State of the County Report: Land Use and Development Framework

COMMUNITY COMPASS REPORT NO. 16-11

Hamilton County, Ohio

Community COMPASS

HAMILTON COUNTY
Regional Planning Commission

November 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: Land Use and Development Framework
Community COMPASS Report No. 16-11

Subject:

Current conditions and findings regarding land use and development framework in Hamilton County.

Date:

November 2004

Synopsis:

This report presents existing conditions and trends in Hamilton County related to land use and development framework. The report identifies five 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.

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Context

COMMUNITY COMPASS COMPONENTS

1 **Vision** (What do we want?)

2 **Initiatives** (What strategies should we consider?)

3 **Indicators** (What should we measure?)

4 **Trends** (Where have we been?)

5 **Projections** (Where are we headed?)

6 **Research** (What's the story behind the trend?)

7 **Partners** (Who can help?)

8 **Strategic Plans** (What can we do that works?)

9 **Action Plans** (How do we make it happen?)

10 **Performance Measures** (Are actions making a difference?)

This Report

STATE OF THE COUNTY REPORTS

- Civic Engagement and Social Capital
- Community Services
- Culture and Recreation
- Economy and Labor Market
- Education
- Environment
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- Land Use and Development Framework
- Mobility

STATE OF THE COUNTY REPORT: LAND USE AND DEVELOPMENT FRAMEWORK

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Executive Summary

FINDING 1

Residential, commercial, and industrial developments are spreading outward into adjacent suburban counties drawing growth and investments from Hamilton County.

- Although Hamilton County remains the largest center for businesses, industries, and housing in the Cincinnati metropolitan region, the County continues to lose population and businesses to suburban counties. In the past decade, the County's share of businesses and industries to total businesses and industries in the region decreased from 60 percent to 53 percent, and its share of housing units in the region decreased from 50 percent to 46 percent. Recently, Hamilton County experienced some redevelopments at higher densities and programs for reinvestments, such as the Home Improvement Program (HIP).

FINDING 2

Land consumption per person within Hamilton County is increasing as housing buyers choose low-density new developments over compact older communities.

- This growth pattern results in loss of population in older communities and the core area and increase of new low density developments at the periphery and beyond. Regardless of decreases in the population, housing units, households, and developed lands in Hamilton County have continued to increase. Studies on costs of development patterns have found that low-density developments are costlier for the provision of infrastructure and services. As the population in the County decreases, the cost per capita for maintenance and expansion of infrastructure increases.

FINDING 3

Growth centers and interstates are shaping commercial and industrial development patterns in Hamilton County and the Cincinnati metropolitan region.

- Although Hamilton County remains the major employment center in the region, other centers of growth have emerged outside the County. These are full-fledged urban communities providing urban services, housing, and jobs at one location. The metropolitan development pattern of the past, with only one dominant center at the urban core, is changing to a *polycentric* pattern with many dominant centers. Some examples of emerging growth centers in the region include Union Centre Boulevard area , Tri-County area, Eastgate area, and the Cincinnati/Northern Kentucky International Airport area. This has affected commuting patterns for work in the region as commuting from other counties into Hamilton County decreased, whereas commuting from suburbs to suburbs has increased.

FINDING 4

As growth moves outward, fiscal capacity of older communities in Hamilton County is impacted.

- The current patterns of outward growth, disinvestment in older communities, and competition for tax dollars provide economic challenges for many Hamilton County communities. In the absence of any tax-sharing program or incentives for redevelopment and infill development, older communities are often fiscally constrained or do not generate necessary revenues to cover the cost of community services. Hamilton County hosts a number of such older, built out communities, often termed as "first suburbs." Past studies have emphasized that "first suburbs" are in a policy blind spot wherein adequate policies and programs at the federal and state level are often not available for them. Regardless of socio-economic challenges and fiscal problems, "first suburbs" usually have positive qualities such as town centers, a grid street system, sidewalks, human scale

built form, social networks, architectural heritage, and sense of place.

FINDING 5

Although total developed land in Hamilton County almost doubled since 1960, industrial areas have remained almost the same, and forests, cropland, and pastures continue to decrease.

- A study by the Ohio State University, using satellite imagery, classified man-made and natural features into developed land, forests, croplands, and pastures. The study, comparing changes from 1982 to 1997, showed an increase in urban land and decrease in the forests, croplands, and pastures for Hamilton County. Distribution of developed land in the County shows 41 percent residential, 16 percent public services, 4 percent commercial, and 5 percent industrial, which use is characteristic of large urban areas, according to research on urban land uses.

STATE OF THE COUNTY REPORT:

Land Use and Development Framework

THE VISION FOR HAMILTON COUNTY'S FUTURE:
Well-planned, controlled growth that, in the context of the greater region, balances downtown, neighborhood, and community development with open space and natural areas to encourage revitalization of existing communities, and aids in economic and racial integration.

The Vision Statement for Land Use and Development Framework, 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 examines land use and growth issues in Hamilton County and studies various factors causing growth and development patterns in the region. It identifies five important findings related to growth and land development at the regional, county, and local levels. It studies impacts of these trends on the economy, housing, transportation, utilities, environment, and fiscal resources, and identifies indicators for measuring the trends.

In the past two centuries of urbanization in America, it is the last few decades that have brought dramatic changes to metropolitan development patterns: movement of people and goods, technology, and especially the emerging new centers of population and employment at the edges of metropolitan regions. These new centers have different development patterns than the metropolitan core and are increasingly becoming centers for activity, entrepreneurship, and urban-like living. Hamilton County as part of the metropolitan core still retains its place as the major center for businesses, culture, and recreation for about two million people residing in the region. However, the new growth patterns are affecting Hamilton County in many ways including its demography, economy, and land resources.

Compared to the metropolitan development patterns of early years, when land developed in cities primarily to accommodate immigrating rural population, land now is developed in rural areas as well as cities to accommodate migration and spreading out of the existing population. Many metropolitan regions are experiencing a substantial increase in developed land even though the residing populations are either decreasing, remaining stagnant, or increasing at a slower rate. Usually, the growth taking place in a region, which encompasses population as well as economic growth, has driven land development and distribution of land uses. Compared to other natural resources, land is a finite resource and its distribution for different uses affects almost every aspect of urban living including community ser-

vices, economy, housing, mobility, environment, and human health. The land use distribution determines in many ways transportation efficiency, energy usage, environmental pollution, changes in ecology, and even the urban micro climate in a region.

The growth in the Cincinnati metropolitan region, especially the adjacent Ohio counties, has been a result of land speculation, consumer preferences, economic forces, and limited direction on the part of governmental jurisdictions. The resultant development patterns have been spread-out, low and medium density residential developments interspersed with large commercial and industrial uses. A new "smart growth" strategy has been discovered as a solution to development patterns occurring due to such widespread growth. As an overarching concept of development, "smart growth" includes integrating environment and ecology into land use planning, promoting redevelopment as well as new developments, and encouraging planned growth. These strategies call for preparation and implementation of comprehensive plans.

