State of the County Report: Environment

COMMUNITY COMPASS REPORT NO. 16-6

Hamilton County, Ohio

Community COMPASS

HAMILTON COUNTY
Regional Planning Commission

September 2004

Planning Partnership

HAMILTON COUNTY
Regional Planning Commission

The Planning Partnership is a collaborative initiative of the Hamilton County Regional Planning Commission. The Partnership – open to all political jurisdictions in the County and to affiliate members in the public, private, and civic sectors – is an advisory board that works to harness the collective energy and vision of its members to effectively plan for the future of our County. Rather than engaging in the Planning Commission's short-range functions such as zoning reviews, the Planning Partnership takes a long-range, comprehensive approach to planning, working to build a community that works for families, for businesses and for the region. The Partnership firmly believes that collaboration is the key to a positive, competitive, and successful future for Hamilton County.

Visit planningpartnership.org and communitycompass.org for more information.

Community COMPASS

HAMILTON COUNTY
Regional Planning Commission

Community COMPASS (Hamilton County's Comprehensive Master Plan and Strategies) is a long-range plan that seeks to address mutual goals related to physical, economic, and social issues among the 49 communities within Hamilton County. Through a collective shared vision for the future based on the wishes and dreams of thousands of citizens, Hamilton County now has direction to chart its course into the 21st century.

In developing a broad vision with broad support, Community COMPASS will help ensure that trends are anticipated, challenges are addressed, priorities are focused, and our collective future is planned and achieved strategically over the next 20 to 30 years. Through an in-depth analysis of all aspects of the County, the multi-year process will result in a comprehensive plan.

The State of the County report series outlines conditions, findings, opportunities, and key measures related to improving and sustaining quality of life in twelve major systems in our community. The individual reports lay the groundwork for an overall State of the County analysis or report card, and provide support for refining action strategies.

Abstract

Title:

State of the County Report: Environment
Community COMPASS Report No. 16-6

Subject:

Current conditions and findings regarding air, land, and water resources in Hamilton County

Date:
November 2004

Synopsis:

This report presents existing conditions and trends in Hamilton County related to air, land, and water resources. The report identifies seven important findings as well as the importance of trends associated with each finding, and provides key indicators for measuring progress toward the Vision for Hamilton County's Future.

Source of Copies:

Hamilton County
Regional Planning Commission

138 East Court Street
Room 807
Cincinnati, OH 45202

513-946-4500

www.hamilton-co.org/hcrpc

Download this report at communitycompass.org

Context

COMMUNITY COMPASS COMPONENTS

STATE OF THE COUNTY REPORTS

- Civic Engagement and Social Capital
- Community Services
- Culture and Recreation
- Economy and Labor Market
- Education
- Environment
- Environmental and Social Justice
- Governance
- Health and Human Services
- Housing
- Land Use and Development Framework
- Mobility

STATE OF THE COUNTY REPORT: ENVIRONMENT

Table of Contents

Acknowledgements

2004

Board of County Commisioners

- John S. Dowlin, President
- Phil Heimlich
- Todd Portune

2004

Regional Planning Commission

- Robert F. Alsfelder, Jr., Chairman
- Hal Franke
- Darrell Leibson
- Melvin D. Martin
- M. Larry Sprague
- James R. Tarbell, Vice-Chairman
- Jerry J. Thomas

2004

Planning Partnership Officers

- Steve Galster, Chair
- Gwen McFarlin, Chair-Elect
- Elizabeth A. Blume, AICP, Vice-Chair

Project Staff

Principal Research:
- K.D. Rex, Senior Planner

Research and Forecast:
- Manning Baxter, Senior Planner

Graphics & Layout:
- Paul Smiley, Senior Planner
- Jay Springer, Planning Communication/ Graphics Specialist
- Karen Ambrosius, Administrative Coordinator
- Sam Hill, UC Planning Student

Editing:
- Caroline Statkus, AICP, Planning Services Administrator
- Ron Miller, FAICP, Executive Director

Reviewers

- Cory Chadwick, Director Environmental Services, Hamilton County
- Tom Ryther, Chairperson, Green Umbrella Regional Greenspace Alliance: Ohio, Kentucky, Indiana
- Holly Utrata-Halcomb, District Administrator, Hamilton County Soil and Water Conservation District

Executive Summary

FINDING 1

Numerous environmental groups are working in Hamilton County.

- During the past few decades, the quality of life in Hamilton County has improved dramatically because of the combined efforts of a diverse array of organizations active in environmental issue – from citizens, civic, business, educational, environmental, and political leaders to local, state, and federal agencies. Coordination and partnership among the numerous environmental groups provides great opportunity for achieving the County's goals. Additionally, these collaborations can help to enhance environment education and awareness while providing a more coordinated, integrated, and comprehensive conservation effort for Hamilton Count, and the Tri-State region.

FINDING 2

Efforts are being made to increase protection and connectivity of open space and environmentally critical and sensitive areas for ecosystem integrity.

- In Hamilton County, hillside slopes greater than 20 percent accounts for 23 percent of the land area; high landslide potential accounts for 17 percent of the land area; floodplains account for 10 percent of the land area; aquifers account for 24 percent of the land area; and wetlands account for 2 percent of the land area (these environmentally sensitive areas are not mutually exclusive and share some degree of ov.15erlap).
- Open space includes both natural and maintained areas of land that are either publicly or privately owned. Natural areas include preserves, wooded land, riparian corridors, and undeveloped land. Maintained areas include neighborhood and metropolitan parks, playgrounds, golf courses, and cemeteries. Environmentally sensitive areas in Hamilton County include hillsides with low and high landslide potential, floodplains, wetlands, aquifers, conservancy districts, and natural preserves.
- Planned green or open space, much like our planned transportation system, involves creating a "green infrastructure" that provides a connected, integrated network of sustainable green or open spaces to maintain natural processes. In the Tri-State region, connectivity occurs along wooded hillsides and ridges, waterways and river riparian corridors. Green infrastructure planning can achieve multiple compatible objectives such as promoting naturally functioning ecosystems, floodwater management, wildlife habitat protection and creation, and the preservation of open space.

FINDING 3

Residential construction on steep slopes is increasing.

- In Hamilton County, almost 23 percent of the land is classified as steeply sloped at over 20 percent grade. About 17% of hillsides are classified as moderately high to very high potential landslide susceptibility due to the underlying Kope bedrock formation, soil type (Eden), and slope.
- From 1970 to 1979, 6.0 percent of residential buildings were constructed on parcels with steep slopes. That number rose to 8.9 percent for the years 1980 to 1989, and to 10.9 percent for the years 1990 to 1999. Development on unstable hillsides often leaves exposed soils susceptible to excessive erosion, resulting in increased sedimentation and nutrient delivery to our creeks, streams, and rivers. The economic cost, in terms of personal and public property damage, is also a concern.

FINDING 4

Ground level ozone and fine particulate matter remain a challenge for ambient air quality.

- Ground-level ozone levels and particulate matter will continue to be serious air quality issues. Under a more stringent eight-hour ozone standard enacted in April 2004, United States EPA classified the Cincinnati area as being in "moderate nonattainment." In addition, stricter standards on particulates will be enforced beginning December 2004. HCDOES reports that the Cincinnati area will be in "moderate nonattainment," for particulate matter 2.5 microns as well.

FINDING 5

Hamilton county continues to rank high for toxic air releases.

- Each year millions of pounds of toxic chemicals are released to the air, water, and land from human-made sources. Ohio is ranked as 1st in the nation for the number of reporting facilities and for toxic air releases. Hamilton County has a rank of 7th in the State for the total releases and transfers in 2002.
- TRI data provides opportunities for evaluation of existing local environmental programs, identification of problem sites and regulatory priorities, and tracks progress regarding pollution control and waste reduction programs.

FINDING 6

Flooding and non-point source water pollution are emerging as important environmental challenges.

- Hamilton County Emergency Management Agency identifies flooding as the number one natural hazard for this area, both in terms of frequency of occurrence and in property losses. Non-flood zone flooding is becoming a serious problem in the County due to current development trends.
- Non-point source pollution is the leading source of water quality impacts to rivers and streams in our urban county. Urban pollution sources include chemical and sediment runoff, from agricultural and residential lands, storm water runoff and combined sewer overflows (CSOs). Further, today's causes of water pollution and environmental degradation result from the cumulative result of everyday individual behaviors and choices — small amounts of household and automotive chemicals, fertilizers, pesticides, pet wastes, and other pollutants.

FINDING 7

Brownfields redevelopment is recognized as environmentally, economically, and socially important.

- The majority of brownfields are in urban cores where unemployment and low-income and minority populations are high. USEPA reported, "undeveloped brownfields plague the low-income, ethnic minority, and disadvantaged communities in the City of Cincinnati and Hamilton County."
- Major initiatives by USEPA and the Clean Ohio Fund focus on brownfield redevelopment and sustainable developments that will not create more Brownfields.
- In 2002, three of Hamilton County's four applicants were awarded grant money totaling $3,797,825 from the Clean Ohio Fund. In 2003, two of Hamilton County's three applicants were awarded $6 million dollar from the Clean Ohio Fund.

STATE OF THE COUNTY REPORT:
Environment

THE VISION FOR HAMILTON COUNTY'S FUTURE:
Natural resources — including, but not limited to, air, greenspace, rivers, hillsides, and wildlife — are preserved, restored, and managed to enhance the unique character of the County.

The Vision Statement for Environment, a component of *The Vision for Hamilton County's Future*, is based on recommendations from 12 Community Forums in the Fall of 2001 and the Countywide Town Meeting held January 12, 2002.

The Vision for Hamilton County's Future was reviewed and approved by:

- Community COMPASS Steering Team, July 30, 2002
- Hamilton County Planning Partnership, Dec. 3, 2002
- Hamilton County Regional Planning Commission, Feb. 6, 2003
- Hamilton County Board of County Commissioners, Nov. 26, 2003

INTRODUCTION

This report presents existing conditions and trends in Hamilton County related to air, land, and water resources. The report identifies seven important findings as well as the importance of trends associated with each finding. Following each finding, key indicators are provided for measuring progress toward preservation, restoration, and management of our natural resources and achievement of the Vision for Hamilton County's Future. Two separate Community COMPASS State of the County Reports address environmental issues of environmental justice and public infrastructure services such as storm water management, solid waste management, water utilities, and sewerage treatment.

The natural environment has strongly influenced the development and urbanization of Hamilton County throughout its history. Forested hillsides, rivers and streams, floodplains, and open plains provide for the County's environmental diversity and continue to be vital components in the social and economic development of the region today. Preservation, conservation, and restoration of natural areas, along with sustainable development, encourage residents and businesses to stay and for others to invest in Hamilton County's future. An attractive, green, connected, safe, and clean environment is an essential element for healthy communities in Hamilton County.

FINDING 1

NUMEROUS ENVIRONMENTAL GROUPS ARE WORKING INDEPENDENTLY, BUT WITH SIMILAR GOALS.

Hamilton County's topography and drainage patterns are the result of natural processes and can be seen in the County's landforms of open plains as well as steep-sided hills and ridges, wetlands, stream network and floodplains, and soils. The effect gives Hamilton County both an environment capable of supporting an array of plant and animal species and a uniquely beautiful, diverse landscape.

Hamilton County also contains a diverse collection of individual groups active in environmental issues. More than 150 non-profit, governmental, public, and business organizations

work to protect, preserve, and restore open space and critical and sensitive areas in the County.[1] Hamilton County's organizations operate at the local, state, and regional levels and cover many landscapes including urban, suburban, and rural. Regional resources include the Ohio-Kentucky-Indiana Regional Council of Governments (OKI), the Green Umbrella (also known as the Regional Greenspace Alliance), Sustainable Cincinnati, Nature Conservancy, and Sierra Club. Local community-based environmental groups include the Hillside Trust, Western Wildlife Corridor, Land Conservancy of Hamilton County, Mill Creek Restoration Project and Mill Creek Watershed Council, Ohio River Way, Anderson Township's Greenspace Advisory Committee, Colerain Township Greenspace Committee, and many more (see list in Appendix). However, growing concerns about a number of environmental issues in Hamilton County prompted the Ohio EPA to establish the Hamilton County Environmental Action Commission (HCEAC) in 1991. HCEAC brought together members from all sectors to study and discuss environmental problems in the County. Under the auspices of HCEAC, the Hamilton County Environmental Priorities Project (HCEPP) created a forum for all stakeholders — county and local officials, planning offices, watershed associations, business leaders, developers, concerned citizens, and others — to assess available data and to plan strategies to improve environmental quality. By 1998, seven environmental initiatives — Tri-State Environmental Resource Center Initiative, Wet Weather Initiative, Regional Sustainability Partnership Initiative, Regional Greenspace Initiative, Environmental Forum Initiative, Air Quality Initiative, and Illegal Dumping and Littering Initiative — were adopted by public and private organizations.

