COMPREHENSIVE PLAN
CITY OF MASON

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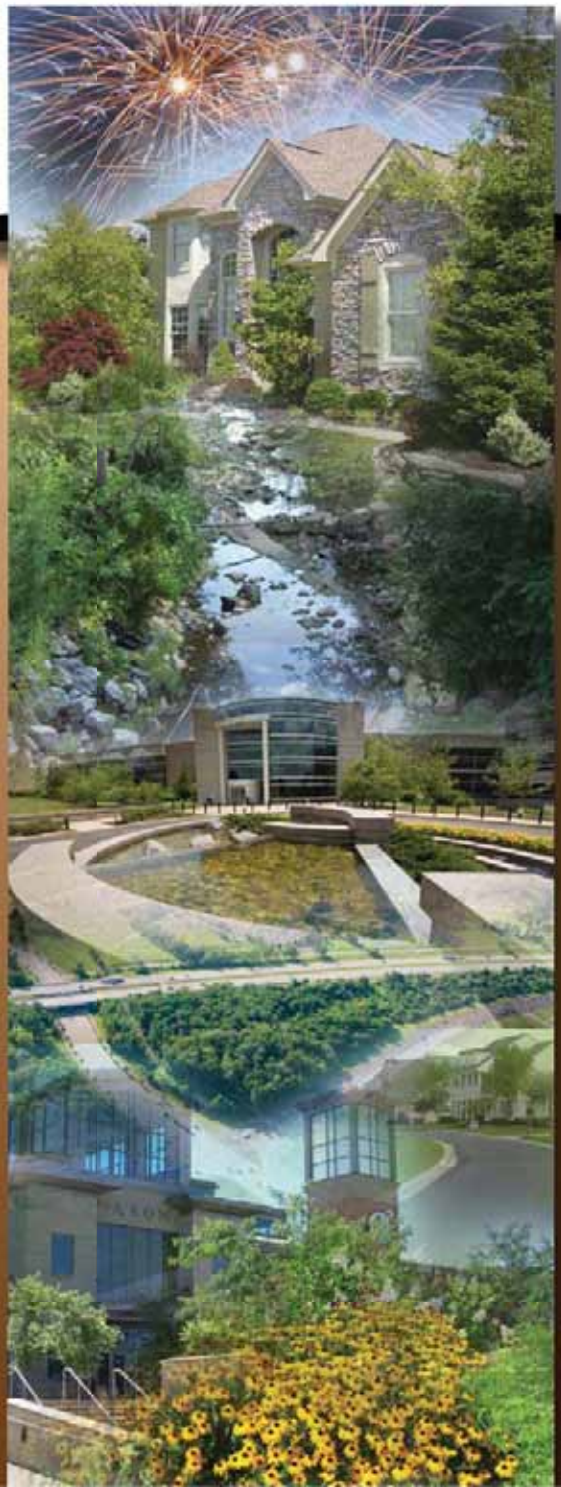
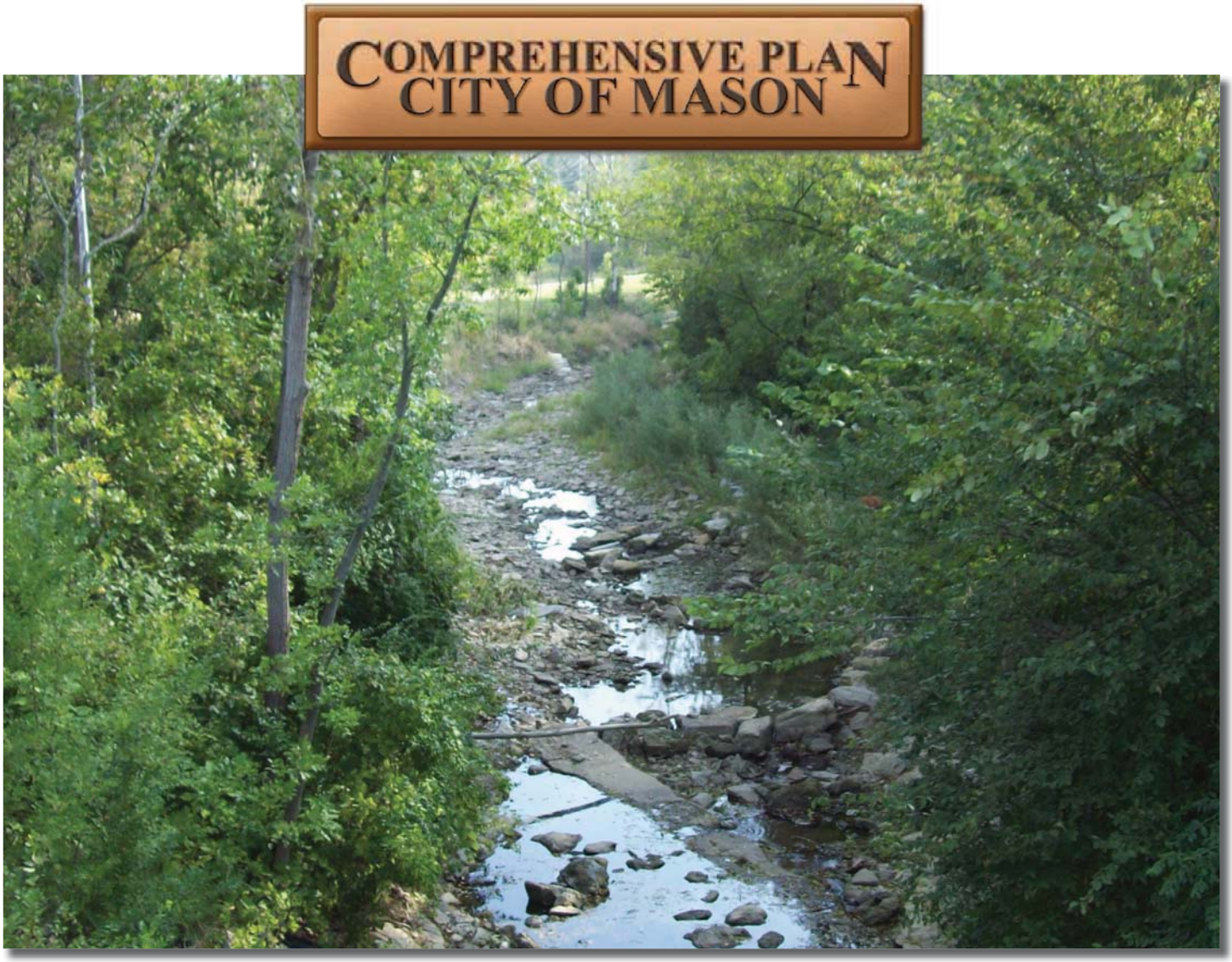
Chapter 2
Natural Resources and Open Space





