should include designs for auto, transit, bicycle and pedestrian.</p>	<p>a Complete Streets ordinance to ensure, where feasible, new or rebuilt streets will be designed for safe access by all users, whether they drive, ride, pedal or walk.</p> <ul style="list-style-type: none"> <li>• Salt Lake City, UT, adopted an executive order supporting Complete Streets, and established a Complete Streets Committee comprised of the transportation director, planning director, city engineer, and airport director.</li> <li>• Complete Streets website: <a href="http://www.completestreets.org">www.completestreets.org</a>.</li> </ul>
<p><b>MC-B2:</b> Right-of-way dedication is required for any project that involves a zone map amendment, including PUD and any major subdivision (more than five lots).</p>	<ul style="list-style-type: none"> <li>• Modify the threshold whereby right-of-way dedication is only required for infill and redevelopment projects above a certain size.</li> </ul>	
<p><b>MC-B3:</b> Inconsistent references are made to the County Thoroughfare Plan and to the Motorway Plan.</p>	<ul style="list-style-type: none"> <li>• Update and consolidate these documents to provide a single source for design standards and anticipated right-of-way widths.</li> <li>• Evaluate right-of-way width designations with these documents to ensure that the widths indicated are necessary given the significant impact that right-of-way dedication has on adjacent development sites.</li> </ul>	
<p><b>MC-B4:</b> Engineering regulations do not permit the planting of trees in the right-of-way along County-</p>	<ul style="list-style-type: none"> <li>• Consider revising engineering and subdivision regulations to allow approved species of street trees to be planted within</li> </ul>	<ul style="list-style-type: none"> <li>• Miami-Dade County, FL, has a Street Tree Master Plan to address the challenges and benefits associated with trees along streets and highways.</li> <li>• The Ohio Department of Natural Re-</li> </ul>

DIAGNOSIS: MOBILITY AND CONNECTIVITY		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
maintained roadways.	the right-of-way of County roadways to reduce the heat-island effect of paved roadways through enhanced shade cover.	sources Forestry Division’s Street Tree Evaluation Project examined which trees grow best in Ohio’s urban areas.
Create Incentives		
<b>MC-11:</b> There are no incentives for provision of bicycle facilities.	<ul style="list-style-type: none"> <li>Offer density bonuses or other incentives for bicycle facilities, particularly beyond bike racks.</li> </ul>	<ul style="list-style-type: none"> <li>Portland, OR, has some districts that allow density bonuses for provision of long-term bicycle parking and locker room facilities. For each square foot of locker room facility provided, the developer can receive an additional 40 square feet of floor area. Locker rooms must contain showers, dressing areas, and lockers, and be open to all tenants of the building. Also, 110% of the required long term bicycle parking for the building shall be provided.</li> </ul>
<b>MC-12:</b> Few incentives exist for provision of pedestrian facilities or enhanced development connectivity between development and community facilities.	<ul style="list-style-type: none"> <li>Offer density bonuses or other incentives for enhanced streetscape and pedestrian amenities.</li> </ul>	<ul style="list-style-type: none"> <li>Chicago, IL, has FAR bonuses available for streetscape improvements in downtown districts. Streetscape improvements can include raised planters, special pavers, special street lighting, pedestrian lighting, flag and banner poles, and hanging baskets that exceed minimum standards. Bonus can be up to 20% of base FAR.</li> <li>Denver, CO, allows density bonuses for construction of improvements to Town Square or Business Green open spaces within ½ mile of site or construction of improvements to major parks and trails systems.</li> </ul>
<b>MC-13:</b> Township land use plans need to indicate proposed street tree corridors and bicycle or hike pathways in order to be acknowledged during	<ul style="list-style-type: none"> <li>RPC staff should work with the Townships to understand the requirements for identifying shade trees and bicycle paths in order for these elements to be incorpo-</li> </ul>	

DIAGNOSIS: MOBILITY AND CONNECTIVITY		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
subdivision processes.	rated into right-of-way plans.	
Filling Regulatory Gaps		
<p><b>MC-G1:</b> Zoning and subdivision regulations do not contain pedestrian connectivity or non-vehicular level of service standards or specifically require sidewalks and pedestrian ways.</p>	<ul style="list-style-type: none"> <li>Specify that sidewalks or pedestrian ways are required in all developments.</li> <li>Add pedestrian connectivity and LOS standards for all development above a certain threshold (e.g. square footage of development).</li> </ul>	<ul style="list-style-type: none"> <li>Several existing SPI Districts require pedestrian connections along the street frontage, from the street to the building, and through vehicular use areas.</li> <li>Florida Department of Transportation (DOT), Model Regulations and Plan Amendments for Multimodal Transportation Districts (2004) and Multimodal Transportation Districts and Area-wide Quality of Service Handbook (2003) contain extensive multi-modal level of service and connectivity standards.</li> </ul>
<p><b>MC-G2:</b> Several SPI Districts address sidewalk and connectivity requirements, but most zone districts and subdivision regulations do not.</p>	<ul style="list-style-type: none"> <li>Provide more specific and aggressive standards for road connectivity. For example, add a “connectivity index” that requires new development to achieve a minimum connectivity score based on the number of intersections and road links provided within the development and to surrounding properties. Require pedestrian as well as vehicular connectivity.</li> </ul>	<ul style="list-style-type: none"> <li>The Florida DOT adopted connectivity standards in its “Model Regulations for Multimodal Transportation Districts.” These are used as criteria in funding local transportation projects.</li> <li>Franklin, TN, adopted a connectivity index with numerical standards to assess new subdivisions.</li> <li>Henderson, NV, requires all new development, except for new attached and detached single-family residential uses with less than five dwellings and properties ½ acre or less zoned nonresidential or mixed use, to develop a circulation plan meeting a specific “connectivity index”.</li> <li>Several existing SPI Districts require vehicular connections with adjoining property owners and limit the number of access driveways based on street frontage.</li> </ul>
<p><b>MC-G3:</b> The zoning resolution does not contain provisions related to bicycle parking.</p>	<ul style="list-style-type: none"> <li>Require bicycle parking for new construction and redevelopment. Tailor to specific uses instead of linking to vehicle parking</li> </ul>	<ul style="list-style-type: none"> <li>Boone County, KY, requires bicycle parking spaces based on the number of required parking spaces.</li> <li>Cleveland, OH, requires one bicycle</li> </ul>

DIAGNOSIS: MOBILITY AND CONNECTIVITY		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
	<p>space requirements.</p> <ul style="list-style-type: none"> <li>Consider adopting standards for other bicycle facilities (showers, lockers, etc.).</li> </ul>	<p>space per 20 spaces provided.</p> <ul style="list-style-type: none"> <li>Consider adopting new bicycle parking guidelines recommended by Assn. of Pedestrian and Bicycle Professionals (2d Edition 2010).</li> <li>Austin, TX, awards points in sustainability scoring system for showers, secure indoor bike lockers, etc., similar to standards for LEED.</li> <li>Bicycle level of service standards: <a href="http://www.bikelib.org/bike-planning/bicycle-level-of-service/">http://www.bikelib.org/bike-planning/bicycle-level-of-service/</a>.</li> </ul>
<p><b>MC-G4:</b> Zoning and other County regulations do not make provisions for low and moderate speed urban vehicles, such as neighborhood electric vehicles, scooters, and electric bicycles.</p>	<ul style="list-style-type: none"> <li>Define uses and include standards for parking and on-street use of low and moderate speed urban vehicles. (Note: County regulations pertaining to motor vehicle operations may need to be addressed, as zoning regulations play a limited role in such vehicles).</li> </ul>	<ul style="list-style-type: none"> <li>State of Washington law includes provisions for operation of electric vehicles with speeds up to 35 mph, and a model zoning ordinance to address facilities needed to accommodate such vehicles.</li> <li>A Minnesota state law allows such vehicles on roads with speed limits of 35 mph or less. At least 46 states now allow low-speed electric vehicles on at least some public roads.</li> <li>Lincoln, CA, is creating lanes on existing roads with speed limits above 35 mph for the low-speed electric vehicles.</li> </ul>
<p><b>MC-G5:</b> Zoning regulations are silent on the use of compressed natural gas (CNG).</p>	<ul style="list-style-type: none"> <li>Clarify that CNG fueling facilities are allowed at gas stations.</li> <li>Coordination will be needed with building and fire code related to this use.</li> </ul>	<ul style="list-style-type: none"> <li>Working with the private sector and the local utility provider, Bucks County, Pennsylvania, conducted a Natural Gas Station Locational Study, to identify and promote the placement of fueling stations as a means of encouraging local fleet operators and private individuals to convert their vehicles to CNG.</li> </ul>
<p><b>MC-G6:</b> Zoning resolution does not address standards for electric vehicle charging/fueling stations.</p>	<ul style="list-style-type: none"> <li>Specifically allow electric vehicle charging stations as an accessory use in all zone districts and in conjunction with all gas-fueling stations and parking lots/structures in commercial areas.</li> </ul>	<ul style="list-style-type: none"> <li>The State of Oregon outright permits installation of electronic vehicle charging stations on already developed properties.</li> <li>The Washington State Legislature passed a bill in 2009 (HBI481) that requires all communities in Washington to accommodate electric vehicle charging</li> </ul>