One of the initiatives, the Tri-State Environmental Resource Center (TERC) *(www.terconline.org)*, provides links to web sites in the eight county Ohio-Kentucky-Indiana area. As of March 2004, one of TERC's goals was completed by assembling a directory of environmental groups in the OKI area. Green Umbrella *(www.greenumbrella.org)*, part of another HCEPP initiative, provides important planning, collaborating and communications networking regarding green space in the region. Green Umbrella is also preparing an initial "vision plan" that provides a conceptual "green print" of desired areas for preservation within the region.[2]

Why Is This Important?

In an era of constrained public budgets, it is becoming increasingly important for groups to coordinate and collaborate on critical economic, social, and environmental issues. Effort, time, and money need to be coordinated to discourage the duplication of programs and to prevent programs that may operate at cross-purposes.

The U.S. Environmental Protection Agency (EPA) is also shifting toward an integrated approach that promotes partnerships among groups sharing a common interest in protecting their local environment. This approach, known as Community Based Environmental Planning (CBEP), advocates comprehensive assessment and management of air, water, land, and wildlife in the contexts of social, economic, political, and environmental conditions.

Coordination and partnership among the numerous environmental groups provides great opportunities for achieving the County's goals. Additionally, these collaborations can help to enhance environmental education and awareness while providing a more coordinated, integrated, and comprehensive conservation effort for Hamilton County and the Tri-State region.

FINDING 2

EFFORTS ARE BEING MADE TO INCREASE PROTECTION AND CONNECTIVITY OF OPEN SPACE AND ENVIRONMENTALLY CRITICAL AND SENSITIVE AREAS FOR ECOSYSTEM INTEGRITY.

Whereas past conservation efforts often focused on protecting individual pieces of land, emphasis is now being placed on the need to provide for "green infrastructure." Green infrastructure provides a framework for creating:

"*an interconnected network of natural areas, conservation lands, working landscapes, and other green spaces that support native species, maintain natural ecological processes, sustain air and water resources, and contribute to the health and quality of life for America's communities and people.*"[3]

Much like how our transportation network operates on a local, regional, state, and national level, the green infrastructure interconnects and integrates land use plans, policies, practices, environmental planning, and community decisions at these various scales. Interconnection or connectivity typically follows natural landforms and water features and allows ecosystem processes to operate at a larger scale. In the Tri-State region, connectivity occurs along wooded hillsides, ridges, waterways, and river riparian corridors. Green infrastructure, then, ad-

Critical and Sensitive Areas	Percent of Land Area in Hamilton County	Acres
Hillside Slope > 20 %	23	60,043
High Landslide Potential	17	45,024
Floodplain	10	26,588
Wetlands	2	5,490
Aquifer	24	64,595
Groundwater Pollution Potential Areas	15.5	41,161

Figure 1
ACRES AND PERCENT OF ENVIRONMENTALLY CRITICAL AND SENSITIVE AREAS IN HAMILTON COUNTY, 2004

Source: CAGIS, Hamilton County Regional Planning Commission

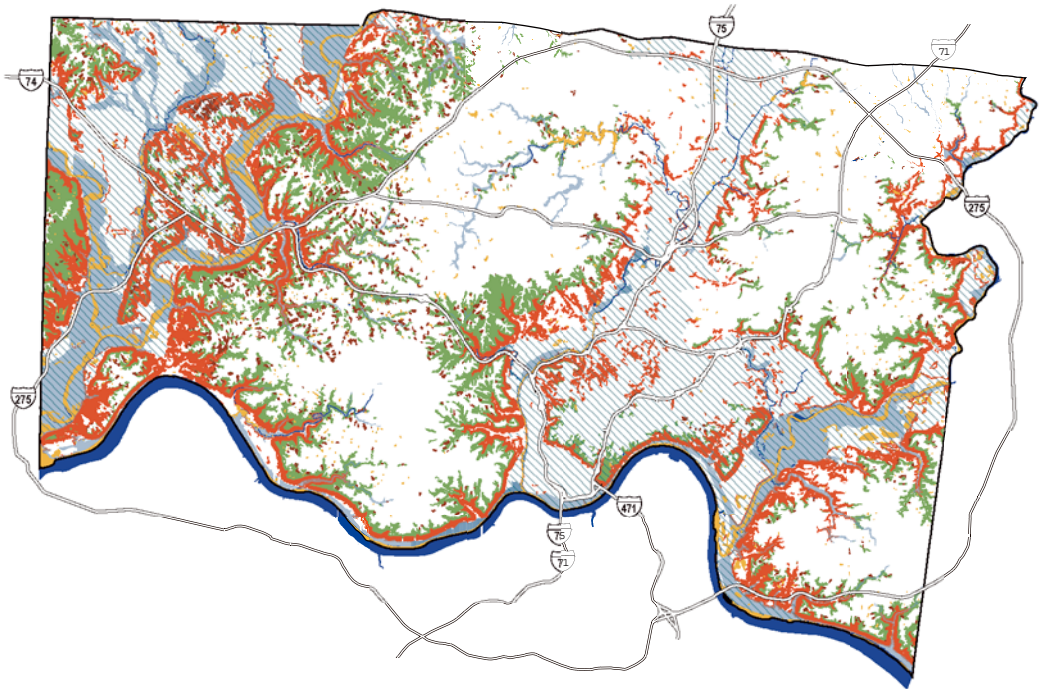


Figure 2
ENVIRONMENTALLY CRITICAL AND SENSITIVE AREAS

- Slopes 20% - 24%
- Slopes 25% and Greater
- High Landslide Potential
- National Wetland Inventory
- Flood Zones
- Aquifers

Source: U.S. Fish & Wildlife Service, FEMA, U.S. Geological Survey, Hillside Trust, Ohio Dept. of Natural Resources

dresses issues such as loss and fragmentation of habitats and the corresponding loss of native animal and plant species, ecological and economic benefits of greenspace, land use policies, and land protection.

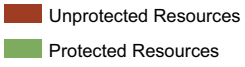
Environmentally sensitive areas in Hamilton County include hillsides with low and high landslide potential, floodplains, wetlands, aquifers, conservancy districts, and natural preserves. Figure 1 (on previous page) gives the current (2004) breakdown by percent of total land and acres derived from the Cincinnati Area Geographic Information System (CAGIS). Figure 2 (on previous page) shows the location of these critical and sensitive areas.

It should be noted that these environmentally sensitive areas are not mutually exclusive and share some degree of overlap. For example, areas with "high landslide potential" generally have slopes greater than 20 percent (however, not all hillsides with 20 percent slopes have a high landslide potential). Likewise, potential areas of groundwater pollution are generally located in floodplains.

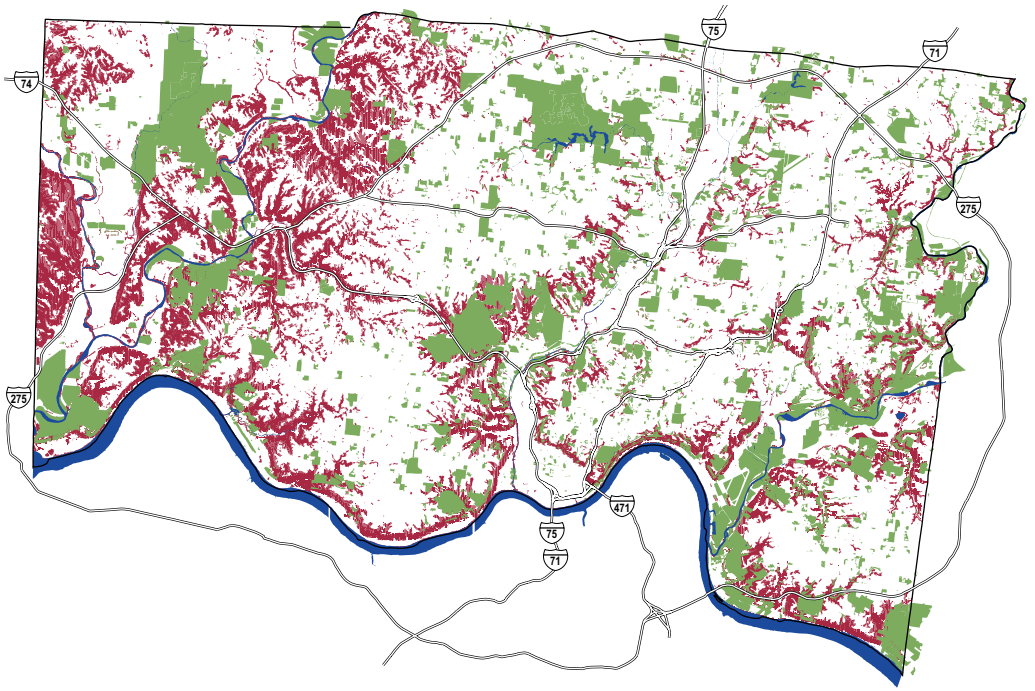
What critical and sensitive areas are currently protected? Spatial analysis of CAGIS data sets for floodplain, wetlands, groundwater pollution potential areas, rivers and streams, and steep hillsides indicate that approximately 34,364 acres or about 26 percent of all critical and sensitive lands are currently protected by local, non-profit, township, county, or state agencies, mainly through parks and conservation easements. However, 97,967 acres of critical and sensitive lands are not under any formal control measures. Figure 3 shows the location of protected lands.

Hamilton county residents passed a 15-year, one mill replacement levy in May 2002, which emphasizes preservation of green spaces throughout Hamilton County. Hamilton County Park District's (HCPD) greenspace preservation projects place high priority on adding critical lands to existing parks and connecting existing and proposed parklands. The Park District had conducted an Open Space Study for the metropolitan area in 2001. This study used ten criteria for evaluating land parcels.

Figure 3
ENVIRONMENTALLY CRITICAL AND SENSITIVE AREAS- PROTECTED AND UNPROTECTED STATUS



Source: CAGIS, Hamilton County Regional Planning Commission



Connectivity was a scale indicator represented by adjacency to hillsides and other natural landforms and water features.

In Hamilton County's zoning regulations, open space is defined as: "land used for recreation, resource protection, hillside, floodway, lake, pond, amenity and/or buffers." Open space includes both natural and maintained areas of land that are either publicly or privately owned. Natural areas include preserves, wooded land, riparian corridors, and undeveloped land. Maintained areas include neighborhood and metropolitan parks, playgrounds, golf courses, and cemeteries. Figure 4 shows existing open space in Hamilton County.

Recent multi-jurisdictional plans emphasize the importance of green infrastructure connectivity. The 2002 Eastern Corridor Land Use Vision Plan (covering 14 communities) recommends creating interconnections and wildlife corridors between greenspaces. Connectivity is also encouraged in the 1999 Western Hamilton County Collaborative Plan (covering 10 communities) by acquiring environmentally sensitive lands in large contiguous sections and establishing incentives for protection of riparian corridors.

Why Is This Important?

Open space and environmentally sensitive and critical areas are subject to development as population moves outward to remaining undeveloped lands. The next decade may provide our last chance to integrate the concepts of ecosystem integrity and biodiversity into our conservation and land use plans to protect and maintain the functioning of natural systems and beauty of our landscape.