Chapter 2: Natural Resources and Open Space

Vision Statement

Mason will be known for its success in protecting vital open spaces, reducing its ecological footprint, and maintaining natural resources that support its prosperity. Preservation of environmentally sensitive areas will protect citizens from natural hazards, improve water and habitat quality and contribute to an interconnected network of recreational open space. Low-impact development will promote clean air and water through energy efficiency, stormwater management and reduced waste. These ecological success will maintain a healthy, attractive community for current and future generations.

Section 2.1. Purpose

The Natural Resources and Open Space element creates a framework for preservation of sensitive natural areas, and ecological systems in concert with future development. Preserving these features will help to sustain air and water resources and contribute to the health and quality of life of Mason residents.

Primary components of this element include:

1. An inventory of natural resources including wetlands, topography, streams and associated floodplains, in addition to land used for agriculture.

2. A vision, goals and strategies aimed at the preservation and restoration of natural areas and processes as Mason continues to grow.

3. Recommendations for establishing a "green infrastructure" network in Mason.

Strategies recommended in this element relate to several other elements of the Comprehensive Plan, including Population and Housing, Community Facilities, Infrastructure, Economic Development, Transportation and Circulation, and Land Use and Development.

Section 2.2. Natural Resources and Open Space Snapshot

This section contains a summary of existing conditions, issues and opportunities related to natural areas in Mason. Detailed information can be found in the Existing Conditions Report.

Introduction