DIAGNOSIS: MOBILITY AND CONNECTIVITY		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
		<p>stations in most zoning districts. It particularly recognizes that most of the demand for these facilities will be in residential districts. An EVI Model Ordinance was prepared to help communities integrate these changes into their ordinances.</p> <ul style="list-style-type: none"> <li>• Communities in Charleston County, SC, are considering a zoning exception to allow for sales of all-electric low speed vehicles in zoning districts that currently ban vehicle sales as well as to allow electric-vehicle charging stations.</li> </ul>

## URBAN AGRICULTURE

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### Introduction

According to a recent study commissioned by the University of Toledo Urban Affairs Center<sup>4</sup>, Ohio consumers buy \$29 billion of food each year. Yet about \$26 billion of this food is sourced outside of the State. One estimate that has been referenced in several Midwestern states is that at least 90% of food purchased comes from out of State.<sup>5</sup> Increasingly, residents in all areas of the United States are looking to secure healthier food, either through direct production in gardens, participating in community gardens, or by purchasing locally-grown healthy foods at farmers markets or directly from farmers.

There are two distinct aspects of urban agriculture to be explored in this section. The first is agricultural uses that occur on a smaller scale, such as backyard gardening, community gardens, and small-scale farm stand operations. The second is larger-scale agricultural operations that produce food for sale to community residents in the region. Communities throughout the country are pioneering technologies and techniques for urban gardening. The use of small spaces, such as yards, roofs, street areas, vacant lots, porches, and planters to grow food not only provides healthy foods to urban dwellers but reduces greenhouse gases. Considering the continuing loss of agricultural land in Ohio and other states to urbanization and the fact that over 50% of the world's population now lives in urban areas for the first time in history, it is even more critical that urban dwellers be able to produce cheap, healthy, secure, and sustainable sources of food.

In the United States, our highly mechanized and centralized food system makes sustainable food production a challenge. With the average food item in the U.S. traveling 1,400 miles to get to the dinner table, the sustainability of food production in this country is diminishing as productive land is consumed by development, forcing dependence on distant domestic farms and foreign producers. Large-scale agricultural operations are also a significant source of greenhouse gas emissions and typically are well beyond the scope of agricultural activities that are found in urban areas, thus the focus of this diagnosis is on smaller-scale activities. While rural farmland is being lost, the number of small farms and gardening operations in urban areas is increasing at an unprecedented rate. In the U.S. alone, there are an estimated 10,000 community gardens operating today. Given that approximately 40 million Americans are considered “food insecure,” promoting alternative, local sources of food is critical.



*The use of small spaces, such as yards, roofs, street areas, vacant lots, porches, and planters to grow food not only provides healthy foods to urban dwellers but reduces greenhouse gases through CO<sub>2</sub> absorbed by plants.*

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<sup>4</sup> Ohio's Food Systems –Farms At The Heart Of It All, By Ken Meter, Crossroads Resource Center, March 30, 2011

<sup>5</sup> ibid

Urban agriculture is not only an important source of food but social interaction and community pride. Community gardens are where neighbors can get to know each other, add green space, and put abandoned and underutilized urban land to productive use. In Seattle, the comprehensive plan requires at least one community garden for every 2,500 households in an urban village or neighborhood. San Francisco, CA, has a goal of creating one urban farm on every block in the city by 2015. Chicago's Neighbor-space program allows residents to use city parks for gardening.

Addressing nuisance issues related to urban agriculture — especially regarding the keeping of livestock and fowl (chickens, ducks, goats, small pigs, etc.) — is often a major concern for communities. However, by carefully placing limits on the number and species of animals allowed and by limiting the intensity of animal use to appropriate zones, many cities have successfully protected adjacent neighbors from potential odor, noise, or hygiene concerns. Portland allows up to three chickens, ducks, doves, pygmy goats, or rabbits without a permit, but residents can get a special use permit for a small-scale livestock facility with the permission of property owners within 150 feet of the site. Denver, CO, recently revised its zoning code to allow beekeeping on residential lots. Madison, Wisconsin's well-known Chicken Ordinance, one of the earliest passed in 2004, allows up to four hens, which must be confined in a coop and must be at least 25 feet from neighboring residences.

One new opportunity area that is beginning to take hold across the country is rooftop agriculture. While this concept has taken hold in other countries, such as Montreal, Canada's first commercial rooftop greenhouse and measures 31,000 square feet, it has occurred in the United States as smaller-scale operations. One example is the 8,600 square foot rooftop garden on the Gary Comer Youth Center, located in Chicago's South Side, where youth and community members grow a wide variety of vegetables, herbs, fruits and flowers in the garden. The produce is used in the Center's cooking classes and meal preparation. Plans are underway in Montreal to construct large-scale (up to 120,000 sq. ft) commercial greenhouse operations on the rooftops of industrial buildings.

Hamilton County has not articulated an urban agriculture policy in its planning documents. The 2030 Plan and Implementation Framework does not make any mention of urban food production, although the Hamilton County Climate Initiative does include a Food Production Green Guide that includes strategies for buying local, composting community gardening, and farmers markets to promote local food production. The County's Zoning Resolution does address agricultural uses and distinguishes between rural agricultural uses (e.g., on lots five acres and larger) and suburban agriculture, including a broad range of agricultural uses, although there are restrictions on uses that can occur on lots of less than five acres.

Hamilton County does have a number of active non-governmental groups involved in promoting sustainable food production. Central Ohio River Valley (CORV) is a grassroots initiative to connect the community with local growers of healthy foods. Their "foodshed" focuses on food that is grown within a 50-mile radius of downtown Cincinnati. The Civic Garden Center works closely with 35 gardens across the region, offering training, certification programs, and technical assistance on matters such as land leases and insurance. Carriage House Farm is an Ohio Century Farm, established in 1855 that has been diversifying over the last decade, moving slowly from a 300 acre corn and soybean producer to horse boarding, beekeeping, and produce farming. They supply a host of retailers and restaurants in the Cincinnati area and provide support and participate as advisers on several urban farm and local food projects in the region.

## Current Regulations

The following table cites some of the main current regulations related to urban agriculture. It is not meant to be all-inclusive, but to highlight some of the key provisions currently on the books that are directly related to urban agriculture.

Each regulation is labeled according to the source document, using the corresponding article or section number from the source document. The following abbreviation is used for each source document: “ZON” refers to the County’s 2010 Zoning Resolution.

REGULATIONS ADDRESSING URBAN AGRICULTURE	
REF.	REGULATION
<b>Urban Agriculture</b>	
ZON: Section 2-3	<b>Definitions for Agricultural Uses</b> – Section 2-3 includes two distinct definitions for agricultural uses; Rural Agriculture and Suburban Agriculture. Rural Agriculture refers to farming, ranching, or agricultural operations such as dairy production, cultivation, and similar uses; processing of agricultural products; and farm markets where 50% or more of income produced is from products raised on farms. Suburban Agriculture refers to farming or other activities on lots in subdivisions of one acre or less; and to animal or poultry activities, including dairy operations, on lots of five acres or less. Suburban Agricultural uses include aquaculture, horticulture, beekeeping, private compost piles, tree farming and crops, kennels, and several other similar uses.
ZON: Section 2-3	<b>Definition for Livestock</b> – Section 2-3 includes a definition for livestock that includes hoofed mammals typically raised for food, fiber, or draft as well as domestic fowl and game birds.
ZON: Section 2-3	<b>Definition for Farm Markets</b> – Section 2-3 includes a definition for farm markets, where 50% or more of the gross income received from the market is derived from produce raised on farms owned or operated by the market operator in a normal year; with the size of the structure limited to 800 square feet and other restrictions on parking and signage.
ZON: Section 3-2	<b>Permitted Uses</b> – Section 3-2, Table of Permissible Uses, defines the land uses that are permitted in zoning districts throughout the County. Rural Agricultural uses are exempt from any regulatory requirements in all zoning districts, except on lots that are five acres or less in any platted subdivision, or in any unplatted subdivisions containing 15 or more lots, each smaller than five acres. Suburban agricultural uses are permitted as-of-right in most standard zoning districts, but are not permitted in all Planned Districts. Certain Suburban Agriculture uses, such as greenhouses, farm markets, and keeping of exotic wildlife, are more restricted and are not permitted in residential districts and office districts. Keeping of livestock, which in Hamilton County’s codes includes poultry, is not permitted on lots that are less than one acre.
ZON: Section 3-6	<b>Agricultural Regulations</b> – Section 3-6 establishes that agricultural uses are permitted as-of-right with no regulatory standards other than for uses on lots that are five acres or less.
ZON:	<b>Agricultural Uses</b> – Section 3-7 contains a set of requirements that pertain to agricultural