Environmental planning, in the context of the local political, social and economic setting, has the potential to achieve multiple compatible objectives such as promoting naturally functioning ecosystems, floodwater management, wildlife habitat protection and creation, and the preservation of open space. Recent research efforts by local groups are first steps in identifying and assess-

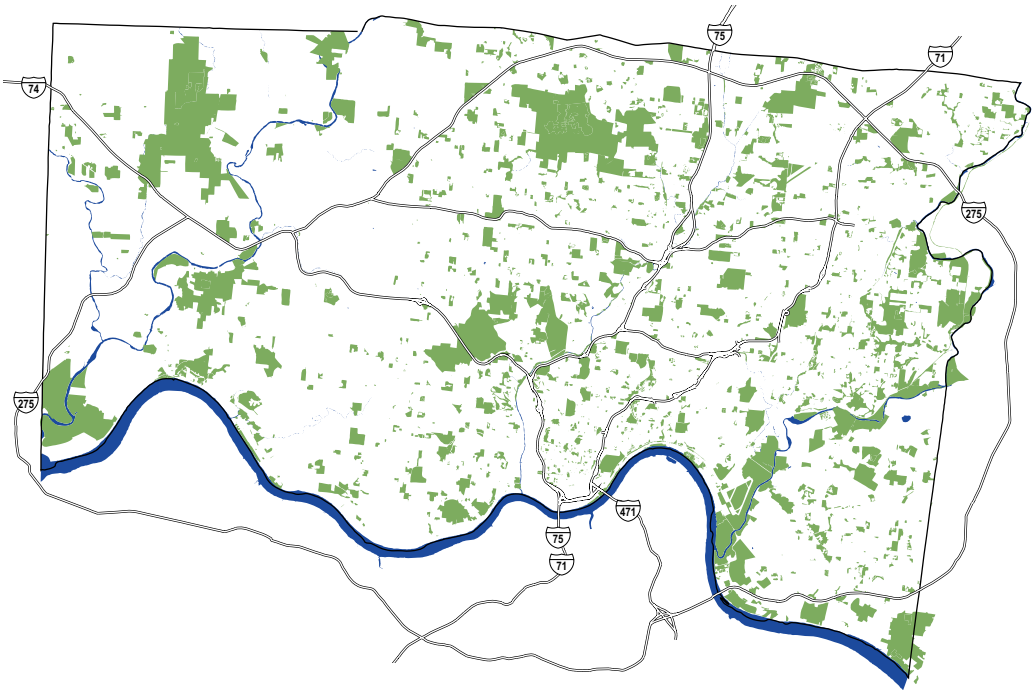


Figure 4
OPEN SPACE

Public and Private Open Space

Source: CAGIS, Hamilton County Park District

ing which areas need protection and in determining strategies for greenspace conservation. A collaborative greenspace plan can provide a framework for future growth by prioritizing what greenspace should be available to development.

Key Indicators:

- *Acres of protected environmentally critical and sensitive areas in Hamilton County (34,364 acres or about 26 percent protected in June 2004).*
- *Connectivity of green areas.*

FINDING 3

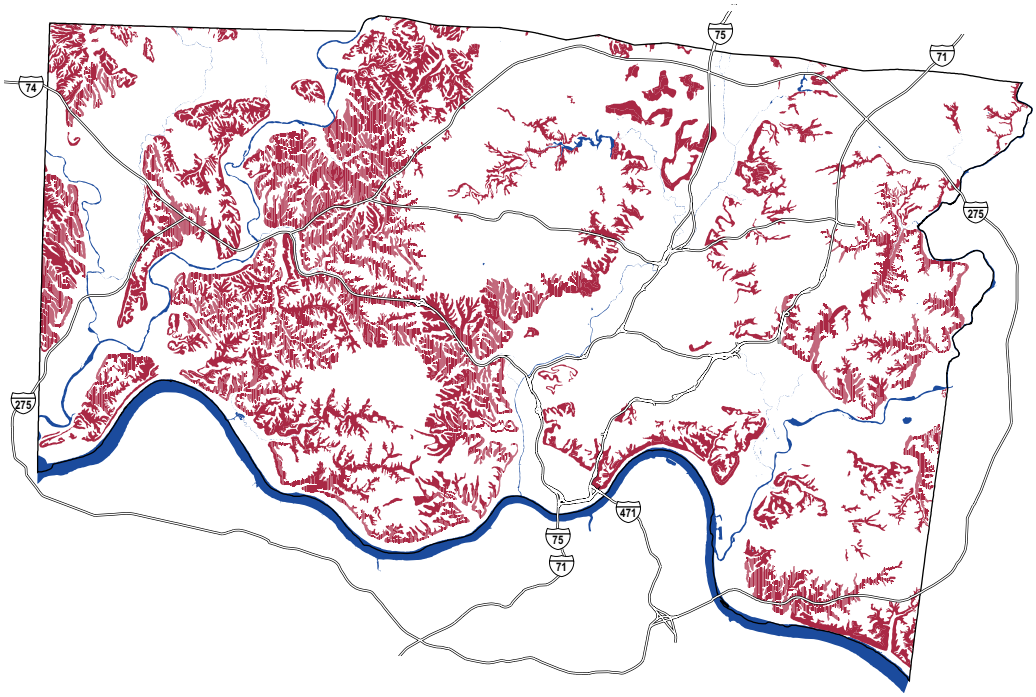
RESIDENTIAL CONSTRUCTION ON STEEP SLOPES IS INCREASING.

Forested hillsides and steep topography provide scenic vistas and view sheds. Yet, hillsides attract development in part because of the views that accompany them. Steep slopes — hillsides over 20 percent grade — comprise about 18 percent of the land in the City of Cincinnati. In Hamilton County, almost 23 percent of the land is steeply sloped. Figure 5 shows the location of slip-prone soils - often found on steep slopes - in Hamilton County. About 17 percent of hillsides are classified as moderately high to very high potential landslide susceptibility due to the underlying Kope bedrock formation, soil type

Figure 5
SLIP-PRONE SOILS

Slip-prone Soils

Source: CAGIS, Ohio DNR, Hillside Trust



(Eden), and slope. Hamilton County Emergency Management Agency identified landslides as the fourth highest natural hazard in the County.[4]

In the past, the cost of developing on steep hillsides and the abundance of flat, developable land allowed many of the Cincinnati region's hillsides to remain undeveloped. However, decreasing availability of flat land has increased the pressure to develop in steep hillside areas.

As Figure 6 shows, just over 6 percent of non-residential buildings were constructed on steep slopes during the 1970s. That number dropped to 4.6 percent during the 1980s, and declined further to 4.2 percent in the 1990s. For residential buildings constructed during the 1970s, 6 percent were constructed on parcels with steep slopes. That number rose throughout the 1980s, and in the 1990s, Hamilton County residences constructed on sleep slopes were nearly 11 percent of construction.[5] Thus, development over the last decade represents a substantial impact on hillsides.

Earthwork regulations adopted in 1990 within unincorporated Hamilton County are designed to protect the stability of sensitive slopes. Hillside protection zoning overlay districts have been implemented in Cincinnati and Delhi Township. Hillside Trust's development guidelines – "A Hillside Protection Strategy for Greater Cincinnati," published in 1991 are the area standard for evaluation of development on steep slopes.

Why Is This Important?

This trend of hillside development has increased the public's concern for protection and preservation of hillsides in Hamilton County and the region. Many residents recognize that forested hillsides are a defining characteristic of our area. Hillsides are valued because they break up our urban environment, provide pleasing visual qualities, and increase biodiversity. They also help to define our neighborhoods – creating a sense of place and quality of life.

Development on unstable hillsides often leaves exposed soils susceptible to excessive erosion and, with enough precipitation, landslides. Figure 7 shows the number of landslides reported in Hamilton County from 1996 to 2003. There were a disproportionately high number of landslides in 1996 due to heavy rainfall during that year. The average amount of precipitation that the Cincinnati region receives per year is about 41 inches; in 1996, the region received 54.7 inches of precipitation.[6]

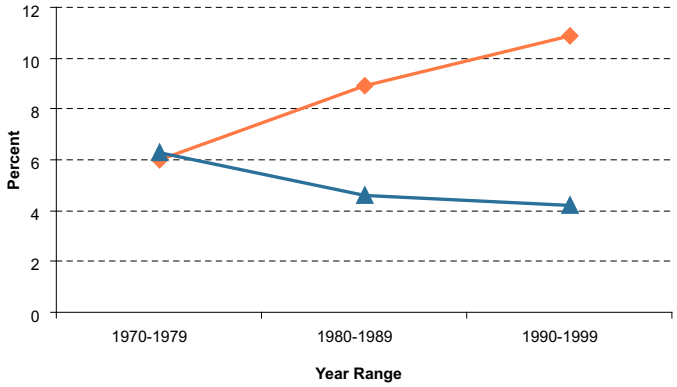


Figure 6
RESIDENTIAL AND NON-RESIDENTIAL BUILDINGS ON STEEP SLOPES (20 PERCENT OR GREATER) IN HAMILTON COUNTY, 1970 - 1999

Residential
Non-Residential

Source: CAGIS, Hamilton County Regional Planning Commission

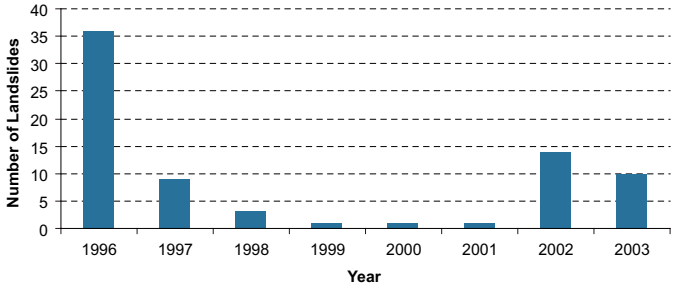


Figure 7
LANDSLIDES REPORTED IN HAMILTON COUNTY, 1996 - 2003

Source: CAGIS, Hamilton County Public Works

According to the Ohio Department of Natural Resources:

"*Landslides are a significant problem in several areas of Ohio. The Cincinnati area has one of the highest per-capita costs due to landslide damage of any city in the United States. Many landslides in Ohio damage or destroy homes, businesses, and highways, resulting in annual costs of millions of dollars.*"[7]

Hillside development and consequent erosion and/or landslides contribute not only damage to homes, roads, and other infrastructure, but also result in increased sedimentation and nutrient delivery which can contaminate life in the watershed. Further, hillside development often helps decrease corridors for wildlife and natural habitat, and decreases the number of "view sheds" in communities.

Key Indicators:

- *Percent of new buildings on hillsides of 20 percent or greater (Figure 6)*
- *Acres in hillside protection zoning overlay districts*
- *Number of landslides per year (Figure 7)*

FINDING 4

GROUND LEVEL OZONE AND FINE PARTICULATE MATTER REMAIN A CHALLENGE FOR AMBIENT AIR QUALITY.

Air quality has improved significantly since the passage of the federal Clean Air Act of 1970. This Act, which continues to be revised and amended, considers the harmful impact of pollutants to public health and the environment. The 1990 Clean Air Act Amendments set more stringent standards for six main pollutants: sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), ozone (O_3), particulates (PM), and lead (Pb). The Hamilton County Department of Environmental Services (HCDOES) measures air quality for four counties in southwestern Ohio: Butler, Clermont, Hamilton, and Warren. An area's classification is based on the severity of its main pollutant problem. Classifications include marginal, moderate, serious, severe, or extreme.

The HCDOES Air Quality Management Division's 2003 Annual Report states that there have been days wherein the four-county area exceeded the federal standard for one-hour ozone levels (Figure 8). Though exceedences did occur, there were no monitoring stations in the area that had more than three exceedences in a three-year period. Hence, under the one-hour federal ozone standard, the area was not in violation.