Mason's relatively level terrain originally made the area suitable for farming. More recently, the relative lack of topography has facilitated development in Mason and has been a factor in the community's rapid growth. The Natural Resources and Open Space element creates a framework for preservation of sensitive natural areas, and ecological systems in concert with future development. Preserving these features will help to sustain air and water resources and contribute to the health and quality of life of Mason residents.

Chapter 2 Cover Photo

Muddy Creek is one of Mason's more prominent natural features. This photograph was taken near Downtown. Muddy Creek drains into the Little Miami Scenic River and offers unique riparian habitat for wildlife. Muddy Creek Greenway, when extended, will connect several neighborhoods to schools and parks.

Open Space and Natural Areas

- In addition to nearly 300 acres of public parkland, the City includes close to 1,200 acres of private open space, which includes golf courses, buffer and retention areas, preserved natural features and private neighborhood recreation facilities.
- While Mason's relative lack of natural barriers to development has facilitated growth, it has also produced many neighborhoods that are devoid of natural features. Developments have had to utilize creative designs to build attractive subdivisions.
- Natural areas are limited to isolated riparian corridors such as the Muddy Creek, Frank Hosea Woods, and several parks and golf courses.

Floodplains

- Floodplain areas are generally found in narrow stream valleys and do not comprise large, contiguous areas. The Muddy Creek and its tributaries comprise the majority of floodplain area in the City.

Wetland Areas

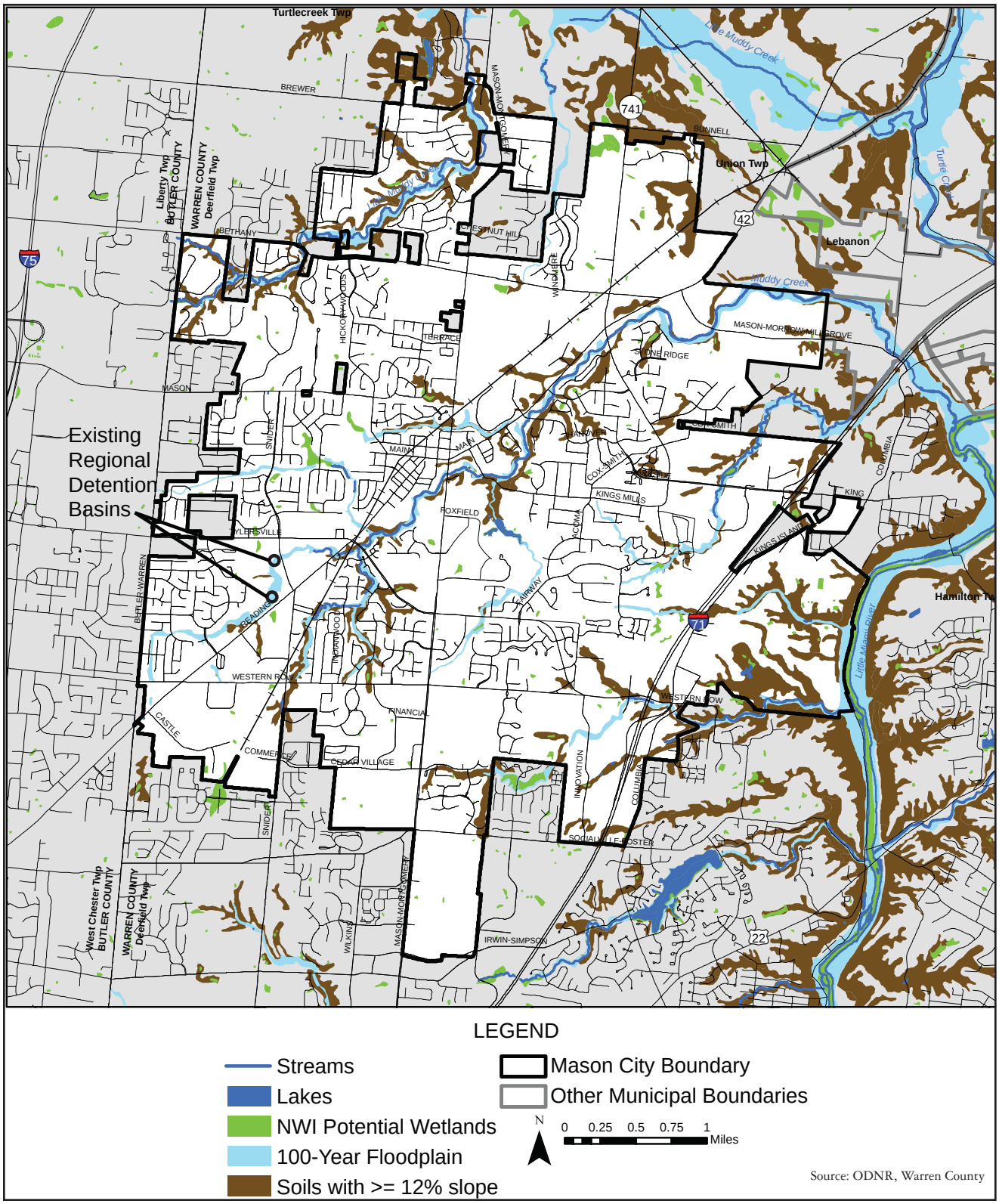
- Most of the potential wetland areas are less than an acre in size and are scattered throughout Mason. Additionally, most of the potential wetland areas identified by the National Wetlands Inventory (NWI) are actually ponded areas.