REGULATIONS ADDRESSING URBAN AGRICULTURE	
REF.	REGULATION
Section 3-7	uses that are permitted in various zoning districts, as established in the Table of Permissible Uses in section 3-2. These regulations address the following topics: <ul style="list-style-type: none"> <li>• <i>Agricultural setbacks</i> – all agricultural buildings, structures, outdoor storage, refuse, or supplies must be set back at least 60 feet from all property lines.</li> <li>• <i>Greenhouse setbacks</i> – greenhouses larger than 1,032 square feet must be set back at least 60 feet from all property lines in residential and office districts, and associated refuse, supplies, and heating plants at least 100 feet from every property line in residential districts.</li> <li>• <i>Agricultural accessory uses</i> – makes provisions for setbacks for household pet enclosures, livestock enclosures, and private kennels.</li> </ul>
ZON: Section 3-8	<b><i>Dairying, and Animal and Poultry Regulations</i></b> – Section 3-8 establishes dairy operations and the keeping of animals or poultry as-of-right with no regulatory standards other than on lots that are five acres or less, for which zoning certificates are required where permitted.
ZON: Section 3-9	<b><i>Dairying, and Animal and Poultry Uses</i></b> – Section 3-9 sets forth more specific use regulations related to dairying and animal and poultry uses where permitted, including veterinary facilities and agricultural accessory uses related specifically to dairying, and animal and poultry uses.

## Diagnosis

The following table contains a diagnosis of regulations addressing urban agriculture. Each recommendation is labeled according to the type of recommendation, where “UA” means urban agriculture; “B” refers to barriers, “I” refers to incentives, and “G” refers to gaps; each is numbered in sequence for ease of reference.

DIAGNOSIS: URBAN AGRICULTURE		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<b>Remove Barriers</b>		
<b>UA-B1:</b> Code does not allow Suburban Agriculture uses in any Planned District.	<ul style="list-style-type: none"> <li>• Modify code to allow Suburban Agriculture uses in Planned Districts, to accommodate smaller-scale agriculture uses in PUD areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Chattanooga, TN, allows residential PUDs in an urban agriculture zone.</li> </ul>
<b>UA-B2:</b> Code allows farm stands (roadside produce stands) but does not allow them on lots less than five acres other than in retail,	<ul style="list-style-type: none"> <li>• Allow farm stands in single-family residential districts. Limit the size to accommodate only small-scale roadside sales without any off-street parking, and limit</li> </ul>	<ul style="list-style-type: none"> <li>• San Francisco, CA, allows urban farms on parcels of one acre or less to grow produce for commercial purposes. Farmers can sell fresh produce and value-added products on-site (sale of value-added products is prohibited in</li> </ul>

DIAGNOSIS: URBAN AGRICULTURE		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
office, and industrial districts. Code does not allow them at all in Planned Districts.	<p>signage to four square feet in area.</p> <ul style="list-style-type: none"> <li>• Allow farm stands in appropriate Planned Districts.</li> </ul>	residential districts).
<b>UA-B3:</b> Setback requirements for farm markets (60 feet from every property line for structures and parking in residence districts) may be unduly restrictive.	<ul style="list-style-type: none"> <li>• Reduce setback requirements in appropriate districts, to ensure that farm market stands can be sited in/near residential areas.</li> <li>• Alternatively, consider establishing several tiers of farm market building sizes to allow for farm market stands as well as enclosed buildings, with reduced setbacks, in addition to the 800 square foot limit presently in the code (for example, setbacks reduced to 25 feet for structures up to 400 square feet).</li> </ul>	<ul style="list-style-type: none"> <li>• Durham, NC, allows outdoor farmers markets as a primary use in the retail sales and service use category. Farmers markets are also permitted by right or with a development plan in a number of mixed use and commercial districts.</li> <li>• Little Elm, TX, establishes farmers markets as a permitted use in multiple zoning districts subject to specific operational and site standards.</li> <li>• Philadelphia, PA, specifies permitted locations for farmers markets and details operational and site standards. (9-213, Farmers Markets). In addition, the Farmers Market Entity License identifies specific locations for farmers markets.</li> </ul>
<b>UA-B4:</b> Regulations appear to place undue burdens on keeping of backyard chickens on lots smaller than five acres (e.g., require 100 foot setback for livestock enclosures, including for fowl). Specifically, keeping of livestock is not permitted in AA-C Single-Family Residential District, D Multi-Family District, and MHP Manufactured Home District.	<ul style="list-style-type: none"> <li>• Create regulations that are specific to the keeping of backyard chickens for personal use in all residential districts, with appropriate limits on size of enclosures and structures, number of hens, and setbacks.</li> </ul>	<ul style="list-style-type: none"> <li>• Madison, WI, has a “MAD” chicken code that allows four hens (no roosters) per household in a coop that must be 25 feet from the nearest neighbor’s living quarters.</li> <li>• Denver, CO, allows residents to own up to eight chickens or ducks (no roosters or drakes) and up to two dwarf goats without a zoning permit or public notification. Residents must obtain a \$20 license to keep the animals. The regulation requires adequate shelter and fencing for the animals and provides minimum land area requirements for each chicken or duck and goat.</li> <li>• Ft. Collins, CO, allows residents to own up to six chickens (no roosters). Residents must keep the chickens in</li> </ul>

DIAGNOSIS: URBAN AGRICULTURE		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
		<p>an enclosed coop that is at least 15 feet from the property line. The regulation prohibits slaughtering of the chickens on the property.</p> <ul style="list-style-type: none"> <li>• Longmont, CO, allows residents to keep up to four chickens (no roosters or other poultry or fowl). Residents must obtain a permit from the City. The regulation requires that residents provide a coop and run area for the chickens and sets dimensional requirements for spaces. The coop and run must be at least six feet from any other structure and any lot line (it cannot be between the main structure and the front yard lot line).</li> </ul>
Create Incentives		
<p><b>UA-II:</b> Code does not address allowing community gardens as an alternative open space amenity for open space credit.</p>	<ul style="list-style-type: none"> <li>• Allow community gardens to qualify as a percentage of required open space. Consider extra credit for providing irrigation, tool sheds, and other supportive elements.</li> </ul>	<ul style="list-style-type: none"> <li>• Portland, OR, provides FAR bonuses for roof top gardens.</li> <li>• Seattle, Washington’s “Green Factor” Program, in an effort to spruce up neighborhood centers, guides developers in improving and increasing planted areas, and includes a bonus credit for food cultivation (any landscaped area gets 10% more credit if it produces food).</li> <li>• Austin, TX, awards a point in its commercial green building program for providing garden space dedicated to communal food growing.</li> </ul>
Filling Regulatory Gaps		
<p><b>UA-GI:</b> Community gardens are not defined or mentioned as prima-</p>	<ul style="list-style-type: none"> <li>• Add definition for community gardens (on both private and public lands) and</li> </ul>	<ul style="list-style-type: none"> <li>• Burlington, VT, addresses the definitions of gardening and allows community gardens in residential zones, public</li> </ul>