Under the one-hour ozone standard, the United States EPA classified the Greater Cincinnati Area as being in

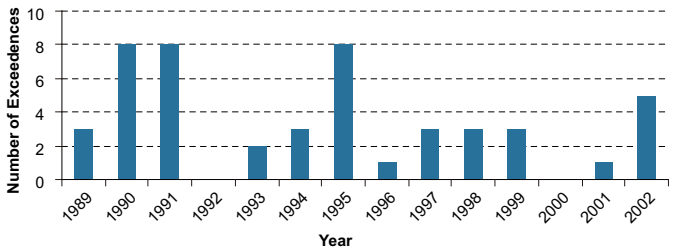


Figure 8
ONE-HOUR OZONE EXCEEDENCES FOR BUTLER, CLERMONT, HAMILTON, AND WARREN, OH COUNTIES, 1988 - 2002

Source: Hamilton County Department of Environmental Services

"moderate non attainment." However, the EPA enacted a more stringent eight-hour ozone standard in April 2004. In addition, stricter standards on particulates will be enforced beginning December 2004. HCDOES reports that under the new ozone standards, The Ohio portion of the Cincinnati CMSA will again be in "moderate non attainment," but the area will also be in moderate non attainment for particulate matter 2.5 as well: a class of pollutants in the area that was consistently below the old federal ceiling.

The Air Quality Index (AQI) is another important measurement and reporting tool used to inform people about current air quality conditions and health effects. The AQI takes the specific pollutant concentration and converts it into a number that relates to health effects. Figure 9 shows the AQI categories and the associated health affects.

Figure 10 graphs the number of days above "moderate" in the AQI after 1978, when the federal air quality standards for ozone decreased. From 1979 to 1998, the number of days wherein Hamilton County air quality was officially worse than the moderate air quality standard ranged from a low of zero to a high of 11 days in 1991. When the ozone standards were raised to an eight-hour standard in 1999, Hamilton County experienced increases in the number of days worse than moderate air quality. Data from 2003 shows a total of 18 days above moderate AQI level; 16 of those days were at the level of "Unhealthy for Sensitive Groups" and the remaining two days were at the "Unhealthy" level. Figure 11 shows the most recent data for AQI.

What has caused the increase in the AQI trend? In 1999, HCDOES began using the more restrictive 8-hour ozone standard to report AQI instead of the 1-hour ozone standard. While this change in report-

Level of Health Concern	Air Quality Index	Health Affects
Good	0 - 50	No Health Impact
Moderate	51 - 100	Unusually sensitive people should consider limiting prolonged outdoor exertion
Unhealthy for Sensitive Groups	101 - 150	Active children and aduts, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion
Unhealthy	151 - 200	Active children and aduts, and people with respiratory disease should limit prolonged outdoor exertion
Very Unhealthty	201 - 300	Active children and aduts, and people with respiratory disease should avoid all outdoor exertion; everyone else should limit prolonged outdoor exertion
Hazardous	301 - 500	Unsafe: Everyone should avoid all outdoor exertion

Figure 9
AIR QUALITY INDEX CATEGORIES

Source: USEPA Air Quality Index[8]

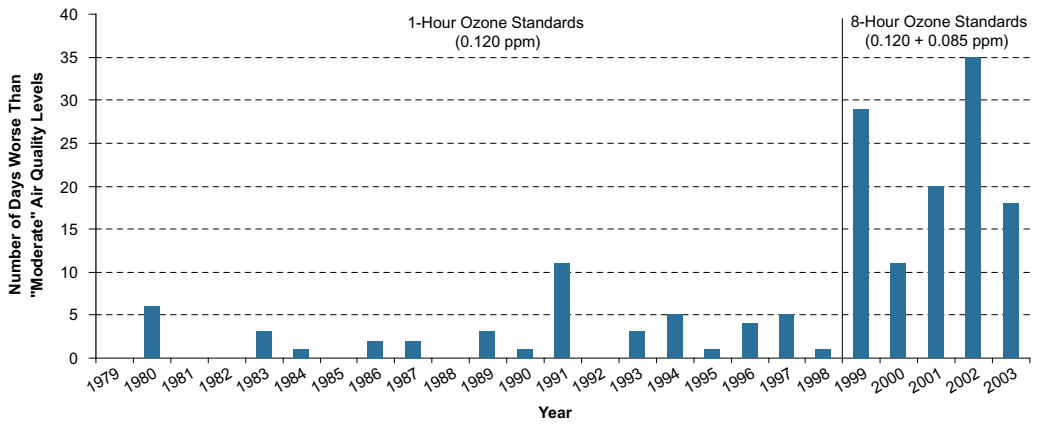


Figure 10
NUMBER OF DAYS WORSE THAN "MODERATE" AIR QUALITY LEVELS IN HAMILTON COUNTY, 1979 - 2002

Source: Hamilton County Department of Environmental Services

ing values accounts for the majority of increase, energy consumption, vehicular miles traveled, and traffic congestion also account for some of the increase.

A recently released Community COMPASS report on mobility by Hamilton County Regional Planning Commission indicates that the number of rush hours per day has jumped from 2.9 hours in 1982 to 7.2 hours in 2000. These idling vehicles produce more pollutants than when operating at a constant speed.[9] As shown in Figure 12, OKI's 2030 Transportation Plan reports that transportation-related sources are a major contributor of the AQI pollutants. Volatile organic compounds (VOC) are the primary components in forming ground-level ozone. "Area" sources are the combined impact of individual sources, such as lawn mowers, boats, dry cleaners, and oil-based paints.

How does the Cincinnati area compare with other metropolitan areas with similar economies and populations? USEPA released the "National Air Quality and Emissions Trends Report, 2000" in September 2001, which contains data for metropolitan statistical areas through the year 2001. Figure 13 (on next page) compares the AQI days worse than "moderate" for seven metropolitan areas.

In almost all years, the Cincinnati area has had the lowest number of days above the moderate level.

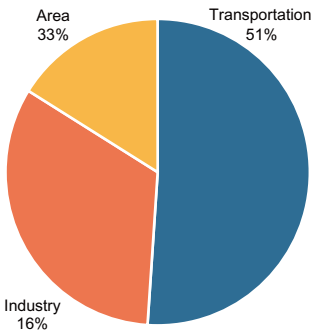
Figure 11
AIR QUALITY INDEX SUMMARY DATA SHOWING NUMBER OF DAYS IN EACH CATEGORY IN HAMILTON COUNTY, 2000 - 2003

AQI Level	2000	2001	2002	2003
Good	238	174	190	59
Moderate	117	171	140	188
Unhealtful, Unhealthy for Sensitive Groups	25	10	31	16
Unhealthy	1	0	4	2
Very Unhealthy	0	0	0	0

Note: monitoring occurs on a seasonal basis

Source: Hamilton County Department of Environmental Services

Figure 12
VOLATILE ORGANIC COMPOUNDS IN OKI REGION, 2000



*VOC - Primary component in forming ground level ozone

Source: OKI 2030 Transportation Plan

Hamilton County's tree canopy and greenspace might account for this phenomenon. An urban greenspace analysis conducted in April 2003 for the greater Cincinnati region indicated that on an annual basis, the ecological benefits of tree cover amounts to almost 19 million pounds of ozone removal and almost 22 million pounds of particulate matter air pollution removal.[10] The economic benefit of annual air pollution removal savings due to tree cover was estimated at close to $138 million dollars.

Why Is This Important?

Air pollution has direct impacts on the health and economy of Hamilton County. Despite our progress in reducing air concentrations for most of the criteria pollutants, ground-level ozone and particulate matter remain serious concerns. USEPA reports that ground-level ozone and particulate matter, the main components in smog and haze, can trigger a variety of adverse health effects, including shortness of breath, asthma attacks, and increases in the severity and incidence of respiratory infections. Health effects can occur at low levels of both particulate matter and ground level ozone, especially with repeated exposure.

USEPA reports that nearly

121 million people live in areas where the air quality index reached the "unhealthy" level. In fact, in the northern region of the country, "ozone levels have actually worsened in the past 10 years."[11]

Identifying the local health impacts in terms of personnal sick time, time hospitalized, etc. provides an excellent means for evaluating the cost of poor air quality and the benefits of remediation efforts. In 2003, the Surface Transportation Policy Project published *Clearing the Air*, a report regarding public health, air quality, and transportation. The fact sheets for Ohio indicate that the Cincinnati-Hamilton, OH-KY-IN urbanized area had public health costs of over $211 million for 2001.[12]

Ground-level ozone levels will continue to be a serious air quality issue. The USEPA has an acting new national air quality standard for two widespread pollutants - ground-level ozone and particulate matter. Based on collected data during 1999 through 2002, the Cincinnati region will be out of compliance with these more restrictive standards for both pollutants (Figure 10).

The economic impact of "moderate non attainment" translates into costs for stricter controls and regulations for industries already located in the four-county region, and discourages new industries from locating in the region because of the "extra" costs of meeting regulations that are more stringent. It is clear that additional air pollution prevention and re-mediation efforts are needed to improve air quality for both health and economic reasons.

Key Indicators:

- *1-hour number of days worse than "moderate" air quality levels in Hamilton County (Figure 10)*
- *8-hour number of days worse than "moderate" air quality levels in Hamilton County (Figure 10)*
- *Air Quality Index (AQI) days worse than "moderate" (Figure 10)*

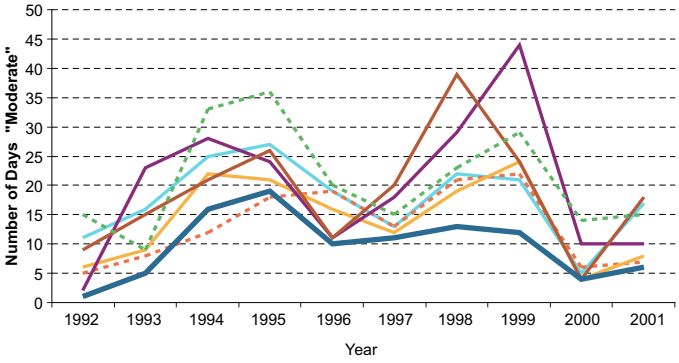


Figure 13
COMPARISON OF METRO AREAS FOR DAYS AIR QUALITY INDEX WAS WORSE THAN MODERATE, 1992 - 2001

Source: National Air Quality and Emissions Trends Report, 2004

FINDING 5

HAMILTON COUNTY CONTINUES TO RANK HIGH FOR TOXIC AIR RELEASES.

Each year millions of pounds of toxic chemicals are released to the air, water, and land from human-made sources. Toxic pollutants are those pollutants that are known or suspected to cause cancer or other serious health problems. The Toxic Release Inventory (TRI) Program, begun in 1986 under the United States' Emergency Planning and Community Right to Know Act (EPCRA) of 1986, contains information on releases from manufacturing industries. Many non-manufacturing industries, such as coal and oil-fired electric generating facilities and commercial hazardous waste services, also release toxic chemicals into the environment, but were not required to report until 1998.