Highlights

- Relatively few development constraints such as steep topography, wetlands and floodplains have helped to allow rapid growth and development in Mason.
- Mason's limited physical development constraints have also created neighborhoods that are absent of value-enhancing natural features.
- Large areas of steep slopes, floodplains, and wetlands to the north of Mason may present challenges to future growth, as well as opportunities for attractive preservation areas.
- The City of Mason, through the stormwater utility fund, is correcting, enhancing, and stabilizing riparian zones as well as managing stormwater infrastructure.

Mason contains multiple golf courses including the City of Mason owned Golf Center at Kings Island. Golf courses provide desired open space and recreational opportunities.

Map 2.2A Natural Features



Mason - Tree City USA

Mason is a member Tree City USA community. Members must meet Arbor Day Foundation minimum requirements to join the program. These requirement include having:

- a Tree Board
- a funded urban forestry program
- a tree care ordinance
- an annual tree observance and proclamation

The City's Landscape and Street Tree Code is responsible for saving and/or replacing several thousand trees that would otherwise be lost to development. These trees enhance Mason's character, remove pollutants, screen incompatible uses and cool structures in the summer.

Groundwater Resources

- To help protect limited groundwater resources Mason turned to the City of Cincinnati for its water supply and treatment needs.
- The City contracted with Greater Cincinnati Water Works (GCWW) in 2002 to provide water from regional sources, and GCWW now utilizes the City's Water Treatment Plant as a backup water source.

Water Quality

- The Ohio Environmental Protection Agency (OEPA) sampled water quality in the Muddy Creek and Little Muddy Creek in 2007 based on the EPA's criteria for Aquatic Life Use (suitability for supporting aquatic organisms).
  - Muddy Creek partially attained this criteria. A drought in 2007 and effluent from the Water Reclamation Plant prevented full attainment.
  - The Little Muddy Creek fully attained this criteria.
- The OEPA also evaluated the Muddy Creek based on its Primary Contact Recreation criteria (suitability for full-body-contact recreation activities such as wading, swimming and canoeing) and found the creek to be in non-attainment.

Air Quality

- The U.S. Environmental Protection Agency (USEPA) has designated Warren County, along with the remainder of the Cincinnati metropolitan area, as in non-attainment for eight-hour ozone and Particulate Matter 2.5 standards.