DIAGNOSIS: URBAN AGRICULTURE		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
ry or accessory use in the code. <sup>6</sup>	then allow community gardens as a primary use in residential districts and as an accessory use in all or most districts. Allow them on open space lots in subdivisions as primary use.	<p>parks, and open space.</p> <ul style="list-style-type: none"> <li>• Cleveland, OH, Urban Garden District includes definitions for garden operations.</li> <li>• Chicago, IL, allows Community Gardens of up to 25,000 square feet in all districts, and allows them to sell surplus produce that was grown on site if the sales are accessory or subordinate to the garden’s primary purpose of serving community and non-profit needs.</li> </ul>
<b>UA-G2:</b> Sale or production of food from a home is not specifically mentioned as a permitted home occupation. Section 10-4 of the Code does not specifically address sale or production of food from a home as a permitted home occupation (such as egg sales, herbs sold to restaurants, etc.).	<ul style="list-style-type: none"> <li>• Modify Home Occupation language to allow limited food production uses from home as a permitted use.</li> </ul>	<ul style="list-style-type: none"> <li>• Victoria, BC, established urban agriculture as a permitted home occupation and defined urban agriculture as “the cultivation of a portion of a parcel for the production of fruits and vegetables.” The regulation prohibits signs that advertise the home occupation on the premises.</li> <li>• Oakland, CA, is proposing to modify their zoning regulations to allow “crop growing activities” as a home occupation. The proposed ordinance defines “crop growing activities” as the cultivation of fruits, vegetables, plants, flowers, herbs, or ornamental plants for sale. The ordinance excludes animal raising.</li> </ul>
<b>UA-G3:</b> Landscaping standards and recommended plant list (Code Appendix A2) do not encourage or require food-bearing trees.	<ul style="list-style-type: none"> <li>• Require or encourage food-bearing trees to be included as part of landscape plans (with irrigation provided by non-potable, on-site water resources (active and/or passively harvested rainwater and</li> </ul>	<ul style="list-style-type: none"> <li>• Many communities require planting of trees on residential lots, but usually ornamental. The original Mormon city planning rules required planting of two fruit trees on every lot for fruit production.</li> </ul>

<sup>6</sup> Note that it is important to distinguish between agricultural production uses (e.g., urban and rural farms) as commercial or entrepreneurial enterprises, from community gardens where gardeners grow food for themselves or for community food production, on parcels that are large enough to serve the needs of more than one family.

DIAGNOSIS: URBAN AGRICULTURE		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
	stormwater, greywater, condensate, etc.).	
<b>UA-G4:</b> Code does not make provisions for Community-Supported Agriculture (CSA) uses.	<ul style="list-style-type: none"> <li>Add a definition for CSAs and include them in the list of permitted uses for agricultural uses (both rural and suburban).</li> </ul>	<ul style="list-style-type: none"> <li>San Francisco, CA, defines neighborhood agriculture as a use that occupies less than one acre for the production of food or horticultural crops to be harvested, sold, or donated. Neighborhood agriculture may be a principal or accessory use and is permitted in all zoning districts.</li> <li>Minneapolis, MN, established community gardens a permitted use in all residential, office residential, commercial and downtown districts (except the downtown business district).</li> </ul>
<b>UA-G5:</b> Code does not make provision for rooftop gardens.	<ul style="list-style-type: none"> <li>Add definition for rooftop gardens to include food production, and include as a permitted accessory use in all districts.</li> </ul>	<ul style="list-style-type: none"> <li>Seattle, WA, allows rooftop greenhouses to rise up to 15 feet above the height limit of property in the manufacturing, commercial, industrial, and downtown zones if the greenhouses are dedicated to food production.</li> <li>Chicago, IL, recently adopted a series of urban agriculture amendments to its zoning ordinance that allows urban farms on rooftops, subject to zoning review and a building permit.</li> </ul>

## BUILDING AND ENERGY CODE

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### Introduction

In the same way that land use regulations establish the patterns that either enhance or limit opportunities for achieving economic, social, and environmental goals in a community, the design and construction of a building embeds patterns of resource use that extend decades into the future. The rules that govern what can be done with existing buildings and what is required for new construction are crucial to the sustainability of a community.

Codes, standards, and other regulatory policies affecting buildings are nearly universally developed with the idea of safeguarding public health and safety. However, they can also create unintended obstacles that discourage the innovation and change necessary to achieve the highest community goals, such as those expressed in Hamilton County's Green Guides developed through the County's Climate Initiative. The current generation of building codes and standards across the United States emerged from a period in which many of the sustainability issues all communities face today had not been recognized. For building construction, to be able to respond to both the emerging realities and new goals requires reexamining the rules that govern what can and cannot be built so that they are not an impediment to achieving those goals. Or better still, so that they enable and encourage the community to meet its aspirational vision of the future.

Because building and energy codes for both commercial and residential construction in Ohio are established and revised at the State level, Hamilton County has limited authority to mandate more efficiency in building design and construction. Municipalities have more flexibility than the County to develop requirements that are different or more stringent than those mandated by the State, and the County is limited in its ability to adopt additional rules or regulations only if they do not conflict with State building codes.

Addressing the changing realities related to energy use and supply as well as climate and environmental impacts is central to achieving the goals Hamilton County elaborated through the Climate Initiative. The United States uses significantly more energy per capita than any other nation in the world. The U.S. Department of Energy reports that more than 85% of the energy consumed in the United States comes from fossil fuels—coal, oil, and natural gas. This includes nearly two-thirds of our electricity and virtually all of our transportation fuels.

According to the U.S. Energy Information Administration (EIA) Annual Energy Outlook 2009 Early Release, the building sector is responsible for 50% of total annual U.S. energy consumption, 49% total annual U.S. greenhouse gas emissions, and 74.5% of total annual U.S. electricity consumption. Between 2010 and 2030, the EIA projects that most of the increase in total building sector electricity consumption of 7.16 Quadrillion Btu (QBtu) will be from the building sector. According to the U.S. Department of Energy's 2010 Building Energy Data Book, space heating, lighting, space cooling, water heating, and ventilation account for approximately two-thirds of total U.S. building energy use.

The State of Ohio is among the most energy-dependent states in the country: Ohio imports 89% of its natural gas, 61% of its coal, and 97% of its oil and petroleum, meaning that every year Ohio exports billions of dollars out of State for these fuels. In 2001, for example, Ohio spent over \$29 billion on energy, and \$16 billion of those dollars were exported to other states or nations.

The impacts from this level of energy use in the building sector are far reaching, extending from the economic well-being of households, businesses, and the community at large to environmental and human health issues at all scales, from local to global. Addressing the energy use intensity of buildings provides the potential for creating new businesses and jobs.

A great deal of attention has been placed on the role of sustainable or “green” building design and construction techniques in recent years as an important component of a community’s strategy to reduce resource consumption and resulting greenhouse gas emissions. Green building design and construction techniques address a full range of considerations, including the types and sources of materials used, the location of the site, the use or generation of renewable energy on site, and many other elements.

Today there are many new resources to greatly improve the design and construction of new buildings and renovation of existing buildings that did not exist a few years ago. One example is the new International Green Construction Code (IGCC) for commercial construction, developed by the International Code Council (ICC) as part of the set of 2012 International Codes (I-Codes). The IGCC will be the first national code in the U.S. to explicitly address green building criteria, practices, and goals.

Though the State of Ohio is not likely to adopt the IGCC in the near future, the IGCC offers considerable flexibility for adopting jurisdictions and for projects to respond to local conditions and community and project goals. The IGCC was developed as a mandatory code for commercial construction, but it can also be adopted as a voluntary “stretch” code for those seeking to construct their buildings to a higher level. Incentives such as faster plan review/processing times for projects that utilize the IGCC could be developed to encourage projects to strive for these higher performance levels.

Finally, one area of energy use that is often overlooked is related to water supply and treatment and wastewater conveyance and treatment. Four percent of the nation's electricity is used to transport and treat water and wastewater. An average of about 80% of municipal water system costs are for electricity. This energy use contributes to greenhouse gas emissions as well. In addition, most forms of conventional energy generation use significant amounts of water. Therefore saving water saves energy and vice versa. Thus, recommendations are included in this diagnosis that address the potential energy saving benefits of rainwater harvesting, greywater re-use, and other water conserving practices related to building construction. The existence of utility company incentives and rebates related to water and energy efficiency is worth exploring.

As mentioned in the Energy and Resource Management section of this report, the Communities of the Future Advisory Committee (CFAC) Policy Subcommittee, in collaboration with the Metropolitan Sewer District of Greater Cincinnati (MSD), Hamilton County Planning and Development, and the City of Cincinnati Planning Department conducted a draft Sustainable Infrastructure Policy Gap Analysis in late 2011. While MSD policies were not reviewed in detail for purposes of this Diagnosis Report, review of the Policy Gap Analysis revealed many similar recommendations and observations related to water and wastewater systems and the State building codes.

## Current Regulations

The following table summarizes the main building and energy code regulations related to the other topic areas identified in this Diagnosis.