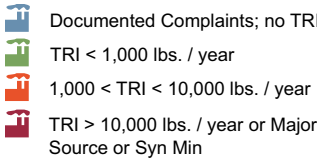
EPCRA established lists for more than 600 toxic compounds. These chemicals vary widely in form (liquid, solid, gas) and toxicity. Facilities must report annual TRI releases if certain activity thresholds are exceeded. Local, state and federal governments can set priorities and regulate permit limits, measure compliance with those limits and monitor facilities for enforcement activities based on these data. Currently, the USEPA regulates only 6 TRI chemicals - benzene, asbestos, inorganic arsenic, vinyl chloride, beryllium and mercury - under the National Emmission Standards for Hazardous Air Pollutants (NESHAP) because of their

Figure 14
LARGEST CONTRIBUTORS OF TOXIC CHEMICAL RELEASES IN HAMILTON COUNTY, 2002

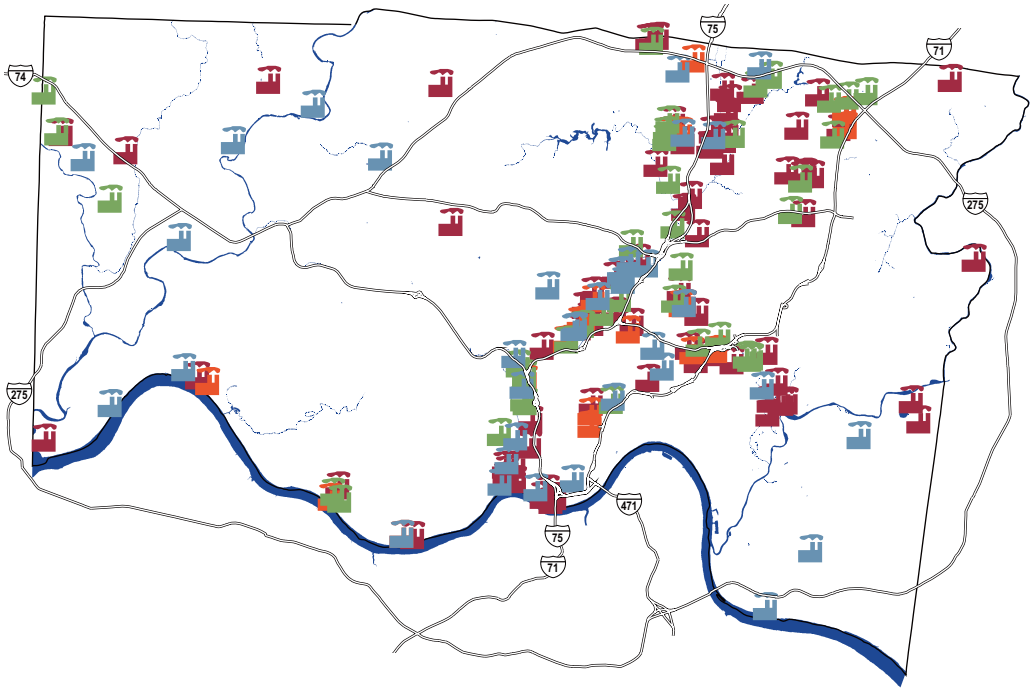
Top 5 Facilities	Air Releases (lbs./2002)
Miami Fort Generating Station	6,317,001
Cognis Corp.	538,127
Bway Mfg. Inc	153,870
Steelcraft Div. of Ingersoll-Rand Co.	142,393
Bayer Port Plastics	137,794

Source: Toxic Chemical Release Inventory Program 2002

Figure 15
FACILITIES REPORTING TOXIC CHEMICAL AIR EMISSION, 2002



Source: Hamilton County Dept. of Environmental Services



serious health hazards on a national level. Otherwise, no federal standards exist for the maximum amount of toxic material that may be released into the environment.

Ohio is ranked as 1st in the nation for the number of reporting facilities and for toxic air releases. Hamilton County has a rank of 7th in the State for the total releases and tranfers in 2002. For 2002, Hamilton County had 109 facilities reporting toxic release inventory (TRI) data - with air emission releases of 7,814,622 lbs., discharge to surface water of 114,394 lbs., releases to land on-site of 151,226 lbs., off-site transfers of 1,101,042 lbs., and publicly owned treatment works (POTW) of 7,287,764. Figure 15 on page 12 identifies the facilities that reported releasing the most toxic chemicals into the air. By far, hydrochloric acid was released in the largest quantity with 5,643,347 pounds reported for 2002, followed by sulfuric acid (766,174 pounds), and then hydrogen fluoride (382,366 pounds).

Figure 16 shows a graph of the millions of pounds of toxic material released in Hamilton County as reported to HCDOES for the years 1987 to 2002. The air releases of pollutants showed a steady decline for ten years — from a high of 13 million pounds in 1988, to 1.6 million pounds in 1997. However, when utilities began reporting in 1998, TRI data showed a sharp increase to 7.0 million pounds, to 8.1 million pounds in 1999, and to 8.4 million pounds in 2000. While manufacturing industries reduced emissions of toxic air pollutants over time, toxic air releases for non-manufacturing and energy generating utilities appear to be increasing or are remaining roughly the same.

How do toxic air releases in the Cincinnati area compare with other metropolitan area with similar economies and populations? Figure 17 shows data for six other metropolitan areas.[13] According to the graph, the Cincinnati

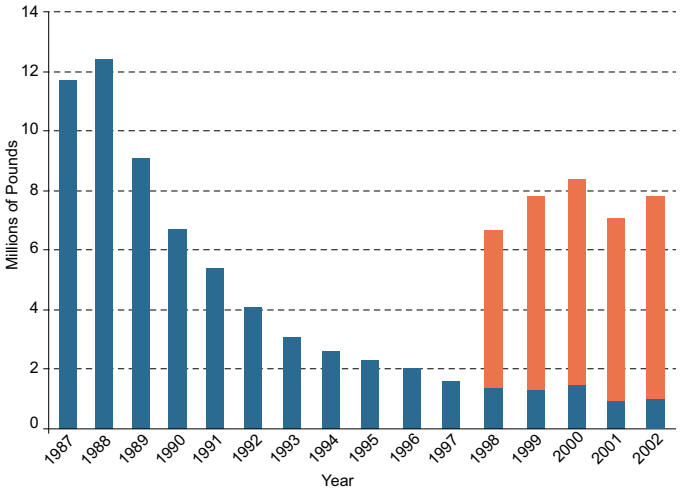


Figure 16
TOXIC CHEMICAL RELEASES (MILLION POUNDS/YEAR), IN HAMILTON COUNTY, 1987 - 2002

Source: Hamilton County Department of Environmental Services

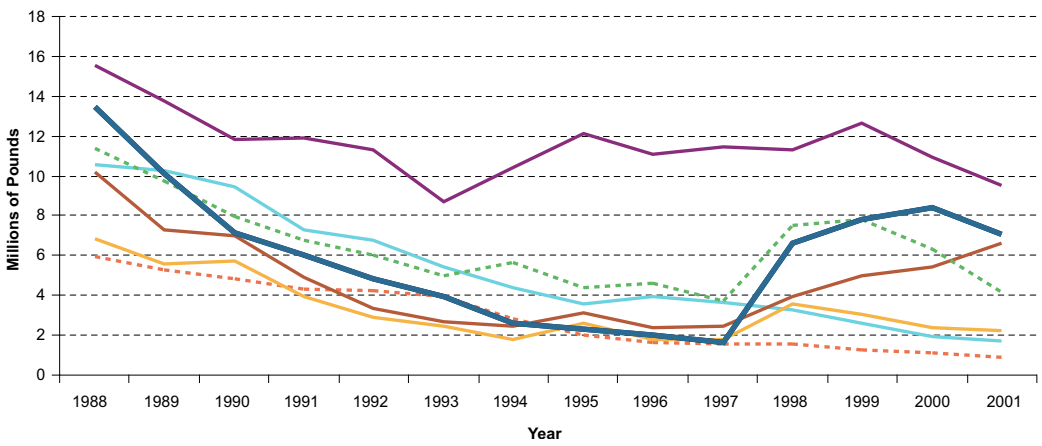


Figure 17
REPORTED TOXIC CHEMICAL RELEASES FOR SELECTED METROPOLITAN AREAS, 1988 - 2001

Source: USEPA and Environmental Defense, www.scorecard.org[14]

area is very similar to the other metropolitan areas surveyed. Each metropolitan area saw an increase in reported emission of toxic air pollutants in 1998 due to new reporting requirements for non-manufacturing industries, such as coal and oil-fired electric generating facilities.

Why is This Important?

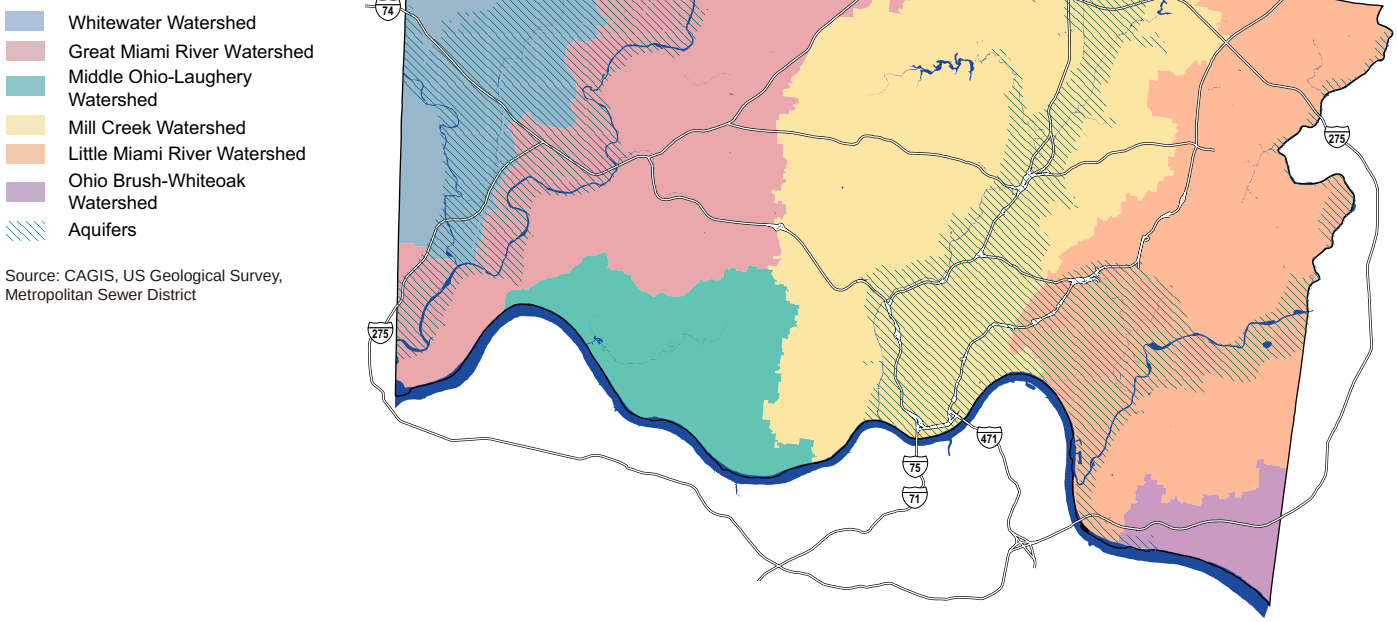
Air toxins can pose a serious health threat in Hamilton County. Human exposure to toxic contaminants may result in acute and chronic health problems. Numerous research studies have found a positive association between air pollution and deaths from different types of cancer and from cardiovascular diseases. Heavily polluted metropolitan areas also have increased risks of disease and mortality.

It is clear that continued monitoring and assessment is necessary. TRI data provides opportunities for evaluation of existing local environmental programs, identifies problem sites and regulatory priorities, and tracks progress regarding pollution control and waste reduction programs.

Key Indicators:

- *Pounds of toxic chemical releases to air, water, and land (Figure 16)*

Figure 18
AQUIFERS, RIVERS, AND WATERSHEDS



Source: CAGIS, US Geological Survey, Metropolitan Sewer District

FINDING 6

FLOODING AND NON-POINT SOURCE WATER POLLUTION ARE EMERGING AS IMPORTANT ENVIRONMENTAL CHALLENGES.

Hamilton County Emergency Management Agency identified flooding as the primary natural hazard for this area, both in terms of frequency of occurrence and in property losses.[15] Figure 18 (on page 14) shows the locations of major rivers and streams, floodplains, aquifers, and watersheds (areas into which a collection of waterways drains) in the County.

Given the County's steep terrain, its past development patterns along rivers, and current development trends, the potential for flooding has increased significantly. Increased impervious surfaces from buildings, parking lots, and streets have resulted in more stormwater runoff and increased potential flooding in low-lying areas. Flooding in non-flood zones is becoming a serious problem in the County due to current development trends. Figure 19 shows a hydrological graph for an area with and without urbanization, illustrating the differences in runoff delivery to streams. As is demonstrated in the graph, urbanization generates quick stream acceleration, allowing for increased risk of flooding if storm sewers and watersheds cannot accommodate the water. Undeveloped areas allow more area for precipitation to be absorbed by the earth, rather than the bulk of it being swept into streams. Consequently, stream acceleration is slower in non-urban areas because it is here that the earth is more capable of fulfilling its natural role as a "sponge" for precipitation.

New development, the resulting urban runoff, and fragmented stormwater management contribute not only to flooding, but also to increased stream and groundwater contamination. A separate Community Compass State of the County report for community services addresses the issues of stormwater management. The remainder of this section addresses issues regarding environmental degradation of surface waters and groundwater.