Most communities use the legislative power of zoning, with regulations attached to each zone, to identify preferred locations for land uses, activity, character of development, density, setback, etc. Most states require the zoning map and regulations to be based on a comprehensive plan that considers the interrelationships of community services, housing, etc. In Ohio, however, the Ohio Revised Code does not mandate comprehensive planning and in fact sees zoning itself as constituting "the plan". This laissez-faire approach at the state level does not ensure sound comprehensive planning in the growth of communities.

Finding 1

RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL DEVELOPMENTS ARE SPREADING OUTWARD INTO ADJACENT SUBURBAN COUNTIES, DRAWING GROWTH AND INVESTMENTS FROM HAMILTON COUNTY.

While Hamilton County remains the center of the metropolitan region, residential, commercial, and industrial developments are shifting outward to the suburban counties. These suburban counties, primarily along Interstates 75 and 71, have attracted large new developments during the 1990s and into the current decade. Regional population growth and construction of new housing indicate that these suburban counties are increasingly becoming important parts of the urbanized region.

The 2000 census population data confirms that a majority of the region's population growth took place outside of Hamilton County. The green areas in Figure 1 indicate jurisdictions experiencing population growth and include places such as Mason in southwest Warren County, Cities of Trenton and Oxford in Butler

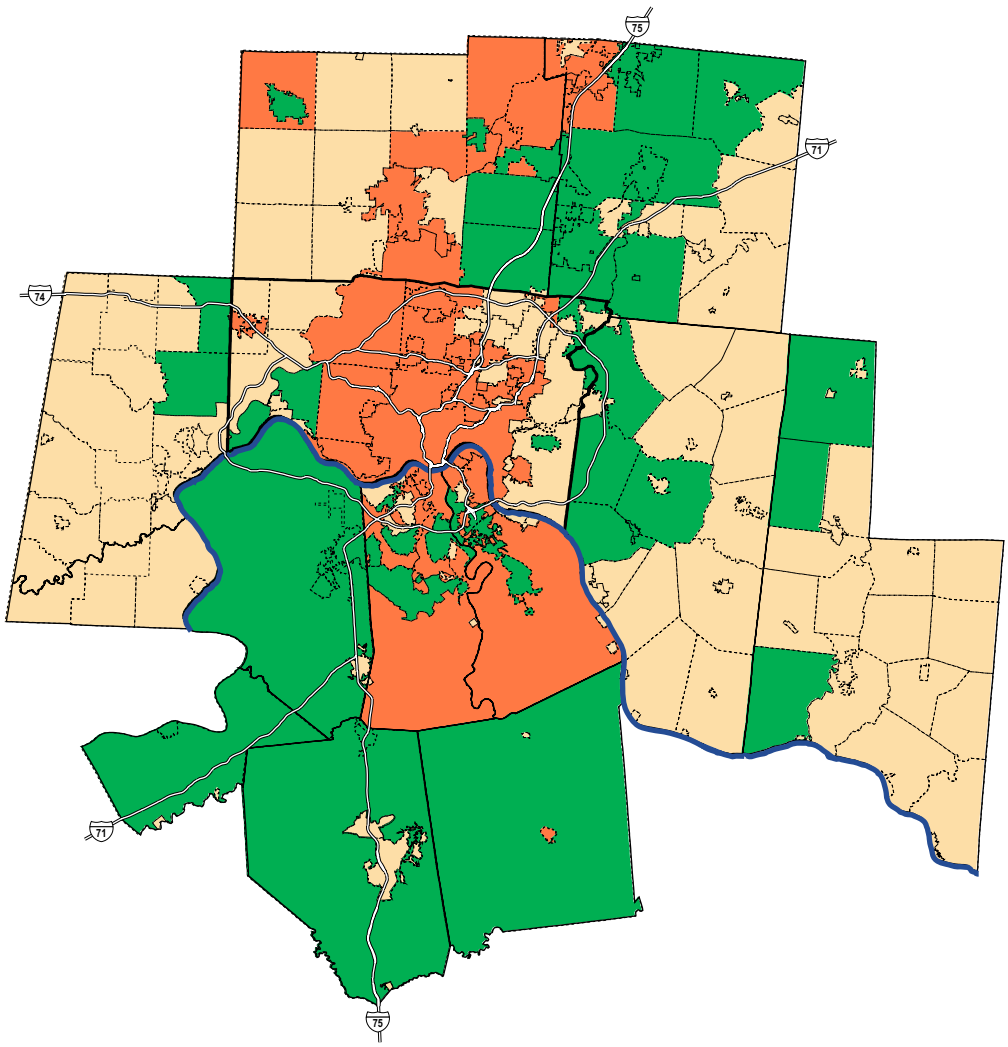


Figure 1
RELATIVE POPULATION CHANGE[1], CINCINNATI METROPOLITAN REGION, 1990-2000

-0.03294 to -0.000261 Low
-0.000261 to 0.000235 Med.
0.000235 to 0.009065 High

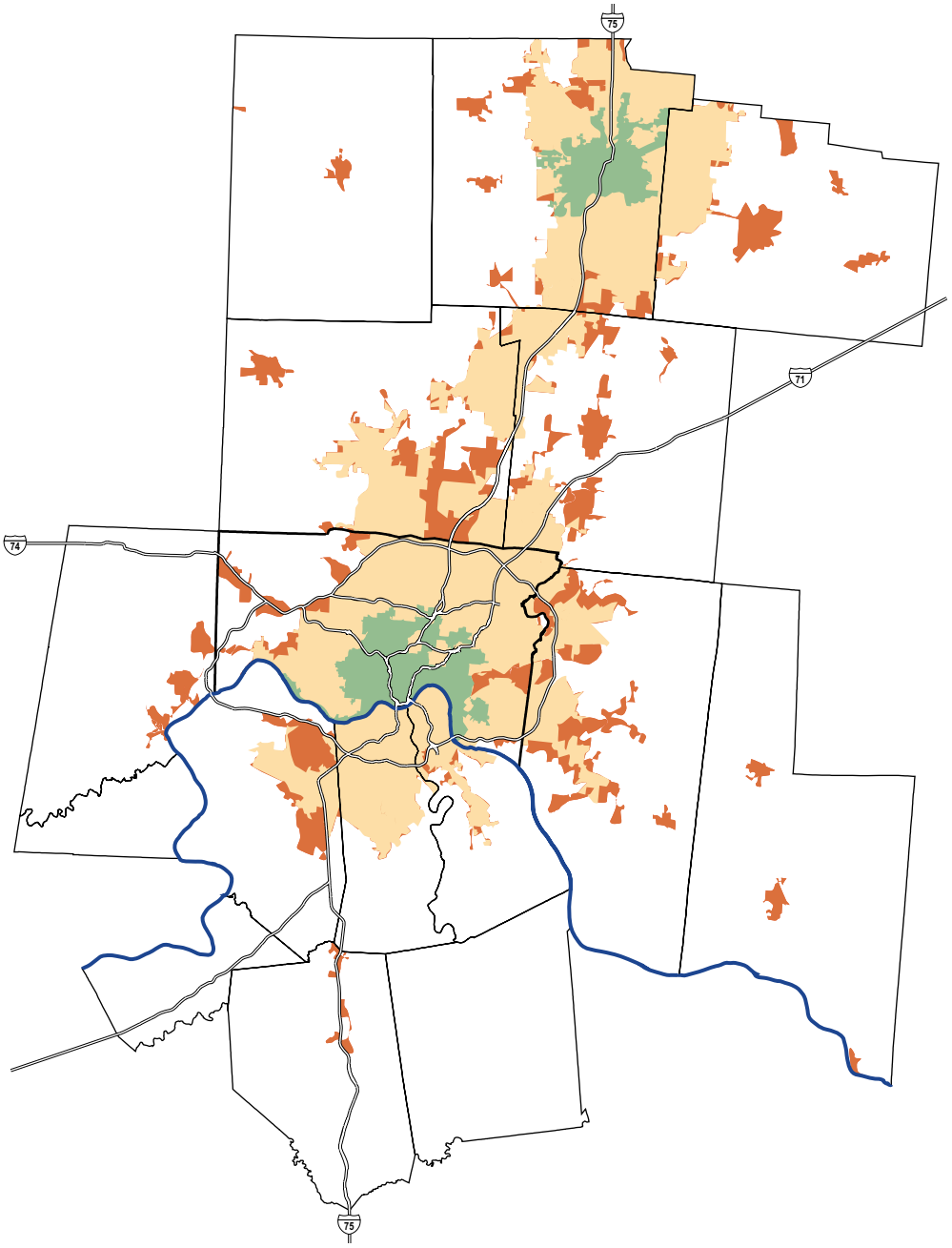
Note: A jurisdiction falling in low-range might have experienced population gain over the decade. However, compared to the base population of 1990, the change might be smaller. Jurisdictions such as Colerain and Green Townships are examples of this.