BUILDING AND ENERGY CODE REGULATIONS	
REF.	REGULATION
<b>Energy and Resource Management</b>	
2007 Ohio Building Code (OBC—for commercial construction) and ASHRAE 90.1-2004	The Ohio Building Code (OBC) applies to commercial construction and is adopted and amended at the State level through a process that includes the State Board of Building Standards (BBS), the State legislature, the Legislative Service Commission, and the General Assembly's Joint Committee on Agency Rule Review (JCARR). The current code is the 2007 OBC with 2009 amendments. It is based on the 2006 versions of the International Building Code, International Energy Conservation Code, and Mechanical and Plumbing codes (IBC, IECC, IMC and IPC). On November 1, 2011 the 2010 Ohio Building Code will take effect, based on the 2009 IBC, IMC and IPC. In March 2011, JCARR's recommendations to the BBS included that they update the OBC to incorporate the 2009 IBC's references to the 2009 IECC and ASHRAE 90.1-2007 as compliance paths for energy efficiency for non-residential buildings (See page D-622, rule number 4101:1-13-01.).
Residential Code of Ohio (RCO)	The 2006 Residential Code of Ohio is the statewide mandatory building code for residential construction. It is based on the 2003 International Residential Code (IRC). Residential energy requirements can be met by compliance with the 2006 IECC or by meeting the requirements of sections 1101-1103 of Chapter 11 of the Residential Code of Ohio, or the State's Prescriptive Energy Requirements (section 1104).
Ohio Revised Code, 3781 – Building Standards-General Provisions	This chapter of the ORC elaborates that municipal corporations and local governing authorities are not prevented from making additional rules or regulations pertaining to buildings providing that they do not conflict with the State building codes and that they are submitted to the State Board of Building Standards for their review process and approval.
Ohio Revised Code, 307.37 Adoption of County Building Code	This section of the ORC covers the authority and limitations of counties in Ohio to adopt and enforce their own codes.
Ohio Revised Code 1551.3 Solar, Wind & Hydrothermal Energy Systems and 1551.20 Guidelines	This section of the ORC defines renewable energy systems and designates guidelines and the process by which they are developed by the Director of the State Department of Development.
May 2007 edition,	This code covers Administration, Existing Buildings and Structures, Definitions,

BUILDING AND ENERGY CODE REGULATIONS	
REF.	REGULATION
Hamilton County Building Code	Site Requirements, Plumbing, and Electrical requirements to control all building activities in the unincorporated areas of the County. In addition, it establishes the Hamilton County Board of Building Standards to formulate and adopt rules and regulations related to construction and maintenance of buildings where not under the jurisdiction of the Ohio Board of Building Standards or the Residential Code Advisory Committee.
Ohio Revised Code, Chapter 3703 – Plumbing	This chapter of the ORC delegates authority over all plumbing code approvals and inspections to the district health departments in the State.
Ohio Revised Code, Chapter 3701 section 28-12 Construction and surface design of cisterns, hauled water storage tanks, and roof washers.	This section of the ORC covers the design and construction of cisterns and related systems for water harvesting and storage.

**Diagnosis**

The following table contains a diagnosis of regulations the building and energy code. Each recommendation is labeled according to the type of recommendation, where “BEC” means building and energy code; “B” refers to barriers, “I” refers to incentives, and “G” refers to gaps; each is numbered in sequence for ease of reference.

DIAGNOSIS: BUILDING AND ENERGY CODE		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<b>Remove Barriers</b>		
<b>Renewable Energy</b>		
<b>BEC-BI:</b> There are multiple applicable requirements and guidelines in State codes for solar thermal and photovoltaic systems. The lack of one clear set of requirements that	<ul style="list-style-type: none"> <li>Consider creating an easy-to-find standard package of requirements and guidelines, including submission and inspection checklists. Additionally, the County could lead an effort to standardize solar permitting in all municipalities in its jurisdiction.</li> </ul>	<ul style="list-style-type: none"> <li>The City of Portland, OR, has streamlined their residential and commercial permitting process with all the requirements and guidance easy to find online, including electronic permitting for residential projects. See: <a href="http://www.portlandonline.com/bps/index.cfm?c=47394&amp;">http://www.portlandonline.com/bps/index.cfm?c=47394&amp;</a></li> </ul>

DIAGNOSIS: BUILDING AND ENERGY CODE		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
are easy to find and understand is an impediment to use of these systems.		<ul style="list-style-type: none"> <li>• Maricopa Association of Governments in Arizona created uniform procedures for securing necessary electrical/building permits for residential (single-family) and commercial PV systems although local zoning regulations may apply.</li> <li>• Several excellent resources for upgrading the permitting process for renewable energy projects are:                             <ul style="list-style-type: none"> <li>○ <a href="http://www.cleantechsandiego.org/news-and-events/industry-reports.html">http://www.cleantechsandiego.org/news-and-events/industry-reports.html</a> and their report - “Taking the Red Tape Out of Green Power: How to Overcome Permitting Obstacles to Small-Scale Distributed Renewable Energy”</li> <li>○ <a href="http://www.cleantechsandiego.org/reports/redTape-rep.pdf">http://www.cleantechsandiego.org/reports/redTape-rep.pdf</a> and <a href="http://www.solarabcs.org">http://www.solarabcs.org</a> and their report -“Expedited Permit Process for PV Systems”</li> <li>○ <a href="http://www.solarabcs.org/permitting">http://www.solarabcs.org/permitting</a>, and a new report, “The Impact of Local Permitting on the Cost of Solar Power.”</li> <li>○ <a href="http://www.sunrunhome.com/uploads/media_items/solar-report-on-cost-of-solar-local-permitting.original.pdf">http://www.sunrunhome.com/uploads/media_items/solar-report-on-cost-of-solar-local-permitting.original.pdf</a></li> </ul> </li> </ul>
<b>Water</b>		
<b>BEC-B2:</b> Plumbing code provisions are under the jurisdiction of the Hamilton County Health	<ul style="list-style-type: none"> <li>• Seek avenues to allow the reuse of greywater both for water conservation and the potential accompanying water and wastewater</li> </ul>	<ul style="list-style-type: none"> <li>• The International Green Construction Code Public Version 2.0 can be found here: <a href="http://www.iccsafe.org/cs/IGCC/Page">http://www.iccsafe.org/cs/IGCC/Page</a></li> </ul>

DIAGNOSIS: BUILDING AND ENERGY CODE		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
District. Existing provisions do not address greywater systems.	ter system energy use reductions, and encourage adoption of current greywater code. Explore potential to create an experimental or pilot approval programs using the greywater provisions in the other existing plumbing codes including those in the IGCC. Clarify conditions under which greywater could be used for outdoor applications (such as irrigation) as well as indoor use. Outdoor reuse of greywater has the potential to reduce sewer flows and can contribute to reduced sewer flows. Coordinate with the Greater Cincinnati Green Task Force in relation to pilot projects.	<p><a href="#">s/default.aspx</a></p> <ul style="list-style-type: none"> <li>The IAPMO Green Plumbing and Mechanical Code Supplement can be found here: <a href="http://www.iapmo.org/Pages/IAPMO_Green.aspx">http://www.iapmo.org/Pages/IAPMO_Green.aspx</a></li> <li>The State of Arizona has adopted a tiered greywater regulatory system. Information can be found here: <a href="http://www.azdeq.gov/environ/water/permits/reclaimed.html#l">http://www.azdeq.gov/environ/water/permits/reclaimed.html#l</a></li> <li>The State of Texas has an adopted greywater law, which can be found here: <a href="http://www.tceq.state.tx.us/assets/public/legal/rules/rules/pdflib/210f.pdf">http://www.tceq.state.tx.us/assets/public/legal/rules/rules/pdflib/210f.pdf</a></li> <li>The State of Georgia’s Rainwater Harvesting Guidelines: <a href="http://dca.state.ga.us/development/constructioncodes/programs/downloads/GeorgiaRainWaterHarvestingGuidelines_2009.pdf">http://dca.state.ga.us/development/constructioncodes/programs/downloads/GeorgiaRainWaterHarvestingGuidelines_2009.pdf</a></li> <li>The State of Arizona allows low-volume residential greywater systems to be installed without permits. See: <a href="http://azdeq.gov/environ/water/permits/reclaimed.html">http://azdeq.gov/environ/water/permits/reclaimed.html</a></li> </ul>
<b>BEC-B3:</b> Current plumbing regulations for the State and County do not address provisions for non-water urinals.	<ul style="list-style-type: none"> <li>Seek avenues to allow the use of non-water urinals for the water conservation and accompanying wastewater system energy use reductions. Encourage adoption of code provisions allowing non-water urinals. Explore potential to create an experimental or pilot approval programs using existing provisions in other plumbing codes including those in the IGCC. The State of Ohio is signatory to the Great Lakes-St. Law-</li> </ul>	<ul style="list-style-type: none"> <li>The Oregon State Plumbing Board approved amending code provisions in 2008 to allow non-water urinals. See: <a href="http://www.cbs.state.or.us/bcd/boards/.../Plumb_020808_IIa_memo.pdf">www.cbs.state.or.us/bcd/boards/.../Plumb_020808_IIa_memo.pdf</a></li> <li>The City of Santa Monica, CA, has incorporated non-water urinals into their building code and provides guidance and resources related to their use and installation. See: <a href="http://www.smgov.net/Departments/">http://www.smgov.net/Departments/</a></li> </ul>