Water pollution is one of the most widely known forms of environmental pollution. The conflicting uses of water for human consumption and for waste disposal created a need for water quality

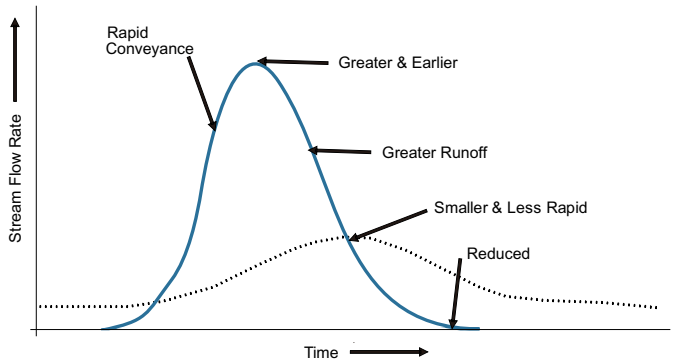


Figure 19
RATE OF STORMWATER RUNOFF WITH AND WITHOUT URBANIZATION

With Urbanization
Without Urbanization

Source: Ohio Wet Weather Initiative Meeting, Hamilton County, Ohio, Oct. 2001

River	Fully Supported	Partially Supported	Not Supported
Little Miami River	24.60%	72.70%	2.70%
Great Miami River	67%	30.20%	2.80%
Mill Creek	0%	5.60%	94.40%
Whitewater River	100%	0%	0%
Ohio River *	99.30%	0.70%	0%

Figure 20
WATER QUALITY OF RIVERS IN HAMILTON COUNTY: PERCENT LEVEL OF SUPPORT FOR AQUATIC LIFE, 2002

Source: Status of Large Rivers Assessment Units (Detail Table), Ohio 2002 Integrated Water Quality Monitoring and Assessment Report, Division of Surface Water, Ohio EPA,and *ORSANCO Annual Report 2002

regulations. The Federal Water Pollution Control Act (now called the Clean Water Act) of 1972 and its amendments of 1977, 1980, and 1987, form the basis of our national pollution control efforts of making all waters "swimmable and fishable." Further, the Ohio EPA requires that the quality of all surface water in the Ohio River Drainage Basin must not adversely affect the reproductive cycle of wildlife.[16]

Figure 20 (on page 15) shows the status of large rivers in Hamilton County. The Ohio EPA uses a series of both chemical and biological criteria to evaluate water quality. Because the standards required to meet aquatic life use criteria are high, the Ohio EPA asserts that the protection of aquatic life should result in the protection of all other uses. The extent to which the stream meets the state's water quality standards is measured in degrees:

Fully Supported: the water body meets all criteria

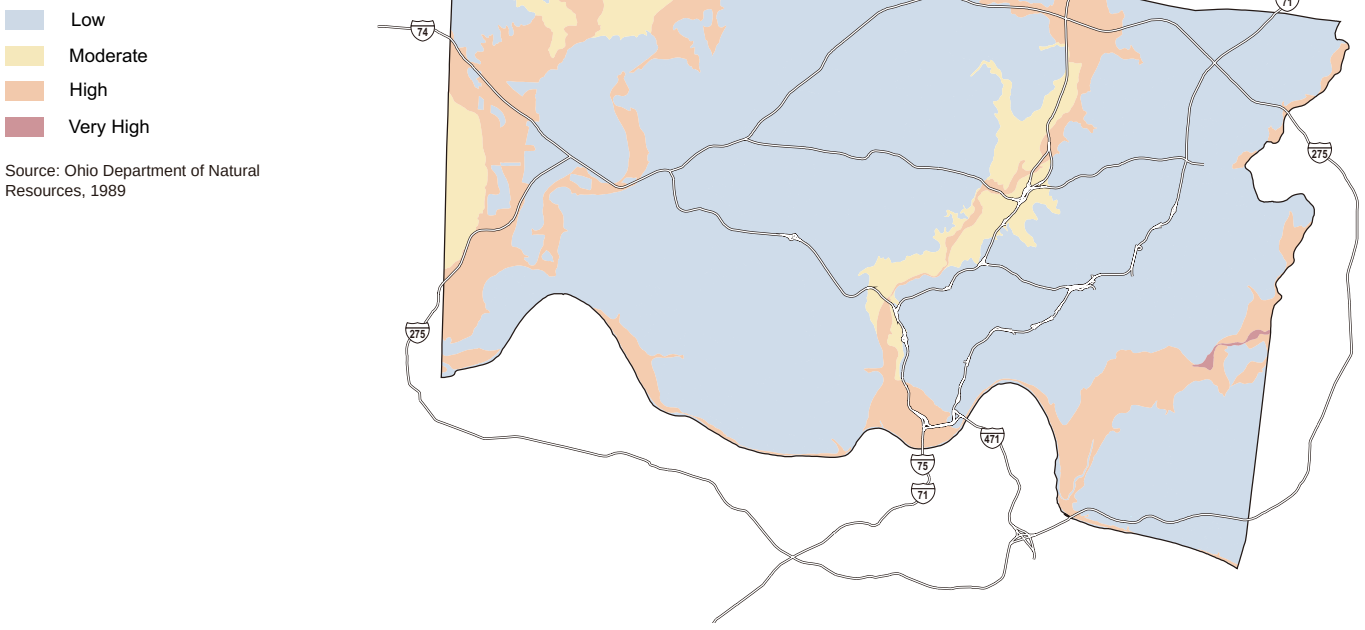
Partially Supported: some of the indices do not meet criteria

Not Supported: none of the indices meet the criteria or one organism group indicates a severe toxic impact.

Overall quality of the water in Hamilton County has improved immensely since 1972. Much of the early improvements were the result of eliminating or regulating "point source pollution" which has an easily identifiable discharge point, such as a pipe. Examples of point source discharges include industrial and wastewater treatment plants.

Remaining and emerging environmental challenges reveal a different source of pollution: non-point source. Today's causes of water pollution and environmental degradation result from the cumulative result of everyday individual behaviors and choices such as — small amounts of household and automotive chemicals, fertilizers, pesticides, pet wastes, and other pollutants. These day-to-day pollutants and other chemical and sediment runoffs from residential and agricultural lands, construction sites, and urban areas are major contributors of non-point source pollution. Additionally, storm water runoff is a growing con-

Figure 21
GROUNDWATER POLLUTION POTENTIAL



Source: Ohio Department of Natural Resources, 1989

cern for non-point source pollution- having impacts on both water contamination and on flooding. Storm water runoff in urban areas from street and parking lots carries heavy metals, salt, petroleum products and other chemicals. These contaminated waters are delivered directly to our waterways untreated.

The issue of storm water management and the issuance of new storm water permits by the Ohio EPA and by a national EPA storm water management program resulted in the creation of Hamilton County Storm Water District (HCSWD) in May 2003. Forty-four of the county's 49 jurisdictions have joined with other local government agencies to address issues of "metropolitan pollution", and to improve water quality in the county's waterways. Hamilton County Engineer's Office administers HCSWD in partnership with Hamilton County Soil and Water Conservation District, Hamilton County Department of Public Works, Hamilton County General Health district, City of Cincinnati Storm Water Management Utility, and Metropolitan Sewer District of Greater Cincinnati. Six objectives have been identified: public information and education, public involvement and participation, illicit discharge detection, construction site runoff control, post construction runoff control, and pollution prevention and good housekeeping.

Additionally, Hamilton County Soil and Water Conservation District provides technical assistance, soil and water management presentations, streamside management workshops, and watershed signage to increase public awareness and public participation in pollution prevention of groundwater and open waterways. Educational efforts encourage streamside landowners to improve water quality and prevent soil erosion along banks.

Non-point source pollution also affects groundwater. The locations of the buried valley aquifers in Hamilton County roughly coincide with the surface river channels. These aquifers are the source of significant quantities of ground water to both municipalities and industries in the region. In 1989, the Ohio Department of Natural Resources mapped areas of increased susceptibility to groundwater pollution. Figure 21 shows groundwater pollution potential, with the colors red, orange, and yellow representing areas of higher vulnerability (higher pollution potential indexes). For the most part, higher vulnerability areas follow the location of the aquifer, its recharge zones, and current location of surface rivers. Current or future development must be aware of the potential for groundwater contamination in these areas.

The Hamilton County Environment Priority Project identified waste facilities (both landfills and scrap yards), hazardous materials sites, leaking underground storage tanks, and agricultural chemicals as highest potential stressors.[17] The locations of these facilities have been inventoried and are accessible in the CAGIS database.

Federal, state, and local environmental organizations are now concentrating their efforts at the watershed level for improving surface water and groundwater quality. Their aim is to address the factors that impair water quality

Figure 22
WATER QUALITY OF WATERSHEDS IN HAMILTON COUNTY, 2004

Watershed	Fully Supported	Partially Supported	Not Supported
Little Miami River Watershed	0%	50%	50%
Great Miami River Watershed	25%	12.5%	62.5%
Mill Creek Watershed	22.5%	N/A	77.5%
Whitewater River Watershed	100%	N/A	N/A

Source: Ohio EPA 2004 Integrated Report, Appendix D.2

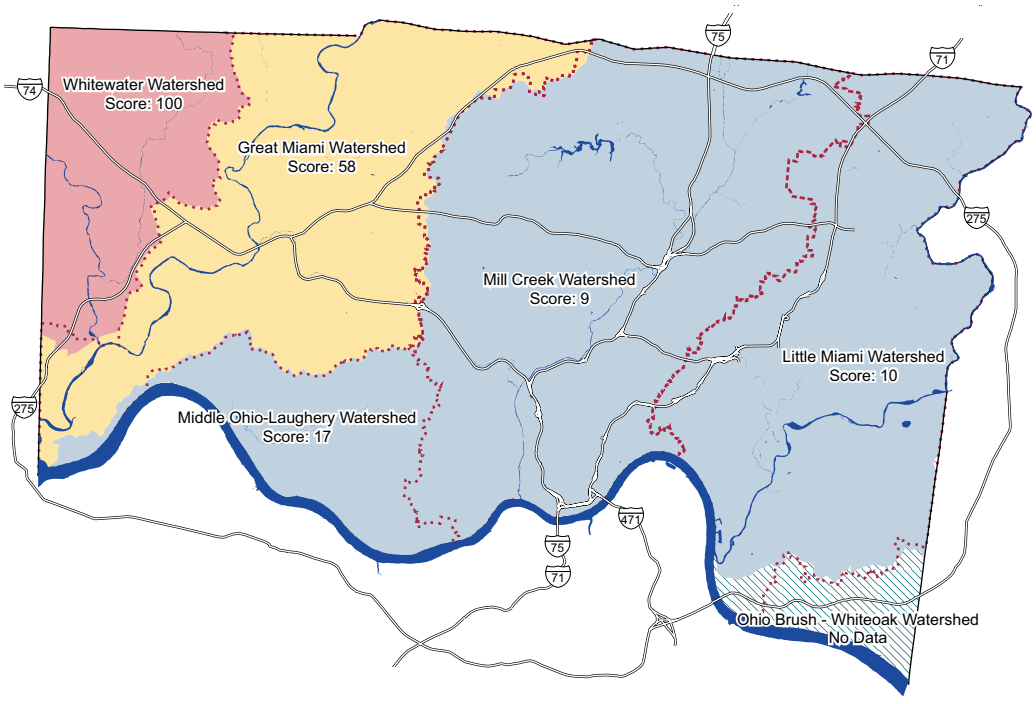
– combined sewer overflow pollution, stormwater and urban runoff, flooding, and soil erosion.

Viewing water resources at the watershed level has several advantages. First, it is a good indicator of the extent of water pollution for both surface water and groundwater in a particular area. Secondly, it addresses the complex sources of environmental stressors and their impacts. Finally, it promotes a high level of involvement and cooperation among affected jurisdictions regarding remediation.