Source: U.S. Census Bureau, Hamilton County Regional Planning Commission

County, and the northwest part of Clermont County. Areas exhibiting population growth in Ohio and Kentucky form a northeast to southwest growth axis along I-71. Similarly, the distribution of census-defined "urbanized areas" (densely settled territories of 50,000 or more population) in 1990 and 2000 in the Cincinnati and Dayton metropolitan regions, indicates that Cincinnati and Dayton have unofficially connected into one continuous urbanized area. (Figure 2).[2]

The patterns of growth observed at the local level are in part influenced by the changes taking place in the larger region. The interstates system in the Cincinnati region is largely shaping the direction of growth and new developments. For example, in 1990 there was no urbanized area to the south of Boone County, but in 2000 tiny pockets of urbanized areas developed in Grant County along I-75. Simi-

Figure 2
CINCINNATI-DAYTON URBANIZED AREA, 1990-2000



Source: U.S. Census Bureau, Maimi Valley Regional Planning Commission, Cincinnati Metropatterns

larly, once rural counties of the metropolitan region such as Dearborn County, Indiana and Brown County, Ohio experienced an emergence of urbanized areas in 2000. According to the Gallis Report, I-75 (connecting Lexington, Cincinnati, and Dayton); I-71 (connecting Louisville, Cincinnati, and Columbus); and I-74/US-27 (connecting Cincinnati and Indianapolis) form a large interrelated urban network affecting distribution of population, employment, facilities, and services.[3]

Between 1990 and 2000, not all communities in Hamilton County observed population losses. In fact, 24 out of 49 communities gained population during that period. However, in areas that gained new residents it is difficult to determine if they relocated from Cincinnati or other Hamilton County communities experiencing population loss or are new residents from outside the County.

Hamilton County still has the largest housing stock in the metropolitan region, and during the 1990s the County added almost 12,000 new housing units (Figure 3). Only three counties (Butler, Warren, and Clermont) exceeded Hamilton County. However, the bulk of new housing development took place in suburban counties. Hamilton County's housing growth is becoming a smaller slice of the pie, though, as its housing increase from 1990 to 2000 was only 12 percent of the total increase in the Cincinnati Metropolitan Statistical Area (CMSA) (see Figure 4).

Recent research contained in the Regional Planning Commission's *State of the County Report: Economy and Labor Market* finds that, even though Hamilton County is the largest employment center in the CMSA, business and industry growth is booming in the southwestern and northeastern parts of the region. In terms of the County's share of businesses and industries to the total CMSA businesses and industries, Hamilton County is the only County showing a decreasing trend from 1987 (60 percent) to 2001 (53 percent). In the same period other counties such as, Butler, Clermont, Kenton, Warren, Boone, Dearborn, Brown, and