DIAGNOSIS: BUILDING AND ENERGY CODE		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
	rence River Water Resources Compact which may be an avenue to greater support for such an effort.	<a href="#">OSE/Green_Office_Buying_Guide/Restroom/Urinals.aspx</a>
Create Incentives		
Renewable Energy		
<p><b>BEC-II:</b> Few incentives exist for renewable energy projects.</p>	<ul style="list-style-type: none"> <li>Develop an expedited and streamlined approvals process specifically for all types of renewable energy projects and publicize the County's interest in and support of these projects as well as publicizing exemplary projects on the County's website. This could be part of a Development Portal on the website making renewable energy improvements for existing buildings and for new projects a highly visible goal of County government and consider prominently featuring exemplary projects, both the County's own and private projects with information about their designers, builders, developers and suppliers. Additionally, the Tax Abatement programs for the cities of Cincinnati and Cleveland include renewable energy technologies and this could be publicized as an incentive for renewable energy installations.</li> </ul>	<ul style="list-style-type: none"> <li>The City of San Jose, CA, has implemented a streamlined permitting process for small-scale solar photovoltaic systems that does not require building plan review if they meet the requirements for exemptions in a simple checklist. See: <a href="http://www.sanjoseca.gov/building/Energy.asp">http://www.sanjoseca.gov/building/Energy.asp</a> and <a href="http://www.sanjoseca.gov/building/PDFHandouts/1-10Solar.pdf">http://www.sanjoseca.gov/building/PDFHandouts/1-10Solar.pdf</a></li> <li>The City of Portland has streamlined the permitting process for residential and commercial solar installations with guidelines posted on their website here: <a href="http://www.portlandonline.com/bds/index.cfm?c=36814">http://www.portlandonline.com/bds/index.cfm?c=36814</a> and the overall program description here: <a href="http://www.portlandonline.com/bps/index.cfm?c=47394">http://www.portlandonline.com/bps/index.cfm?c=47394</a></li> <li>City of Cincinnati Residential Tax Abatement Program including for energy efficiency and green building for both new construction and improvements to existing buildings: <a href="http://www.cincinnati-oh.gov/cdap/pages/-3521-">http://www.cincinnati-oh.gov/cdap/pages/-3521-</a></li> <li>City of Cleveland Tax Abatement Program requires meeting the Cleveland Green Building Standards: <a href="http://www.city.cleveland.oh.us/portal/page/portal/CityofCleveland/Home/Gover-">http://www.city.cleveland.oh.us/portal/page/portal/CityofCleveland/Home/Gover-</a></li> </ul>

DIAGNOSIS: BUILDING AND ENERGY CODE		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
		<a href="#">nent/CityAgencies/CommunityDevelopment/TaxAbatement</a>
<p><b>BEC-I2:</b> The Hamilton County Property Improvement Program (HIP) offers low-interest loans for repairs and improvements including energy upgrades but the information on the website includes no mention of energy-efficiency or renewable energy upgrades in the list of uses for these loans.</p>	<ul style="list-style-type: none"> <li>Clarify what renewable energy and energy efficiency applications the program can be used for and list them prominently on the HIP webpage and wherever else this program is publicized. Provide links to the Energize Ohio and especially to the Database of State Incentives for Renewables and Efficiency (DSIRE) websites (which list heat pumps, central air conditioners, building insulation, windows, doors, passive solar space heat, solar water heat, photovoltaics, wind, daylighting). Consider both highlighting the potential to use this program for energy-related upgrades and explore developing additional information resources, benefits and additional preferential rates for energy-related improvements.</li> </ul>	<p>Consider developing other incentive and information resources such as these:</p> <ul style="list-style-type: none"> <li>The State of Pennsylvania's Keystone HELP Program includes low-interest loans for energy efficiency upgrades and geothermal heat pump systems as well as listings of qualified energy auditors and contractors. See: <a href="http://www.keystonehelp.com/index.php">http://www.keystonehelp.com/index.php</a></li> <li>The State of Minnesota Neighborhood Energy Connection Program offers Energy Loans based on recommendations from an energy audit. See: <a href="http://www.thenec.org/energy_financing/index.php?strWebAction=article_detail&amp;intArticleID=222">http://www.thenec.org/energy_financing/index.php?strWebAction=article_detail&amp;intArticleID=222</a></li> <li>Ramsey County, MN, offers a Suburban Ramsey County Energy Conservation Deferred Loan Program for energy upgrades and deferred payments for 10 years. See: <a href="http://www.thenec.org/energy_financing/index.php?strWebAction=article_detail&amp;intArticleID=220">http://www.thenec.org/energy_financing/index.php?strWebAction=article_detail&amp;intArticleID=220</a></li> </ul>
Filling Regulatory Gaps		
Renewable Energy		
<p><b>BEC-GI:</b> There is no State code governing neighborhood-scale geothermal systems.</p>	<ul style="list-style-type: none"> <li>The county has added a geothermal system checkbox in the permit application for geothermal systems but this covers only single lot/single building installations, not larger, multi-building or multi-owner systems. This could apply to both commercial and residential/multifamily residential projects. Consider developing</li> </ul>	<ul style="list-style-type: none"> <li>The State of Michigan has excellent guidance on geothermal systems including definitions, permitting requirements and maps. See: <a href="http://www.michigan.gov/.../deq-wd-gws-wcu-ghpsguidance_195216_7.pdf">www.michigan.gov/.../deq-wd-gws-wcu-ghpsguidance_195216_7.pdf</a></li> <li>The New York State Energy and Redevelopment Authority (NYSER-DA) has very detailed information on geothermal heat pump systems</li> </ul>

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	<p>guidelines and code provisions for various scale geothermal systems. These could be developed to cover both ground source and lake or pond systems for both heating and cooling. They should cover the wells where used, piping and other overall system equipment as well as the connections to the HVAC systems in individual buildings.</p>	<p>here:  <a href="http://www.nyserda.org/programs/geothermal/default.asp">http://www.nyserda.org/programs/geothermal/default.asp</a></p>
<p><b>BEC-G2:</b> No requirements or guidance are provided to either require or promote passive solar design for heating, cooling, lighting and ventilation.</p>	<ul style="list-style-type: none"> <li>Passive solar design strategies are the most cost effective way to reduce energy use in buildings, yet are not widely used. Consider developing guidelines and technical resources to promote and encourage passive design strategies. Explore making passive strategies part of the permitting process – though not a mandatory requirement since this is likely beyond the County’s authority.</li> </ul>	<ul style="list-style-type: none"> <li>City of Santa Barbara, CA, has Passive Solar Design Recognition Program and Guidelines that are part of a suite of design guidelines for preferred practices. See: <a href="http://www.santabarbaraca.gov/Resident/Home/Guidelines/#SolarDesignGuidelines">http://www.santabarbaraca.gov/Resident/Home/Guidelines/#SolarDesignGuidelines</a></li> <li>Missouri Department of Natural Resources website provides excellent guidance about solar energy including passive design: <a href="http://www.dnr.mo.gov/energy/renewables/solar5.htm">http://www.dnr.mo.gov/energy/renewables/solar5.htm</a></li> </ul>
<p><b>BEC-G3:</b> There are no codes or guidance for micro-hydroelectric systems – which are small-scale systems that use either adequate flow rates or sufficient head but not dams to produce electricity.</p>	<ul style="list-style-type: none"> <li>The county could explore the potential for these renewable energy systems and if sufficient capacity exists, develop regulations and an approval process to add micro-hydro to the allowable renewable energy options available. These systems often do not require creating a dam or penstock, depending instead on having sufficient head for generation so can be extremely low impact systems.</li> <li>In addition, the County could explore the potential for power generation from stormwater</li> </ul>	<ul style="list-style-type: none"> <li>Small scale hydroelectric systems qualify for Net Metering in the State of Ohio and there are applicable Federal Interconnection Standards for Small Generators. They also may qualify for Property Tax Exemptions and federal grants and loan programs. See the DSIRE website for more information: <a href="http://www.dsireusa.org/incentives/index.cfm?EE=0&amp;RE=I&amp;SPV=0&amp;ST=0&amp;state=OH&amp;technology=smallhydro&amp;sh=I">http://www.dsireusa.org/incentives/index.cfm?EE=0&amp;RE=I&amp;SPV=0&amp;ST=0&amp;state=OH&amp;technology=smallhydro&amp;sh=I</a></li> </ul>