Tree Canopy

- Mason, like most of the region, was once covered in a lush natural canopy. Through centuries of farming and more recently development, much of the canopy has been removed.

Mason Codes

- The City's Landscape Code has helped to begin the reestablishment of lost vegetation in the area. Street trees, shrubs, and various other amenities are required as part of new projects.

Section 2.3. Goals and Strategies

Goal NR-1. Preserve environmentally sensitive areas.

Preserving stream corridors in their natural state can protect life and property from flood hazards, improve site aesthetics and protect wildlife habitat. Naturally vegetated drainage features also tend to slow stormwater runoff and improve water quality through filtration.

Strategy NR-1.1.
Discourage and reduce development of structures and impervious surfaces within the FEMA Floodway and 100-Year Floodplain.

Action NR-1.1.1. Require the identification and mapping of natural features as part of site plan review.

Action NR-1.1.2. Preserve and use natural drainage and drainage features in site design.

Action NR-1.1.3. Require appropriate use of plant species in drainage pathways and buffers. Use species that are adapted to conditions found along natural drainage pathways and can tolerate seasonal drought and high water conditions.

Action NR-1.1.4. Offer fees in lieu of compliance as an alternative for projects that do not meet floodplain protection requirements. Utilize fees for stormwater management projects elsewhere in the City.

Strategy NR-1.2.
Establish riparian setbacks in order to protect water quality, reduce erosion, and protect wildlife habitat.

Action NR-1.2.1. Develop a natural resources inventory map that identifies and classifies wetlands, watercourses and other sensitive areas in the City in detail. This map will inform site plan review and the riparian setback ordinance. See CF-2.4.1.

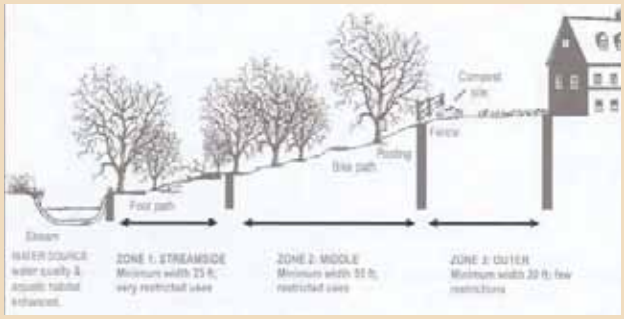
Action NR-1.2.2. Develop a riparian setback ordinance for streams in Mason. Vary setbacks based on the size of the area drained by the stream or other indicators of conservation value and develop standards for each buffer "zone", as described in Figure 2.3A.

Figure 2.3A: Riparian Buffer Zones

Riparian buffer areas are critical to the biological, chemical and physical integrity of our waterways. They protect water quality by cooling water, stabilizing banks, mitigating flow rates, and providing for pollution and sediment removal by filtering overland runoff before it enters the water.

Typically, riparian buffers can be divided into three different zones.

- The "streamside zone", begins at the edge of the stream bank of the active channel and extends a minimum distance of 25 feet, measured horizontally on a line perpendicular to the water body.
- The "middle zone", extends immediately from the outer edge of the "streamside zone" for a minimum of 55 feet.
- The "outer zone" extends a minimum of 20 feet immediately from the outer edge of the "middle zone".



Action NR-1.2.3. Develop guidelines and provisions for Low-Impact Development within and adjacent to setback areas (see Figure 5.3A in Chapter 5 for more information).

Action NR-1.2.4. Incorporate no-mow zones in the riparian setback ordinance in order to protect native riparian vegetation.

Action NR-1.2.5. Promote and establish intergovernmental coordination of regulations among communities located along riparian corridors.

Strategy NR-1.3.
Encourage restoration of natural habitat, streams and drainage patterns in developed areas. Development has occurred in or close to several environmentally sensitive areas, resulting in developed or cleared floodplains, and piped or channelized (rerouted streams).

Action NR-1.3.1. Establish guidelines for planting vegetation along streams and rivers in order to shade streams, improve water quality and prevent erosion.