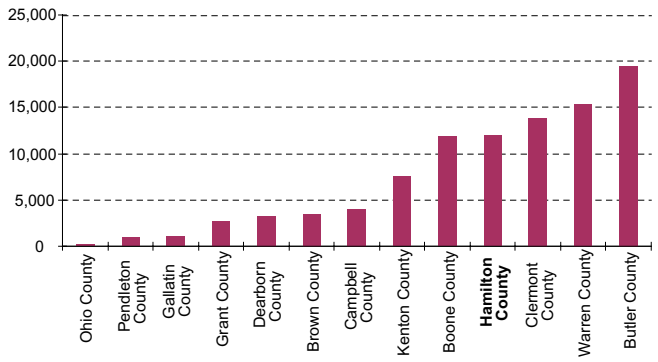


Figure 3
INCREASE IN HOUSING UNITS IN THE CINCINNATI METROPOLITAN REGION, 1990-2000

Source: U.S. Census Bureau, 2000

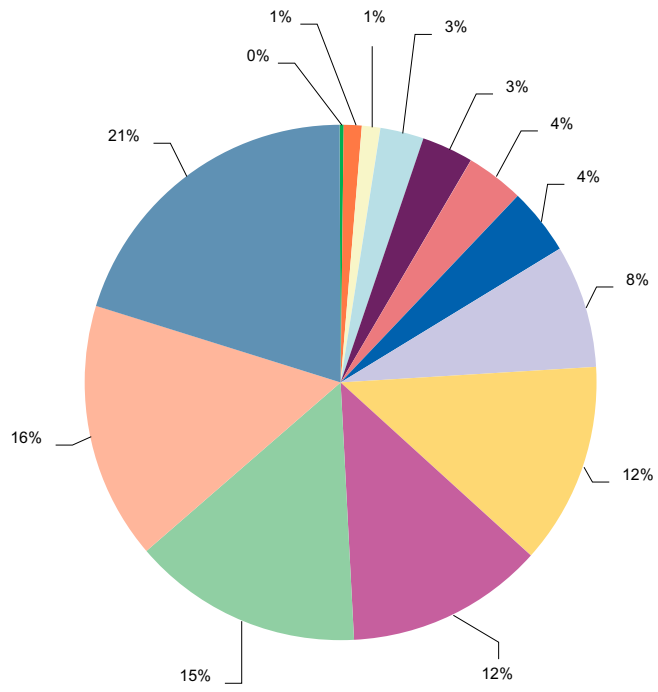


Figure 4
PERCENT INCREASE IN HOUSING UNITS IN THE CINCINNATI METROPOLITAN REGION, 1990-2000

Source: U.S. Census Bureau, 2000

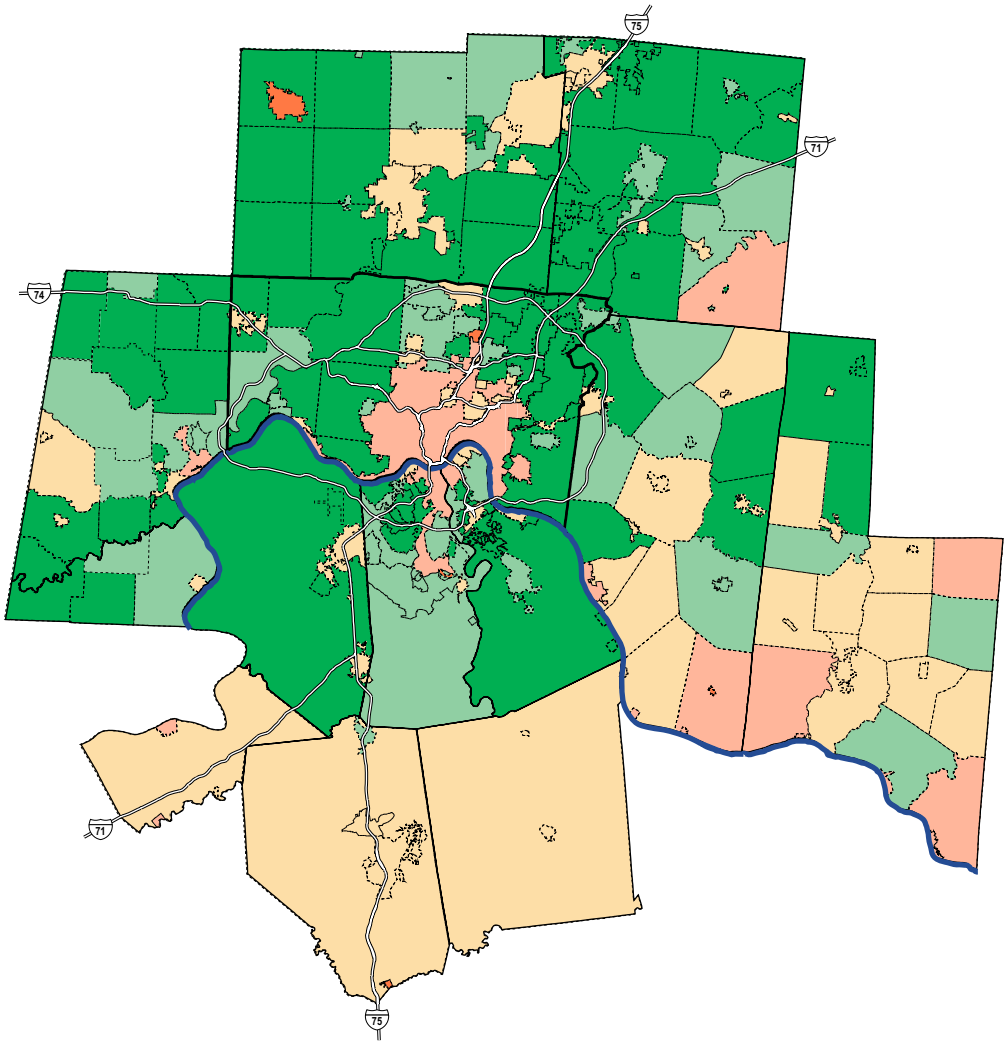
Grant have gained, while Campbell, Pendelton, Gallatin, and Ohio observed no change.[4]

Suburban growth is not a new phenomenon. For the last 50 years, growth has moved outward from the central core and older neighboring communities to further out suburbs. The outward growth trend to adjacent counties started to occur with some significance in the 1980s. The result is that once rural areas within the CMSA, but outside of Hamilton County, are now home to thousands of people, dozens of office parks, manufacturing facilities, and commercial centers. These places have drawn large capital investments and real estate developments along with population and economic growth away from Hamilton County.

At the same time, older developed areas in Hamilton County, including Cincinnati and its inner suburbs, have experienced varying degrees of decline and urban blight. Within the CMSA, rural areas also experience poverty and housing vacancies, but the dynamics are different as will be discussed subsequently.

The distribution of household poverty rates and housing vacancy rates in the CMSA illustrate the impacts of outward growth and disinvestment. In the urbanized areas, the City of Cincinnati and a few jurisdictions in Northern Kentucky exhibit higher rates of household poverty compared to the rest of

Figure 5
HOUSEHOLD POVERTY RATES FOR THE CINCINNATI METROPOLITAN REGION, 2000



Source: U.S. Census Bureau 2000, Hamilton County Regional Planning Commission,

the metropolitan region (see Figure 5). In these places, the rate of household poverty exceeds the regional average of 8.49 percent. The City of Cincinnati, part of Northern Kentucky, and a few urban areas within the I-275 beltway show higher housing vacancy rates exceeding the regional average of 5.4 percent (Figure 6).

A ring of growing communities outside the I-275 loop are attracting wealthy residents as can be seen by the much lower rates of poverty and housing vacancies for adjacent counties. It is also evident that the geographic distribution of housing vacancy rates and poverty rates matches distribution of the regional population growth. Most of the areas having higher population growth over the last ten years observed lower poverty rates and lower housing vacancies.

Beyond the beltway of prosperous communities are rural areas that have not benefited from the recent population growth and economic development in the metropolitan region. Although Figures 5 and 6 show high percentages of poverty and housing vacancy for these areas, it should be noted the actual numbers are quite small as they are lightly populated. However, many of these older settlements and communities have a long history of poverty. While opportunities are more limited in these rural areas, suburbanization is moving out towards them.