Since 1948, the Ohio River Valley Water Sanitation Commission (ORSANCO) has worked with all states along the Ohio River to improve water quality. ORSANCO began developing a watershed pollutant reduction program in 1995, and adopted this watershed approach for point and non-point pollution sources in 2002. Using a watershed-based approach, Ohio EPA water quality monitoring and assessment is based on a Total Maximum Daily Loads (TMDL) program. TMDL is defined as the maximum load of a pollutant that a water body can receive on a daily basis without violating water quality standards. Beginning in 2002, the Ohio EPA has started water quality reporting on a "fully-formed watershed basis." Figure 22 (on page 17) shows levels of support for aquatic life in Hamilton County.

In Hamilton County, three main watershed protection efforts are underway — the Great Miami River, the Mill Creek, and the Little Miami River Watersheds (see Figure 18). The Mill Creek Watershed Council and the Mill Creek Restoration Project, in conjunction with more than 100 stakeholders, developed the Greenway Master Plan to address cleaner water, floodplain management, economic and recreational opportunities, and improved wildlife areas in the drainage basin. The Miami Conservancy does extensive work in the areas of flood protection, monitoring and protecting water quality, providing recreational opportunities, and restoration of natural areas along the Great Miami River. The Little Miami River Partnership

Figure 23
WATERSHED SCORES (PERCENT ATTAINMENT FOR AQUATIC LIFE USE)



Source: Ohio EPA

coordinates and supports efforts to maintain and improve the natural integrity of the five sub-watersheds of the Little Miami River. The Little Miami River, designated as a National Scenic River in 1980, is in one of the fastest growing areas of Ohio and development is rapidly changing the landscape from agricultural to residential/urban.

Beginning in 2002, Ohio EPA calculated an average watershed score as an indicator of improvements in the watershed. The score is based on the proportion of monitoring locations in a watershed that meet full attainment of the designated aquatic life use. The watershed score will provide a benchmark as best management practices and TMDLs are implemented in watersheds. Figure 23 (on previous page) shows the watershed scores for the watersheds in Hamilton County. The Middle Ohio-Laughery watershed, Mill Creek watershed, and Little Miami River watershed have very low scores – indicating that each need serious work to reach the Ohio EPA's goal of a score of 80 for each watershed by 2010. Whitewater River watershed has a score of 100, and meets its designated aquatic life use. The Great Miami River watershed, with a score of 58, needs further work to attain its designated aquatic life.

Why Is This Important?

Non-point source pollution is the leading source of water quality impacts to rivers and streams in our urban county. Urban pollution sources include chemical and sediment runoff from agricultural and residential lands, storm water runoff and combined sewer overflows (CSOs). The reduction of non-point sources of pollution is essential to the future well being of our groundwater, streams, and rivers. Not only will water quality improve, but also the habitat for many native species can be maintained and restored.

Collaboration among communities at the regional watershed scale more readily addresses issues of stormwater runoff, urbanization, and non-point source pollution. At the watershed scale, or the more regional–based environmental planning scale, areas can be identified that need protection and those areas that can handle new development.

Key Indicators:

- *Total Maximum Daily Load (TMDL) for water sheds (OEPA plans to track as of 2004)*
- *Water quality of water sheds (Figures 20 and 22)*
- *Watershed scores (Figure23)*

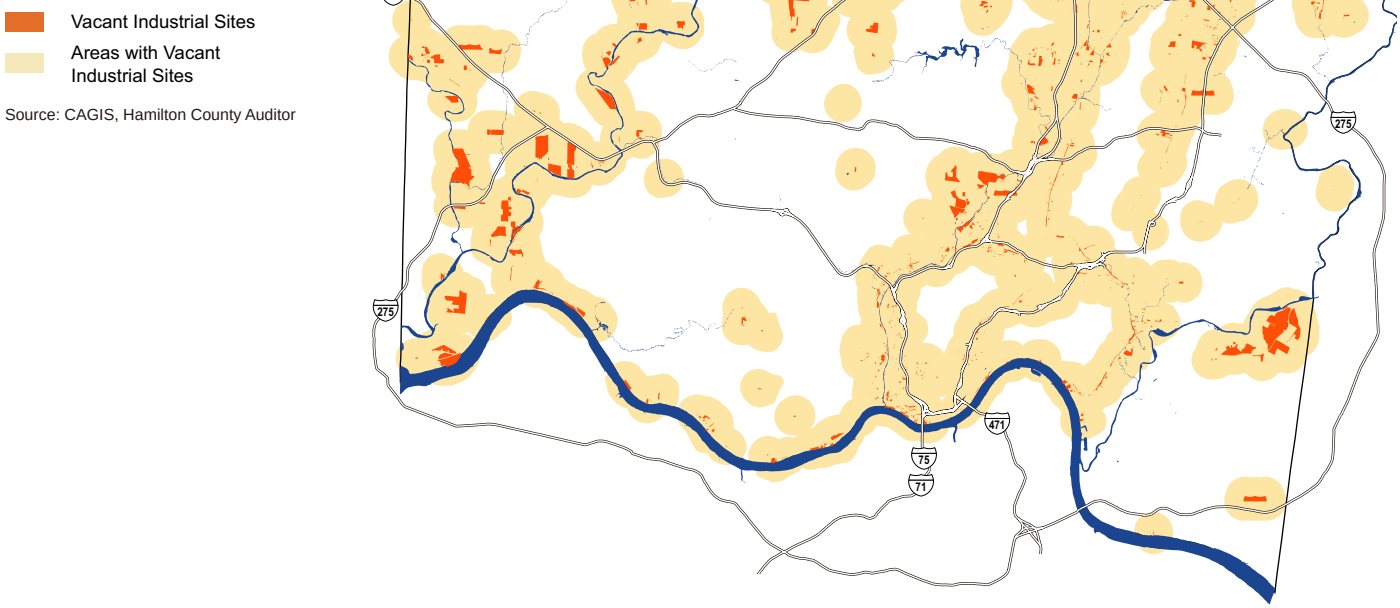
FINDING 7

REDEVELOPMENT OF BROWNFIELDS AND UNDER-UTILIZED INDUSTRIAL PARCELS IS BECOMING RECOGNIZED AS ENVIRONMENTALLY, ECONOMICALLY, AND SOCIALLY IMPORTANT.

Industrial areas provide goods and jobs – both essential to a region. As growth moves outward and lifestyle and production modes change, older industrial areas are often passed by for greener fields. Although this section of the report discusses potential for redevelopment of these now vacant or underutilized areas, a comprehensive study has not been done to date to identify their locations in Hamilton County. Therefore, vacant industrial parcels provide a reasonable base from which to discuss potential for redevelopment. It must be cautioned, though, that a small portion of the vacant industrial areas are actually zoned for industrial use, just not yet developed. The majority of vacant industrial areas, however, are those that are today underutilized or have been abandoned. These properties are known as brownfields and are often difficult to redevelop because of real or perceived hazardous substances, pollutants, or contaminants. The result can be blighted areas rampant with abandoned or under-used industrial or commercial facilities that create safety and health risks for residents, increased unemployment, and decline in a community's image.

There are approximately 2,744 vacant industrial parcels making up 5,365 acres in Hamilton County.[18] This represents approximately 22 percent of all industrial parcels in Hamilton County. The majority of brownfield sites are small (usually 1-5 acres) and scattered — mostly along the I-75 corridor. Over 50 percent of vacant industrial parcels (more than 1,300 acres) are located in the Mill Creek watershed, which has been the center

Figure 24
VACANT INDUSTRIAL PARCELS



Source: CAGIS, Hamilton County Auditor

of industrial activity for the Cincinnati region for over 100 years. Figure 24 shows the location of vacant industrial parcels in Hamilton County as identified for tax purposes by the Hamilton County auditor.

Federal and state agencies and local groups are devoting many resources toward brownfield redevelopment. USEPA reports that the "Brownfields Revitalization and Environmental Restoration Act (BRERA) of 2001 provides funding to identify, investigate, assess, and clean up properties that are abandoned or under utilized. It also addresses potential human health and environmental threats and creates jobs, increases tax revenues, and preserves and creates open space and parks."

At the state level, The Clean Ohio Revitalization Fund provides financial support for both brownfield and greenspace revitalization programs. For brownfield cleanup, the Fund gives special emphasis to those projects that result in economic benefit, environmental improvement and benefit economically-distressed and minority communities: In 2002, the Clean Ohio Revitalization Fund program awarded $40 million in grants for brownfields in Ohio, of which areas in Hamilton County received more than $3.6 million.

The partnerships among the Port of Greater Cincinnati Development Authority (Port Authority), the Cincinnati Strategic Program for Urban Redevelopment (SPUR), and the Hamilton County Urban Land Assembly Program (ULAP) are facilitating redevelopment of underutilized, commercial, and industrial brownfield properties in the County. The Port Authority acts as a local resource of information, education, and assistance on brownfields redevelopment for the 49 jurisdictions in the County. ULAP has inventoried 68 sites in the older, first ring suburbs for brownfield redevelopment and revitalization, and SPUR has initially inventoried and created 16 districts in Cincinnati (Figure 25).

Why Is This Important?

The majority of brownfields are in urban cores where unemployment

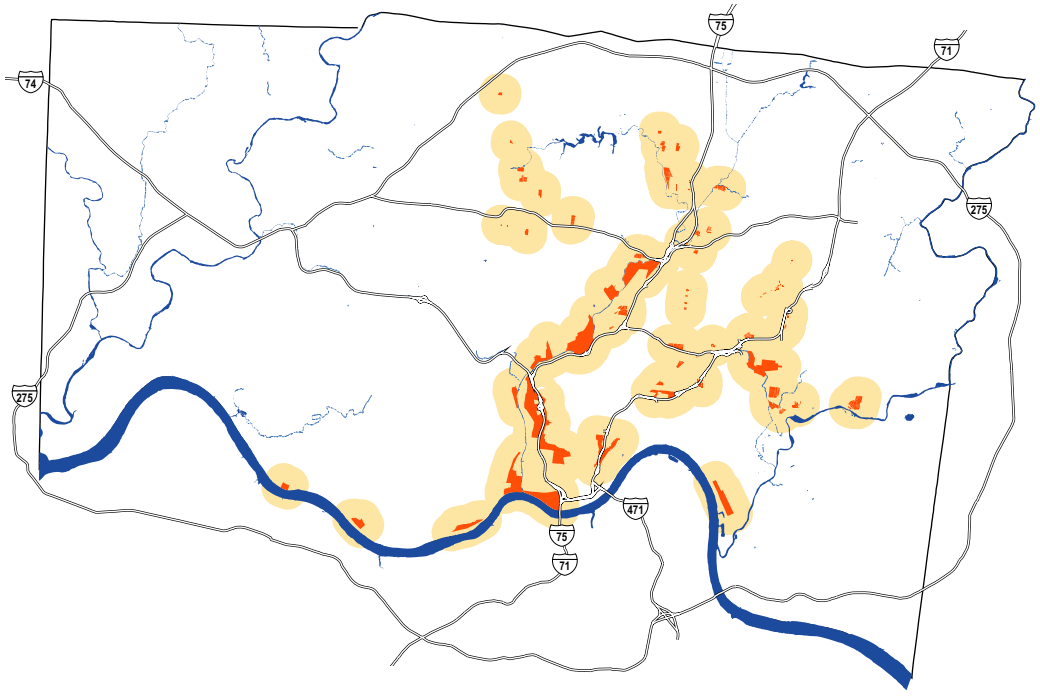


Figure 25
INDUSTRIAL AREAS FOR POTENTIAL REDEVELOPMENT

SPUR Districts and ULAP Sites
Areas with SPUR Districts and ULAP Sites

Source: Urban Land Assembly Program and Cincinnati Strategic Program for Urban Redevelopment in Hamilton County[18]

and low-income and minority populations are high. USEPA reported, “undeveloped brownfields plague the low-income, ethnic minority, and disadvantaged communities in the City of Cincinnati and Hamilton County."[19] Major initiatives by USEPA and the Clean Ohio Fund focus on brownfield redevelopment and sustainable developments that will not create more brownfields. The USEPA reports that “by redeveloping a brownfield in an older city or suburban neighborhood, a community can remove blight and environmental contamination, create a catalyst for neighborhood revitalization, lessen development pressure at the urban edge, and use existing infrastructure.” In urban areas, brownfields redeveloped for commercial and mixed use would provide jobs and services where unemployment is highest.