DIAGNOSIS: BUILDING AND ENERGY CODE		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
	conveyance systems.	
<b>Energy Efficiency and Conservation</b>		
<p><b>BEC-G4:</b> The existing building provisions in the Ohio Building Code, the Residential Code of Ohio and the Hamilton County Building Code lack energy efficiency requirements.</p>	<ul style="list-style-type: none"> <li>Develop energy efficiency upgrade requirements for existing buildings such that they would take effect at the time of change of ownership, occupancy, or major renovation or additions. Alternatively or in addition, require an energy audit triggered by those same conditions. Support this effort through educational information on the County website about available Utility Energy Audit programs and the existence of Energy Efficient Mortgages and other incentives.</li> </ul>	<ul style="list-style-type: none"> <li>The City of Burlington, VT, has a Residential Rental Housing Time of Sale Energy Efficiency Ordinance. See: <a href="http://www.burlingtonelectric.com/E LBO/assets/INTRODUCTION%20O%20TOS%20ORDINANCE.pdf">http://www.burlingtonelectric.com/E LBO/assets/INTRODUCTION%20O%20TOS%20ORDINANCE.pdf</a></li> <li>The City of Austin, TX, has a Residential Energy Audit requirement for multi-family and residential buildings 10 or more years old at point of sale with the results made available to prospective buyers. See: <a href="http://www.ci.austin.tx.us/acpp/downloads/EEU_Ordinance_20081106-047.pdf">http://www.ci.austin.tx.us/acpp/downloads/EEU_Ordinance_20081106-047.pdf</a></li> </ul>
<p><b>BEC-G5:</b> Building codes and existing policies do not explicitly provide for cool roofs, green roofs and green walls, acknowledging their capacity to reduce building cooling loads, reduce heat island effect, and help mitigate stormwater volume.</p>	<ul style="list-style-type: none"> <li>Consider adding definitions and provisions for cool and green roofs to HCBC. Develop and/or adopt standards for green roofs and walls and inform the community they are both allowed and encouraged. Allow green roofs to count towards landscaping/open space requirements or provide bonuses for inclusion. Consider adopting the IGCC as a voluntary stretch code and using its provisions for green roofs and walls.</li> </ul>	<ul style="list-style-type: none"> <li>Chicago requires green roofs on all new downtown buildings.</li> <li>Henderson, NV, grants points in its sustainability point review system for cool or vegetated roofs.</li> <li>Golden, CO, offers one sustainability point, out of a required 25, for 10 sq. ft. of a vegetative roof.</li> <li>LEED-ND awards one point for a cool or shaded roof.</li> <li>Portland, OR, requires eco-roofs for all new city facilities with 70% coverage and high reflectance, ENERGY STAR-rated roof material on the remainder of the roof area.</li> <li>Miami, FL, allows 25% of landscaping requirement to be met on rooftops and amenity decks.</li> </ul>

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<b>Water Use</b>		
<p><b>BEC-G6:</b> According to the Alliance for Water Efficiency, the Ohio Drinking Water State Revolving Fund (DWSRF), which is administered by Ohio EPA and Ohio Water Development Authority - ORC 6109.22(I) - makes no mention of conservation as an allowable use of monies in the fund. However, money can be used to "provide any other assistance authorized by the Safe Drinking Water Act." (See EPA Memorandum DWSRF 03-03.)</p>	<ul style="list-style-type: none"> <li>Explore the potential to develop drinking water conservation requirements that could be funded through the DWSRF. Possible requirements could include the use of EPA Water Sense fixtures and appliances.</li> </ul>	<ul style="list-style-type: none"> <li>The Green Project Reserve of the Drinking Water Assistance Fund offers a potential avenue to enable water and combined water and energy conservation strategies. There is the potential to create requirements or incentives related to practices listed on the Green Project Reserve Form – which includes green roofs, rainwater harvesting/cisterns, grey-water use, and micro-hydroelectric projects. See: <a href="http://www.epa.ohio.gov/ddagw/financialassistance.aspx#DWAF">http://www.epa.ohio.gov/ddagw/financialassistance.aspx#DWAF</a> and <a href="http://www.epa.ohio.gov/portals/28/documents/dwaf/GPR_Form.pdf">www.epa.ohio.gov/portals/28/documents/dwaf/GPR_Form.pdf</a></li> </ul>
<b>Wastewater Management</b>		
<p><b>BEC-G7:</b> Similar to BEC-G6 above, the CWSRF makes no mention of conservation as an allowable use of monies in the fund. However, "treatment works" are defined by reference to sec 212 of the federal CWA. (See EPA Memo-</p>	<ul style="list-style-type: none"> <li>Explore the potential to develop water conservation requirements related to wastewater that could be funded through the CWSRF.</li> <li>Work with MSD to address combined sewer overflows as a basis for supporting a range of building and site based rainwater and stormwater strategies including possible incentives and/or requirements for the use of EPA</li> </ul>	<ul style="list-style-type: none"> <li>The Green Infrastructure Program lists many elements of the requirements to deal with combined sewer outflows in the MSD, including: <a href="http://www.msdcg.org/wetweather/greenreport.htm">http://www.msdcg.org/wetweather/greenreport.htm</a></li> <li>Reports and strategies can be found at the Project Groundwork website: <a href="http://projectgroundwork.org/index.htm">http://projectgroundwork.org/index.htm</a></li> </ul>

DIAGNOSIS: BUILDING AND ENERGY CODE		
EXISTING PROVISIONS	POSSIBLE REVISIONS	EXAMPLES
<p>randum CWSRF 00-13, Sept.20, 2000 - <a href="http://www.cuwcc.org/WorkArea/downloadasset.aspx?id=4324">www.cuwcc.org/WorkArea/downloadasset.aspx?id=4324</a>. )</p> <p>The State reports that water conservation measures, including financial incentives offered to utility customers for purchasing and installing water-conserving equipment, are eligible for funding.</p>	<p>Water Sense fixtures and appliances, inclusion of water harvesting systems, cisterns, rain barrels, rain gardens, green roofs, and developing support for on-site greywater reuse – as distributed solutions to stormwater and sewer flow reductions.</p>	
<b>Waste Management</b>		
<p><b>BEC-G8:</b> Create a requirement to provide an analysis of deconstruction verses demolition for demolition permit approval.</p>	<ul style="list-style-type: none"> <li>By requiring analysis of the costs and possible beneficial reuse and landfill avoidance of deconstruction versus demolition, the potential for greater deconstruction activities can be promoted without mandating it.</li> </ul>	<ul style="list-style-type: none"> <li>The U.S. EPA website on Construction Demolition and Debris Management has many resources including ordinances and specifications and more: <a href="http://www.epa.gov/reg5rcra/wptdiv/solidwaste/debris/brownfields/index.htm">http://www.epa.gov/reg5rcra/wptdiv/solidwaste/debris/brownfields/index.htm</a></li> <li>The Connecticut Department of Environmental Protection has excellent information about this topic: <a href="http://www.ct.gov/dep/cwp/view.asp?a=2714&amp;q=469620">http://www.ct.gov/dep/cwp/view.asp?a=2714&amp;q=469620</a></li> </ul>
<p><b>BEC-G9:</b> Lack of construction demolition debris (CDD) recycling and disposal facilities discourages creation of requirements mandating recycling of these materials.</p>	<ul style="list-style-type: none"> <li>Develop CDD mandatory requirements with exemptions for projects where there are no local facilities to handle the materials. The Cities of Cincinnati and Cleveland have property tax abatement programs for green buildings. These don't specifically reference deconstruction, but a similar program</li> </ul>	<ul style="list-style-type: none"> <li>The U.S. EPA has sample ordinances and much more useful information here: <a href="http://www.epa.gov/reg5rcra/wptdiv/solidwaste/debris/brownfields/index.htm#S9">http://www.epa.gov/reg5rcra/wptdiv/solidwaste/debris/brownfields/index.htm#S9</a></li> <li>The Ohio Environmental Protection Agency has resources and information about construction demolition debris disposal, landfills and recycling. See: <a href="http://www.epa.ohio.gov/dsiwm/pages/recycpro.aspx">http://www.epa.ohio.gov/dsiwm/pages/recycpro.aspx</a></li> </ul>

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	could be created to require consideration of deconstruction for the demolition permit application process, with the incentive of a property tax abatement for a percentage of any resulting increased property value.	