Outward growth is by no

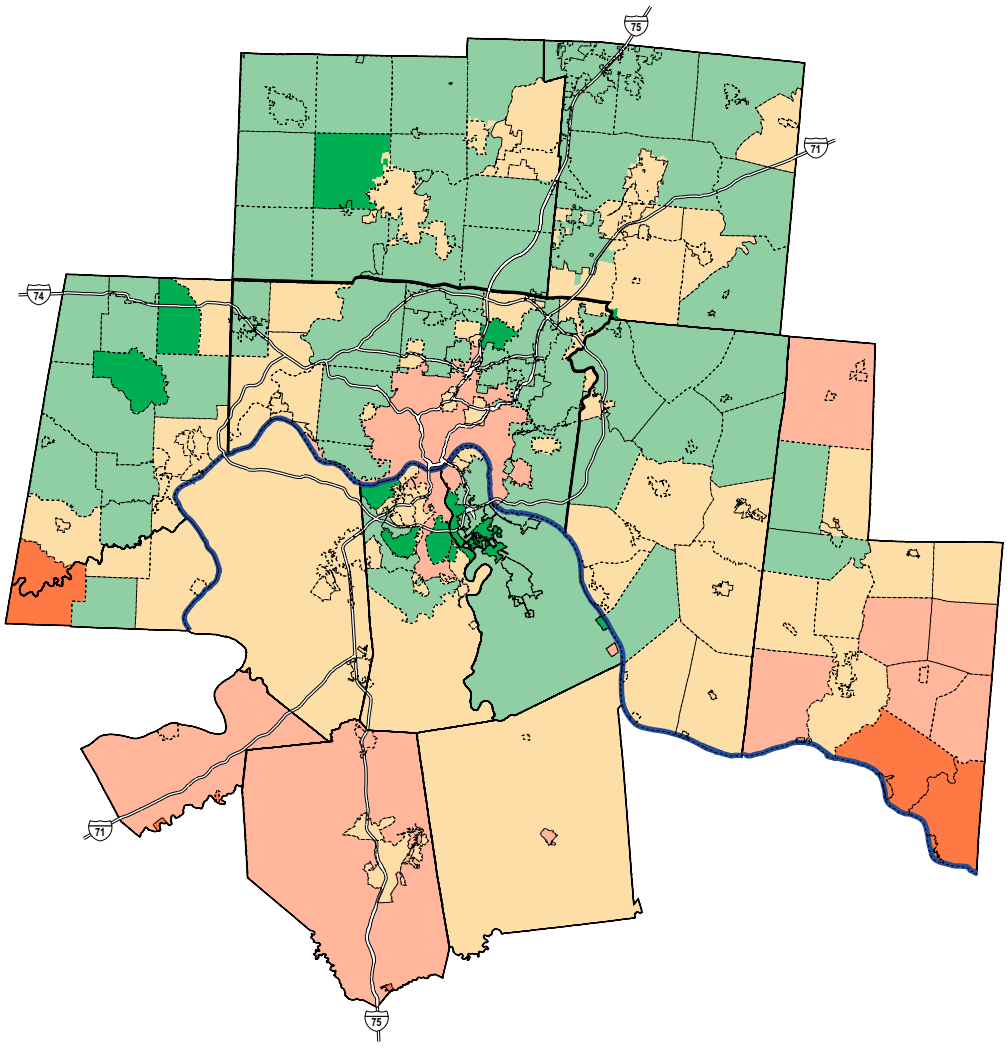


Figure 6
HOUSING VACANCY RATES FOR THE CINCINNATI METROPOLITAN REGION, 2000

0 - 2.49%
2.5 - 4.99 %
5 - 9.99%
10 - 14.99%
15 - 35%

Source: U.S. Census Bureau 2000, Hamilton County Regional Planning Commission,

means unique to the Cincinnati region. Across the country, metropolitan areas face similar situations of developments spreading further and further outward, while core areas including the central city and central county experience loss of population and investments. According to a Federal Highway Administration study in 2000, most of the population growth in the major metropolitan areas has occurred in the suburban counties.[5]

However, what makes this region comparable to metropolitan areas of Pittsburgh, Cleveland, and St. Louis, is the degree by which outward growth is linked to the core area's loss in population and businesses (Figure 7). During the last four decades, central counties in these metropolitan regions lost their shares in total metropolitan population dramatically. *Cincinnati Metropatterns*, a report prepared by the Metropolitan Area Research Corporation (MARC) in 2001, identified Cincinnati as one of the most polarized regions in the country in terms of race and economy. This means that population in this region is more segregated geographically by income and race than in other metropolitan regions. With the growing suburban developments, the core area remained behind with declining tax bases, blight, higher concentrations of poverty, continuing population loss, and higher than average housing vacancy rates.

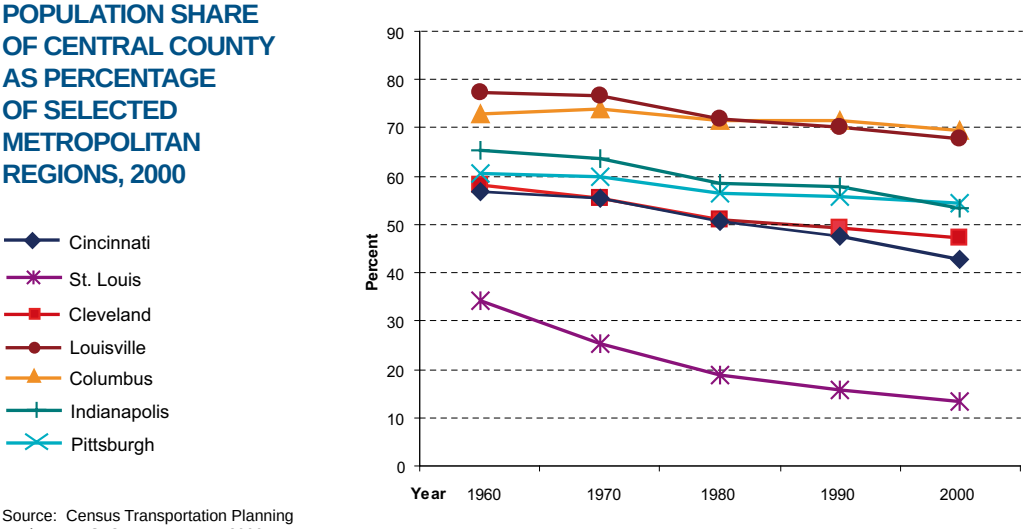
Why Is This Important?

Mobility and choice are hallmarks of modern American life. As outward expansion continues, it does provide a variety of options for housing, employment, shopping, schools, entertainment, sports, and worship. However, consequences of this type of urban expansion can lead to traffic congestion, environmental deterioration, fiscal imbalances, inadequate infrastructure, crowded schools, loss of open and green space, while in the older areas poverty and blight become even more concentrated.

In many ways, the flight of middle and high-income persons and jobs to the suburbs leaves the inner city job-poor and labor-rich. This "spatial mismatch" becomes a vicious cycle whereby inner city workers cannot access entry-level or low-skilled job openings in the suburbs due to inadequate public transportation, or high-skilled jobs in downtown due to lack of education. The central city and county lose tax base as well as employed residents.

Population and businesses moving outward at the expense of the central city and county also affect commuting patterns in the region. At present, commuting patterns for work are still predominantly towards the metropolitan core (central city and county). However, the outward movement of growth is bringing changes in these commuting patterns.

Figure 7
POPULATION SHARE OF CENTRAL COUNTY AS PERCENTAGE OF SELECTED METROPOLITAN REGIONS, 2000



Source: Census Transportation Planning Package, U.S. Census Bureau, 2000

Continued investments in suburban counties and lack of investments in the central county are apparent in concentrations of housing with physical problems; vacant retail, office, and industrial establishments; and brownfield sites. The 1998 American Housing Survey found that, out of seven counties[6] in the Cincinnati metropolitan region, Hamilton County had the highest concentration of housing units with moderate and severe physical problems, implying aging houses and lack of investments in the existing housing stock. The effects of commercial and industrial establishments moving out from Hamilton County lead to vacancies in downtown Cincinnati and abandoned properties, that become brownfields. Hamilton County hosts a number of brownfields which are abandoned, derelict, and in some cases contaminated sites.

Lack of new investments followed by degradation of properties and buildings leads to reduced property values and property tax revenues. A comparison of taxable values (35 percent of the total assessed values) across counties shows that Hamilton County had the lowest percent-growth in taxable values of residential, commercial, and industrial properties during 1994 to 2001 in comparison to Butler, Warren, and Clermont Counties (Figure 8). The higher growth rates in suburban counties suggest new investments and growing property values in their areas. However, the total tax collection in Hamilton County far exceeds the other three counties.