Action NR-1.3.2. Encourage replacement of riparian vegetation when vegetation is damaged or removed during construction.

Action NR-1.3.3. Restore natural habitat along streams such as the Muddy Creek as properties are acquired for greenways, flood storage and stormwater management.

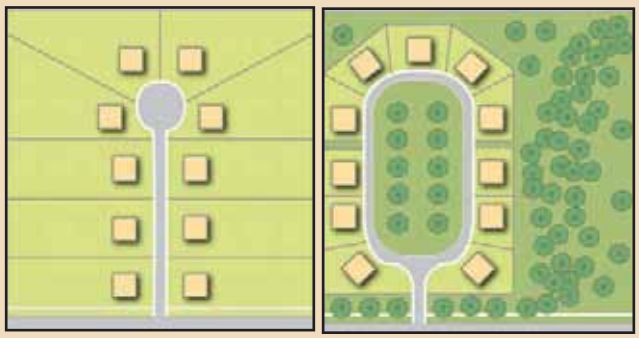
Action NR-1.3.4. Encourage redevelopment projects to restore natural floodplain functionality to previously disturbed areas.

Action NR-1.3.5. Implement a stream restoration project on city owned property or on a redevelopment site to educate the public.

Cluster Development (See NR-2.1)

Cluster developments offer distinct and measurable economic advantages over conventional layouts, including, but not limited to:

- Reduced impervious area and total disturbed areas at development sites
- Lower infrastructure and construction costs
- Marketing and sales advantages
- Appreciation of market value
- Environmental and ecological protection and preservation.



Conventional Subdivision - 1 unit/acre

Cluster Subdivision - 1 unit/acre

Goal NR-2. Provide a variety of quality open space, distributed equitably throughout Mason.

Numerous studies document the benefits of preserved natural resources and open space and their impact on community quality of life, property values and economic development. The following strategies will help to build an interconnected network of "Green Infrastructure" in Mason. Coordinate efforts with Goal CF-1 in Chapter 3.

Strategy NR-2.1.
Encourage cluster development that preserves open space while allowing a return on investment.

Action NR-2.1.1. Allow smaller lots and/or provide density bonuses to developers who provide greater open space in areas planned for Low-Intensity Neighborhood on the Future Land Use map.

Strategy NR-2.2.
Acquire or encourage acquisition of environmentally sensitive properties.

Action NR-2.2.1. Seek deed restrictions and/or conservation easements in new developments that preserve sensitive areas such as steep slopes, wetlands and riparian corridors.

Green Infrastructure (See NR-2)

The Green Infrastructure concept views natural systems as a crucial part of a community's infrastructure that requires the same level of attention as utilities and roadways. Green Infrastructure is defined as an interconnected network of greenspace that conserves natural ecosystem values and functions and provides associated benefits to the human population.

Components of such a network can include parks, greenways, buffer areas, working lands such as farms, and nature preserves.

Source: Sprawlwatch Clearinghouse, 2002

Action NR-2.2.2. Acquire strategically important open space areas such as land adjacent to the Muddy Creek through dedication requirements with new development.

Action NR-2.2.3. Acquire floodplain properties or easements for the purpose of restoring natural floodplain functionality.

Action NR-2.2.4. Identify and use funds for natural features protection and acquisition. This could include dedicated funds, grants, civic contributions, bonds, etc.

Action NR-2.2.5. Provide leadership towards creating an urban land trust. Such trusts have raised millions of dollars and have preserved thousands of acres in urban and metropolitan areas across the county.

Strategy NR-2.3.
Promote preservation of woodlands, steep slopes, and riparian areas.

Action NR-2.3.1. Adopt a natural resource protection ordinance that includes provisions to protect woodlands, wetlands and steep hillsides.

Strategy NR-2.4.
Promote the location and design of open space areas within developments so they connect green infrastructure on adjacent properties to create a linked network.

Action NR-2.4.1. Develop a Green Infrastructure plan using the natural resource map developed under Action NR-1.2.1. Identify priority areas for open space dedication and acquisition.