# 3. Priority Recommendations

## BACKGROUND

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Building on its recent and current sustainability initiatives Hamilton County can make even greater progress towards its sustainability objectives through changes in its land use regulatory framework. This section contains a summary of priority recommendations for changes to the County's development and other regulations.

## NEAR-TERM RECOMMENDATIONS

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Recommendations in each of the five topic areas outlined in this Diagnosis were reviewed by the consulting team and evaluated in terms of their feasibility, potential effectiveness in addressing the issues identified, and resources required to implement. The following section identifies those items that the team has identified as ready to implement in the near-term – meaning that these regulatory changes are ready to be drafted and potentially incorporated into the County's codes and ordinances.

### Energy and Resource Management

Priority recommendations related to Energy and Resource Management include:

#### ENERGY

- Permit small-scale renewable energy systems as accessory uses instead of conditional uses and clarify that they are allowed in residential and non-residential areas (see ERM-B1 and ERM-G1).
- Consolidate regulations for the installation of small-scale renewable energy systems (e.g., solar, wind, and geothermal) into one location in the code (see ERM-B2).
- Add minimum solar-orientation requirements to apply to new large subdivisions (see ERM-G4).
- Revise outdoor lighting standards to require the use of energy-saving bulbs, fixtures, and management techniques (see ERM-G9).

#### WATER/STORMWATER

- Address green roofs and allow them to count towards landscaping requirements (see ERM-I3).
- Add standards to address collection of rainwater in residential and non-residential areas (see ERM-G13).

#### WASTE

- Amend regulations to clarify that small-scale compost bins or piles are allowed as accessory uses in all areas. (see ERM-B6).
- Revise requirements for dumpster and trash handling areas to require adequate storage area for recycling containers in addition to regular dumpsters (see ERM-G14).

## Development Patterns

Priority recommendations related to Development Patterns include:

### MIX OF LAND USES

- Change the review process to allow certain densities of alternative single-family dwelling types and multi-family dwellings as of right in the O and E Districts to encourage mixed uses without requiring a PUD. Create development standards and guidelines for multi-family dwellings to allow review and approval by the zoning staff, with design standards as a means to encourage mixed uses (see DP-B1).
- Allow accessory apartments and granny cottages as permitted accessory uses requiring staff review (see DP-B2).
- Modify existing accessory use regulations for home occupations to allow one non-family employee (see DP-B4).
- Grant automatic reductions in off-street parking in mixed use projects (e.g. 25%), or allow applicant to submit a parking study supporting an increased parking reduction (see DP-I1).
- Add a definition of mixed use to define it as a primary use type, add mixed use to appropriate districts as a permitted use, and make explicit how setbacks, height, density, etc., are to be calculated for mixed use development (see DP-G1).

### COMPACT DEVELOPMENT

- Modify the review process to allow alternative single-family dwelling types that comply with the underlying zoning densities to be permitted as of right in residential zoning districts (see DP-B5).
- Allow alternative single-family dwelling types in the D District at increased densities as of right (see DP-B6), and modify the density threshold that requires a public hearing in the D District to increase the types of dwellings that are permitted as of right (see DP-B7).
- Create development standards and guidelines for multi-family dwellings to allow review and approval by the zoning staff (see DP-B7).
- Adopt maximum parking limits.
- Evaluate existing off-street parking standards and identify parking requirements that can be reduced (see DP-B8).
- Evaluate and create nonresidential district lot size and setback development standards to allow development that is not auto-oriented in exchange for desirable development pattern, such as locating parking to the side or rear, or providing pedestrian amenities (see DP-I5).
- Allow vegetated green roofs to count toward landscaping requirements, reduce ISR, or provide bonuses (e.g. height or density) (see DP-I6).
- Create standards that allow for approval of alternative parking plans, expanding options for shared parking, allowance for off-site parking, on-street parking, and other approaches (see DP-G4).

- Add definitions for “green”, “cool”, and “vegetated” roofs to the Zoning Resolution (see DP-G7).

## INFILL DEVELOPMENT

- Increase the ISR threshold for expansion and redevelopment projects and create “Infill Redevelopment Standards” for smaller sites, reducing requirements for compliance with certain development standards to encourage infill development (see DP-B9).
- Allow the zoning staff to approve an alternative landscape plan for infill, redevelopment or expansion projects so that a public hearing is not required (see DP-B10)
- Clarify that renovations or expansions related to “green building” design (e.g. adding solar panels) may be made without bringing entire site into compliance (see DP-B11).
- Work with Township to identify areas within Township planning documents where infill and intensive development is encouraged (see DP-I7).
- Allow reductions in off-street parking for infill development for designated uses as of right, or by allowing applicant to submit a parking study supporting a parking reduction (see DP-I8).
- Create incentives that encourage the use of LEED design and other types of energy efficient and green building and design methods (see DP-I20).

## Mobility and Connectivity

Priority recommendations related to Mobility and Connectivity include:

- Reduce the threshold for in-fee right-of-way dedication for redevelopment or infill projects for smaller sites (see MC-B2).
- Update and consolidate the County Thoroughfare Plan and Motorway Plan to provide a single source for design standards and anticipated right-of-way widths. Evaluate right-of-way width designations with these documents to ensure that the widths indicated are necessary (see MC-B3).
- Revise engineering and subdivision regulations to allow approved species of street trees to be planted within the right-of-way of County roadways to reduce the heat-island effect of paved roadways through enhanced shade cover (see MC-B4).
- Work with the Townships to understand the requirements for identifying shade trees and bicycle paths in order for these elements to be incorporated into right-of-way plans (see MC-I3).
- Specify that sidewalks or pedestrian ways are required in all developments (see MC-G1).
- Provide more specific standards for road connectivity, and require pedestrian and vehicular connectivity (see MC-G2).
- Require bicycle parking for new construction and redevelopment. Tailor to specific uses instead of linking to vehicle parking space requirements (see MC-G3).
- Clarify that CNG fueling facilities are allowed at gas stations (see MC-G5).

- Specifically allow electric vehicle charging stations as an accessory use in all zone districts and in conjunction with all gas-fueling stations and parking lots/structures in commercial areas (see MC-G6).

## Urban Agriculture

Priority recommendations related to Urban Agriculture include:

- Modify regulations in residential areas to provide more flexibility on lots smaller than five acres, including the following:
  - Allow farm stands in residential areas, with appropriate size limits (see UA-B2).
  - Reduce setback requirements for agricultural uses and structures (see UA-B3).
- Create regulations for small-scale backyard chicken uses (see UA-B4).
- Amend zoning regulations to define and make provisions for Community Gardens as a permitted use in all districts and provide open space credit for including them as part of a development project or subdivision (see UA-II and UA-G1).
- Define Community-Supported Agriculture and include it as a permitted use in appropriate districts, both rural and suburban (see UA-G4).
- Add a definition for rooftop gardens and include it as a permitted use in all districts (see UA-G5).

## Building and Energy Code

Priority recommendations related to the Building and Energy Code include:

- Create an easy-to-find standard package of requirements and guidelines for solar thermal and photovoltaic systems, including submission and inspection checklists (see BEC-B1).
- Develop an expedited and streamlined approvals process specifically for all types of renewable energy projects (see BEC-II).
- Publicize the County's interest in and support of renewable energy projects and publicize exemplary projects on the County's website (see BEC-II).
- Clarify what renewable energy and energy efficiency applications the Hamilton County Property Improvement Program (HIP) can be used for and list them prominently on the HIP webpage, providing links to the Energize Ohio and the Database of State Incentives for Renewables and Efficiency (DSIRE) websites (see BEC-I2).
- Develop guidelines and code provisions for various scale geothermal systems (see BEC-G1).
- Develop guidelines and technical resources to encourage passive design strategies as part of the permitting process (see BEC-G2).