Not all is gloomy, though. Recently, Hamilton County experienced some redevelopment at higher densities and investments. Examples include "The Center of Cincinnati" development on an abandoned industrial site in Oakley and an upscale retail development on a similar site at Norwood. Such types of redevelopment generate activities and revenues, increasing property values in surrounding areas and attracting further investments. A new *Home Improvement Program*, which gives loans for home improvement to residents at lower than market rate, is ongoing to improve the existing housing stock.

Key Indicators:

- *Increase in housing units in Hamilton County (Figure 3)*
- *Increase in businesses and industries in Hamilton County (County Business Patterns and U.S. Census Bureau)*
- *Housing vacancy rates (Figure 6)*
- *Percent growth in taxable value of real property (Figure 8)*

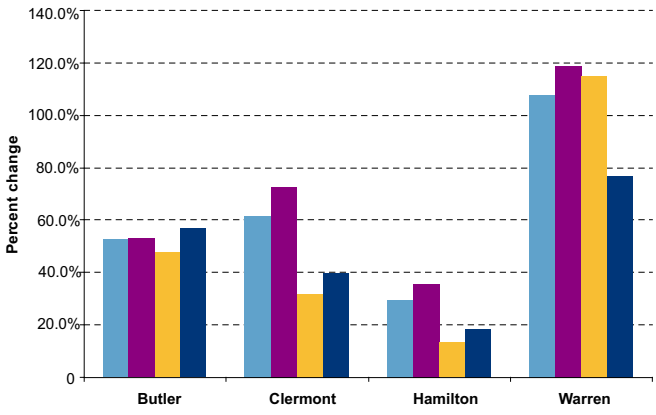


Figure 8
PERCENT GROWTH IN TAXABLE VALUE OF REAL PROPERTY IN OHIO COUNTIES, 1994-2001

Source: Ohio Department of Development, County Indicators Report[7]; Hamilton County Regional Planning Commission

Finding 2

LAND CONSUMPTION PER PERSON WITHIN HAMILTON COUNTY IS INCREASING AS HOUSING BUYERS CHOOSE LOW-DENSITY NEW DEVELOPMENTS OVER COMPACT OLDER COMMUNITIES.

Between 1986 and 1997, at least 75 percent of the population loss from Hamilton County was to the neighboring CMSA counties.[8] In addition, Hamilton County also lost some population to metropolitan areas in other states. As those population trends continue, development patterns are changing for the core area, the suburban and rural areas of Hamilton County, and the surrounding counties. New development in Hamilton County is more spread-out and homogeneous than the compact and diversified development patterns of earlier years.

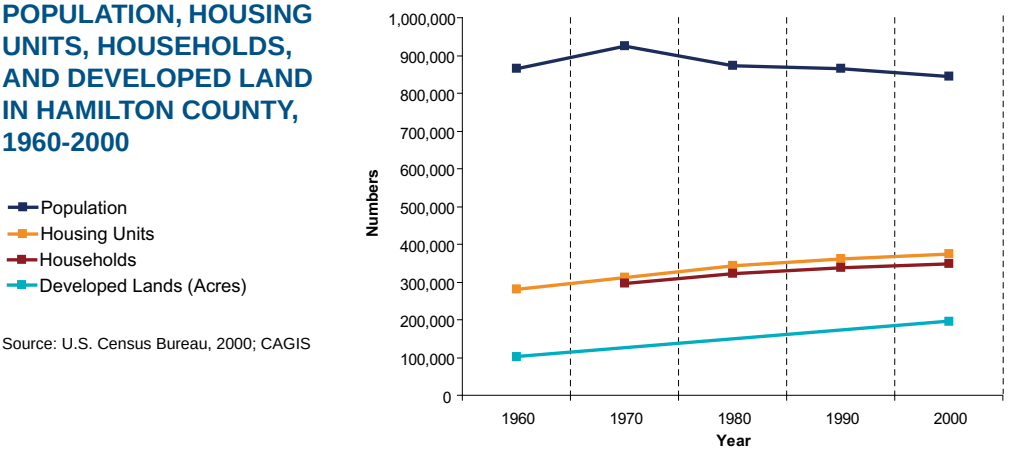
Despite decreasing population since the 1970s, Hamilton County has observed an increase in developed land (see Figure 9). Housing units and households continue to increase indicating demand for new residential developments. The increase in households is attributed to a decrease in the household size driven by trends of young professionals and singles establishing households earlier and marrying later, increasing divorce rate, and longer life span.

In addition to housing, other factors contributed to land development in Hamilton County. This includes the booming economy during the 1990s, low interest rates for home mortgages and development financing, the consumer's desire for newer and larger homes, permissive development regulations, and capital improvements supporting new growth.

The continued new developments and accompanying population losses within Hamilton County are resulting in a decrease in population in the core area and older communities, while there is an increase in population at the periphery[9]. As population densities decrease (persons per urbanized acre) in the central areas and increase at the outer areas, there is an evening out of densities. This move toward more uniform densities is one measure of sprawl[10]. Many metropolitan regions in the country are observing a similar type of de-centralization with an overall decrease in population densities. A comparison of population densities (see Figure 10) for seven metropolitan areas from 1982 to 1997 shows that densities have decreased for all of them with Cleveland, Cincinnati, Pittsburgh, and Louisville having decreases exceeding the Midwest average (-19.03 percent).

According to recent research, decreasing popula-

Figure 9
POPULATION, HOUSING UNITS, HOUSEHOLDS, AND DEVELOPED LAND IN HAMILTON COUNTY, 1960-2000



Source: U.S. Census Bureau, 2000; CAGIS

tion densities have adverse impacts on infrastructure developments and feasibility of transit. In a recently published report, *Measuring Sprawl and its Impact*, researchers identified that ideally a population density of 12,500 persons per square mile is required for cost-effective transit while a population density of 1,500 persons per square mile constitutes a low suburban density.[12] By this measure, population densities as measured by census tracts between 1990 and 2000 show that population living in transit-supportive densities decreased, whereas population living in low suburban densities marginally increased in Hamilton County (see Figure 11). Based on the current household size in Hamilton County, a tran-

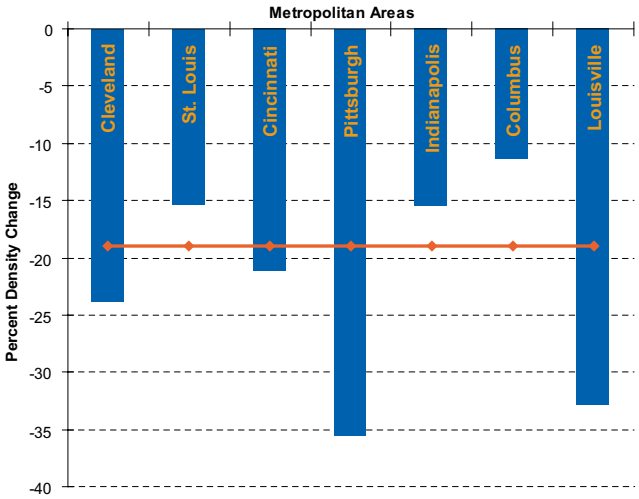


Figure 10
CHANGE IN POPULATION DENSITY FOR SELECTED METROPOLITAN REGIONS, 1982-1997

Note: negative values indicate decreasing population densities

Source: The Brookings Institution[11]