Goal NR-3. Reduce the ecological footprint of development.

The ecological footprint is a measure of human demand on the Earth's ecosystems. Mason can reduce its footprint through energy-efficient and low-impact development practices as well as individual resident actions.

Strategy NR-3.1.
Promote sustainable and energy efficient building practices. The City seeks wise use of energy utilizing cost effective solutions that offer a reasonable payback period.

Action NR-3.1.1. Ensure that all new municipal buildings follow energy efficient practices in order to set an example for private development.

Action NR-3.1.2. Encourage the School District to follow energy efficient practices.

Strategy NR-3.2.
Enable and encourage Low-Impact Development practices in stormwater management, as described in Figure 5.3A in Chapter 5.

Strategy NR-3.3.
Encourage residents to engage in activities that reduce their ecological footprint.

Action NR-3.3.1. Develop an energy efficiency and conservation strategy for the City that addresses public and private actions, projects and funding sources.

Action NR 3.3.2. Provide ecological awareness through the City's web site, classes, and brochures.

Action NR 3.3.3. Develop citywide goals for waste reduction and recycling participation.

Action NR 3.3.4. Work with Warren County and local jurisdictions to prepare a site selection and recycling center feasibility study. Curbside service and drop-off centers exist but other needs are not met such as tire, paint and household chemicals.

Goal NR-4. Increase the tree canopy in the City.

Trees and wooded areas are community-defining natural features that soften the built environment and have several measurable community benefits.

The City's Landscape and Street Tree Ordinance has made a profound impact on Mason's community image and quality of life. Additional flexibility is proposed as part of these successful policies to ensure this strong heritage is continued in the future.

Strategy NR-4.1.
Increase the flexibility of the City's Landscaping and Street Tree Ordinance by providing alternative means of compliance.

Action NR-4.1.1. Study the Landscape Code to identify alternative requirements for tree plantings such as fee-in-lieu-of compliance and allowing more smaller-caliper trees.

Action NR-4.1.2. Support reforestation efforts in areas that have been cleared for development. This strategy can cut down on mowing, add aesthetic value to a neighborhood and add to community character.

Benefits of Trees (NR-4)

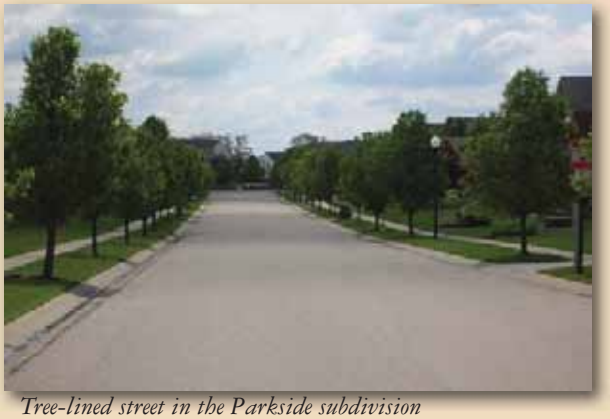
Cooling/Reduced Energy Costs
The shading and cooling effects of trees can provide comfort in urban areas and reduce energy costs. The net cooling effect of a young, healthy tree is equivalent to room-size air conditioners operating 20 hours a day. Furthermore, trees placed properly around buildings can reduce air-conditioning needs by 30 percent and can save 20 to 50 percent in heating costs (source: U.S. Department of Agriculture).

Increased property value
Healthy, mature trees add an average of 10 percent to a property's value (source: USDA Forest Service).

Improved air quality
One acre of forest absorbs six tons of carbon dioxide and produces four tons of oxygen, which is enough to meet the annual needs of 18 people (source: U.S. Department of Agriculture).

Stress relief
According to research at Texas A&M University, visual exposure to settings with trees has produced significant recovery from stress within five minutes.

Improved water quality
Tree leaves and roots help to reduce stormwater runoff and erosion through rainwater interception, absorption and soil stabilization. Wooded areas help to prevent the transport of sediment and chemicals into streams (source: USDA Forest Service).



Tree-lined street in the Parkside subdivision