Key Indicators:

- *Number of redeveloped Industrial acres (Figure 26)*

Figure 26

INDUSTRIAL ACREAGE IN HAMILTON COUNTY COMMUNITIES, 2004

Source: CAGIS, Hamilton County Auditor
June 2004

Municipalities & Townships	Total Acres Zoned Industrial	Total Vacant Acres Zoned Industrial
Addyston	138.4700	42.75
Amberley Village	107.1270	1.34
Anderson Township	1054.9050	559.20
Arlington Heights	33.5000	3.49
Blue Ash	1167.4190	140.90
Cheviot	0.6700	0.00
Cincinnati	3874.1080	834.00
Cleves	51.9690	37.76
Colerain Township	1707.8680	272.41
Columbia Township	27.1430	12.63
Crosby Township	632.1320	275.80
Deer Park	7.0770	0.56
Delhi Township	99.3320	7.70
Elmwood Place	45.0660	5.77
Evendale	1023.9610	63.07
Fairfax	164.7580	22.11
Forest Park	326.5940	91.16
Golf Manor	53.5040	11.22
Green Township	140.3640	12.84
Harrison	504.9100	102.32
Harrison Township	438.6940	71.10
Lincoln Heights	70.4470	30.75
Lockland	286.6900	76.24
Loveland	151.7830	23.61
Madeira	28.9390	1.28
Mariemont	34.0450	1.07
Miami Township	629.2870	371.20
Milford	2.5090	0.00
Montgomery	0.4310	0.00
Mount Healthy	31.6410	0.00
Newtown	324.7040	149.69
North Bend	42.5040	31.26
North College Hill	0.5340	0.03
Norwood	214.3990	21.11
Reading	266.7120	33.16
Saint Bernard	287.9680	61.89
Sharonville	1487.1920	167.59
Silverton	10.3850	0.68
Springdale	314.5520	15.27
Springfield Township	230.1770	128.83
Sycamore Township	244.9390	21.11
Symmes Township	453.1510	5.84
Whitewater Township	2513.7070	1081.69
Woodlawn	424.5690	52.47

Appendix A
End Notes

1. Ohio River Way, Inc. 1997. "Environmental Decision Making and Public Participation Working Group: Issue Assessment Report," Conference Paper presented December 6, 1997.
2. Green Umbrella Board of Trustees. 2003. "Green Umbrella." *www.greenumbrella.org.*
3. Description taken from upcoming report, "Green Infrastructure: A Strategic Approach to Natural Resource Planning and Conservation." The Conservation Fund. *www.conservation fund.org.*
4. FMSM Engineers. 2003. "Natural Hazard Mitigation Plan for Hamilton County." Draft Report. Hamilton County Emergency Management Agency. *www.hamilton-co.org/ema/MITIGATION.pdf.*
5. County Auditor's information and CAGIS data layers were used to identify new construction on hillsides greater than 20 percent slope.
6. Official weather data collected at Cincinnati-Northern Kentucky International Airport in Covington, KY by the National Weather Service.
7. Ohio Department of Natural Resources. 1995. "Geofacts No. 8. Landslides in Ohio." Division of Geological Survey. *www.ohiodnr.com/geosurvey/geo.fact*.
8. USEPA Air Quality Index, a Guide to Air Quality and Your Health, EPA-454/R-00-005 June 2000.
9. Office of Energy Efficiency. 2004. "Idling gets you nowhere." Ottawa, ON: Natural Resources Canada. *oee.nrcan.gc.ca*.
10. Green Umbrella Board of Trustees. 2003. "The Economic Value of Greenspace in the Greater Cincinnati Region." *www.greenumbrella.org.*
11. National Air Quality and Emissions Trends Report, 2000
12. Surface Transportation Policy Project. 2003. "Public Health, Air Quality, and Transportation in Ohio." *Clearing the Air*. Surface Transportation Policy Project *www.transact.org/ library.asp*.
13. Environmental Defense. 2003. New York: Environmental Defense *www.scorecard.org.*
14. Minor discrepancies in historical annual summaries for EPA may occur because EPA allows companies to revise retroactively their emissions reports in previous years. EPA then recalculates totals for those years.
15. FMSM, op.cit
16. Ohio Administrative Code Chapter 3745-1, 3745-1-34(C)(1).
17. Ohio River Way, Inc. 1997. "Environmental Decision Making and Public Participation Working Group: Issue Assessment Report," Conference Paper presented December 6, 1997.
18. County Auditor's information and CAGIS data layers were used to identify vacant industrial parcels.
19. USEPA. 2001. "Brownfields Job Training and Development Demonstration Pilot." Report No. EPA 500-F-01-359. Environmental Protection Agency *www.epa.gov/brownfields.*

Appendix B
Environmental Groups Serving Hamilton County

This list is a partial compilation of links provided by Green Umbrella *(www.greenumbrella.org*) and by Tri-State Environmental Resource Center (*www.terconline.org)*. If you know of other organization that should be added, please contact *kd.rex@hamilton-co.org*

Alliance for Chemical Safety

Alternate Energy Association

American Lung Association of Ohio - Southwestern Branch

Anderson Township Greenspace Advisory Committee

Animal Rights Community

Audubon Society of Ohio

Greater Cincinnati Chapter of National Audubon Society

Banklick Watershed Council

Biohabitats. Inc.

Cincinnati Department of Health

Community Health Services Division

Cincinnati Earth Institute

Cincinnati Ecovillage

Cincinnati Environmental Advisory Council (EAC)

Cincinnati Nature Center

Cincinnati Park Board

Cincinnati Parks Foundation

Cincinnati Trackers

Cincinnati Wild Flower Preservation Society

Cincinnati Zoo and Botanical Garden

Citizens for Civic Renewal

Civic Garden Center

Concerned Citizens of Western Hamilton County

Crystal Clear Science

Earth Connection

EarthSave Cincinna*ti*

Environmental Enterprises Inc.

Economic Center for Education & Research

Environmental Network

Fernald Residents for Environmental Safety and Health, Inc. (FRESH)

Forest Park Environmental Awareness Program

Friends of the Parks, Inc.

Great American Clean Up

Greater Cincinnati Chamber of Commerce

Greater Cincinnati Earth Coalition

Greater Cincinnati Environmental Educators (GCEE)

Green Umbrella

Greenacres Foundation

Hamilton County Department of Environmental Services

Hamilton County Environmental Action Commission

Hamilton County General Health District

Hamilton County Park District

Hamilton County Soil and Water Conservation District

Hamilton County Solid Waste Management District

Hamilton to New Baltimore Groundwater Consortium

Hillside Trust

Human Nature, Inc.

Imago, Inc.

Independent Citizens Association for Reclaiming Our Environment (I-CARE)

Indian Hill Green Areas Committee

Institute of Advanced Manufacturing Sciences, Inc. (IAMS)

Izaak Walton League of America - Cincinnati Chapter

Keep Cincinnati Beautiful

Land Conservancy of Hamilton County, OH

League of Women Voters of the Cincinnati Area

Little Miami, Inc.

Little Miami River Partnership

Loveland Greenbelt Community Council

Metropolitan Sewer District (MSD) of Greater Cincinnati

Metro/Southwest Ohio Regional Transit Authority

Mar-Rich Farms

Miami-Ohio-Licking Ecosystem Council (M.O.L.E.)

Miami Conservancy District

Miami Group, Sierra Club

Miami Valley Resource Conservation and Development Council

Miami Valley (RC&D) Council

Mill Creek Restoration Project

Mill Creek Watershed Council

Millcreek Valley Conservancy District

Nature Academy

Mother's Nature, Inc.

Nature Conservancy - Ohio Chapter

North Avondale Neighborhood Association (NANA)

Northside Greenspace, Inc

Nu-Blend Paints, Inc

Ohio Citizen Action

Ohio Department of Natural Resources

Ohio Energy Project

Ohio Environmental Council

Ohio Environmental Protection Agency

Ohio-Kentucky-Indiana Regional Council of Governments

Ohio River Basin Consortium for Research and Education (ORBCRE)

Ohio River Valley Water Sanitation Commission (ORSANCO)

Ohio River Way

Oxbow Inc.

PANACEA

Raptor, Inc.

Regional Ozone Coalition

Rivers Unlimited

Rumpke Recycling

Sierra Club

Smart Growth Coalition

Sustainable Cincinnati

The Good Earth

Three Valley Conservation Trust

Tri-State Environmental Resource Center

U.S. Green Building Council – Cincinnati Regional Chapter

Western Wildlife Corridor, Inc.

Appendix C
Community COMPASS Publications

The following Community COMPASS reports are components of Hamilton County's Comprehensive Master Plan and Strategies. The reports are available at the Hamilton County Regional Planning Commission and can be downloaded at www.communitycompass.org.

1. Project Design -- Scope and Process (Oct. 2001)
2. The Community Values Survey (Jan. 2001)
3. Special Research Reports
   - 3-1. Inventory of Research (2002)
   - 3-2. Conflicting Views on Suburbanization (Sept. 1999)
   - 3-3. Spreading Out: The March to the Suburbs (Oct. 1999; revised 2003)
   - 3-4. Summary Report -- Spreading Out: The March to the Suburbs (Oct. 1999; revised 2003)
   - 3-5. The Use of Public Deliberation Techniques for Building Consensus on Community Plans: Hamilton County Perspectives on Governance (A Guide for Public Deliberation) (Dec. 2002)
   - 3-6. Hamilton County's Comparative and Competitive Advantages: Business and Industry Clusters (Oct. 2003)
   - 3-7. Census 2000 Community Profiles: Political Jurisdictions of Hamilton County
   - 3-8. Community Revitalization Initiative Strategic Plan (Aug. 2003)
4. The Report of the Community Forums --Ideas, Treasures, and Challenges (Nov. 2001)
5. The Report of the Goal Writing Workshop (2001)
6. The Countywide Town Meeting Participant Guide (Jan. 2002)
7. Hamilton County Data Book (Feb. 2002)
8. A Vision for Hamilton County's Future --The Report of the Countywide Town Meeting (Jan. 2002)
9. The CAT's Tale: The Report of the Community COMPASS Action Teams (June 2002)
10. Steering Team Recommendations on The Vision for Hamilton County's Future (Jan. 2002)
11. Planning Partnership Recommendations on The Vision for Hamilton County's Future (Jan. 2003)
12. The Vision for Hamilton County's Future (Brochure) (Feb. 2003)
13. Initiatives and Strategies
    - 13-1. Steering Team Recommendations on Community COMPASS Initiatives and Strategies (2002)
    - 13-2. Steering Team Prioritization of Initiatives – Methodology and Recommendations (Aug. 2002)
    - 13-3. Planning Partnership Recommendations on Community COMPASS Initiatives and Strategies (revisions, findings and reservations) (Dec. 2002)
    - 13-4. Community COMPASS Initiatives and Strategies -- Hamilton County Regional Planning Commission Recommendations (Jul. 2003)
14. External Influences: The Impact of National Trends on Hamilton County's Future (Mar. 2003)
15. Population
    - 15-1 Summary Report (Nov. 2004)
    - 15-2 Atlas / comprehensive report (2005)
16. State of the County Reports (Key Findings, Issues, and Community Indicators) (Nov. 2004)
    - 16-1 Civic Engagement and Social Capital
    - 16-2 Community Services
    - 16-3 Culture and Recreation
    - 16-4 Economy and Labor Market
    - 16-5 Education
    - 16-6 Environment
    - 16-7 Environmental and Social Justice
    - 16-8 Governance
    - 16-9 Health and Human Services
    - 16-10 Housing
    - 16-11 Land Use and Development Framework
    - 16-12 Mobility
    - 16-13 Executive Summary
17. 2030 Plan and Implementation Framework (Nov. 2004)

Hamilton County Regional Planning Commission

138 E. Court Street, Rm 807
Cincinnati, OH 45202
(513) 946-4500
www.communitycompass.org

Community COMPASS
HAMILTON COUNTY
Regional Planning Commission

Planning Partnership
HAMILTON COUNTY
Regional Planning Commission