Year	Greater Than 12,000 Persons/Square Mile (Transit Supportive Density)	Less Than 1,500 Persons/Square Mile (Low Suburban Density)
1990	7.22%	13.88%
2000	3.29%	14.43%

Figure 11
CHANGES IN TRANSIT SUPPORTIVE AND LOW SUBURBAN DENSITIES IN HAMILTON COUNTY, 1990-2000

Note: Density calculation is based on census tracts

Source: U.S. Census Bureau, 1990 and 2000; Hamilton County Regional Planning Commission

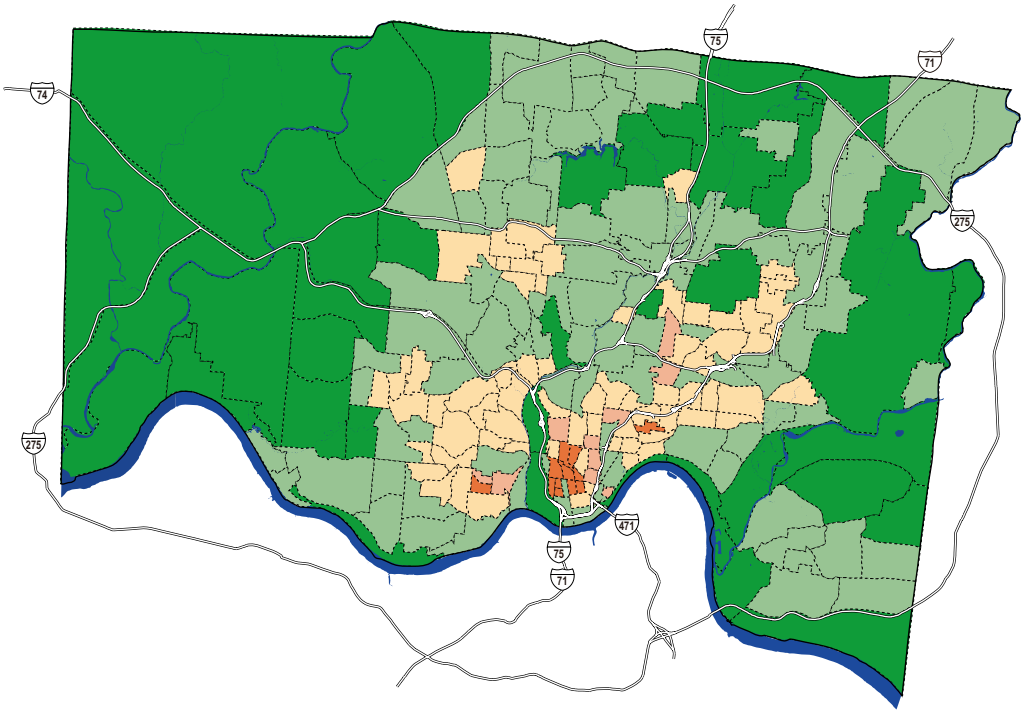


Figure 12
POPULATION DENSITY BY CENSUS TRACT, PERSON PER SQUARE MILE, 2000

Source: U.S. Census Bureau, 2000; Hamilton County Regional Planning Commission

sit-supportive population density is equivalent to 8.2 households per acre and suburban population density is equivalent to about one household per acre (Figure 12).

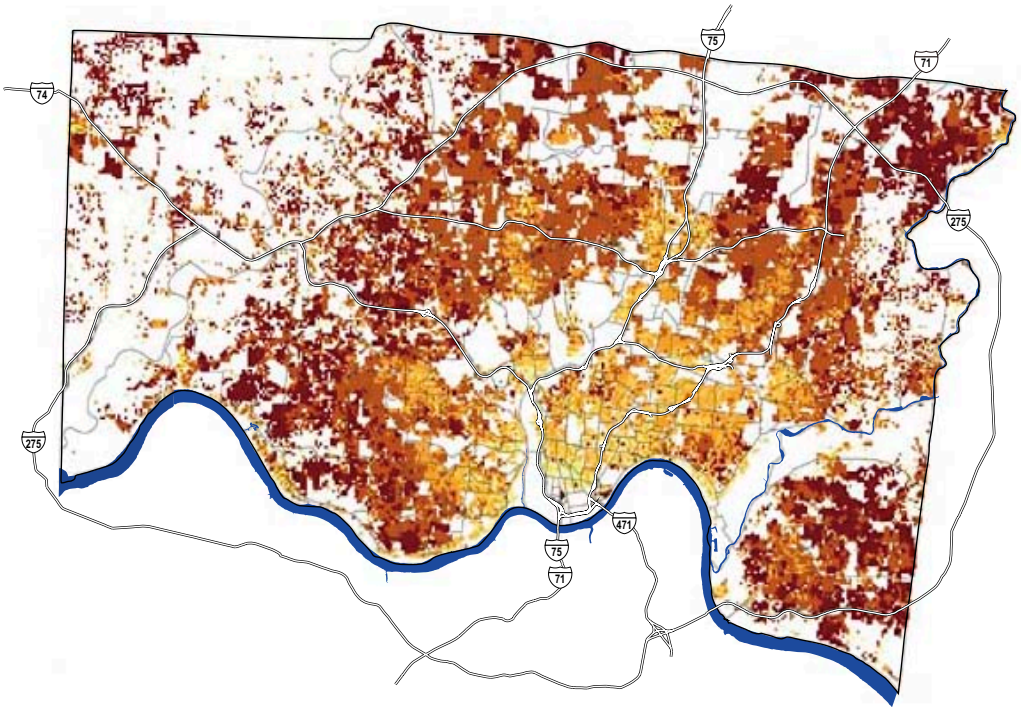
During the 1800s, residential developments in Hamilton County were concentrated around the urban core (Figures 13 and 14). By 2000, most of the developable areas within the I-275 beltway had developed and new development is spreading-out to almost every part of the County. At present, the bulk of undeveloped land remains in western Hamilton County, which is constrained by hills, valleys, rivers, and other natural features.

The dispersed and scattered pattern of development in Hamilton County during the first half of the 20th century was due in great part to development constraints such as steep hills and floodplains. The undulating topography dispersed the development while providing vistas and views. Hamilton County's topography is an asset in that the hillsides enable communities to avoid the appearance of sprawl.[13] However, as development continues and the demand for land rises, even remaining steep hillsides will be under risk of development.

Currently, new residential developments in Hamilton County are directed in part by the availability of infrastructure. The laying of roads and sewers open up undeveloped lots for new construction. The new residential development mainly consists of large-lot single-family housing generally at densities varying from 1 to 3 units per acre, and attached housing, condominiums, and landominiums varying from 5 to 11 units per acre. New single-family detached units are attracting families. This is especially true in the Three Rivers, Oak Hills, and Northwest school districts where there has been an influx of school-aged children. The strong market for condominiums and landominiums is being fueled by empty-nesters.

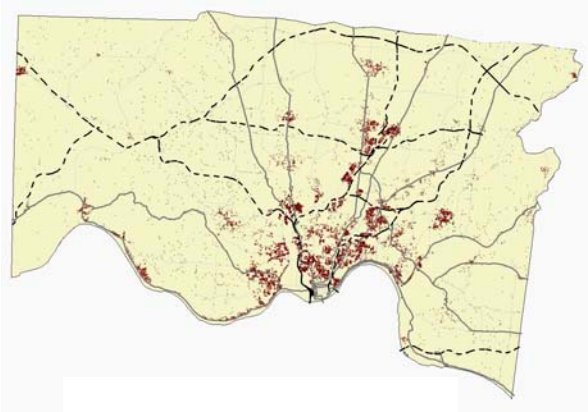
In the last four decades, developed land in Hamilton County almost doubled along with a corresponding decrease in vacant land. In fact, land development ex-

Figure 13
RESIDENTIAL GROWTH, 1800-2000

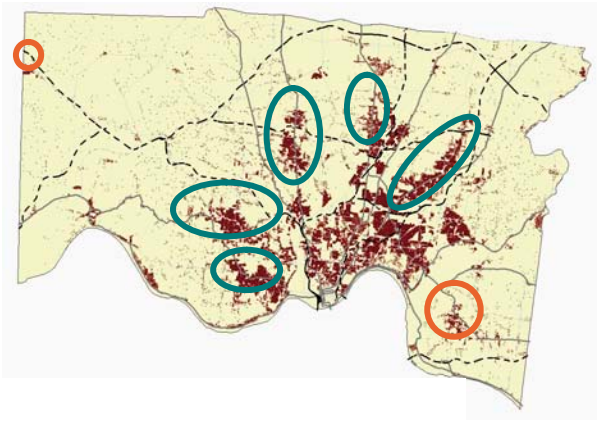


Source: Hamilton County Auditor's Database; Hamilton County Regional Planning Commission

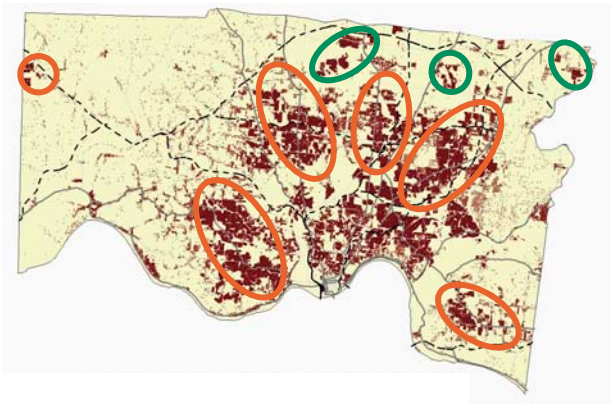
1900
Residential development limited to downtown



1940
Residential development in downtown core and City of Cincinnati



1960
Expansion of residential development on major road corridors



2000
Residential infill development between major road corridors

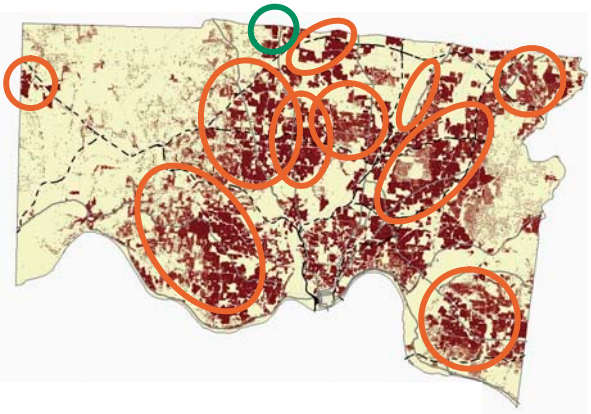


Figure 14
STAGES OF RESIDENTIAL DEVELOPMENT, 1900-2000

- Residential Development
- New Development Area
- Expanded Development Area

Note: The maps show pattern of residential development; one dot is one residential structure. *New Development* shows new residential development occurring during that year, *Expanded Development* shows growth of existing residential areas.

Source: Hamilton County's Auditor's Database; Hamilton County Regional Planning Commission

ceeded the forecast made in the 1964 Hamilton County Master Plan. Compared to the 1964 forecast of 86,000 acres of land development, approximately 93,760 acres were developed by 2000. Coupled with the population losses, this had the cumulative impact of reducing population densities. As Figure 15 shows, in 1960 for every 100 persons, an average of 11.8 acres of land were used for development. By 2000, 23.1 acres of land were consumed to accommodate 100 persons. When looking specifically at residential land consumption, 50 percent more land is used to accommodate 100 persons - 5.6 acres per 100 persons in 1960 to 11.89 acres in 2000. This reduction in residential gross density shows an increase in low intensity usage of land.[14]

Why Is This Important?

Contrary to earlier town planning experiments such as the Garden Cities concept (whose principles formed the basis for development of the Village of Greenhills in Hamilton County), new communities in suburbs developed as dispersed and automobile dependent rather than walkable and pedestrian friendly. The spreading out of development segregates residents and activities, increasing traveling and automobile dependency. This is causing an increase in vehicle miles traveled, vehicle hours traveled, congestion, wear and tear of roads, traffic accidents, and air emissions. Spread out development patterns also consume more open and green spaces compared to denser development patterns. Past studies have found low-density and spread out development patterns to be energy inefficient and costlier for transportation and other urban services. And as articulated earlier, public transportation such as transit requires population concentration at an optimum level for economical and efficient usage.

Infrastructure has a major role in any land development process. Farmland changes its state to developed land or subdivided lots through a series of transition events that include land sale, infrastructure provision, subdivision approval, and house construction.[15] However, some researchers argue that many times population and land development exceed the capacity of infrastructure thereby creating problems such as traffic congestion and under-capacity of sewer services. In many cases, problems arise because of the mismatch between capacity of infrastructure and the population growth.

Studies on land use and cost of utilities show an inverse relationship between densities of development and cost of services and infrastructure. A recent study by the Metropolitan Area Research Corporation (MARC) concludes that low-density development can increase the cost for providing public services such as transportation, schools, police, and fire protection.[16] Similarly, a study by the Natural Resources Defense Council (NRDC) finds that operation and maintenance costs of infrastructure, such as water and wastewater, increase significantly as the density of development decreases.[17] In any urban land use distribution, residential land use usually comprises 35 percent to 39 percent of the land.[18] When a large proportion of residential growth is of a low-density nature, then overall costs of development increase due

Figure 15
CHANGE IN DEVELOPED, VACANT, AND RESIDENTIAL LAND IN HAMILTON COUNTY, 1960-2000

Source: 1964 Hamilton County Master Plan; CAGIS, Hamilton County Regional Planning Commission

Variables	1960	2000	Percent change 1960-2000
Total Vacant Land in Square Miles	248.3	86.00	-65.40%
Total Developed Land in Square Miles	159.1	305.60	92.10%
Developed Land in Acres/100 Persons	11.8	23.10	96.40%
Residential Land Use in Acres/100 Persons	5.6	11.89	112.32%
Residential Gross Density in Persons/Acre	18.0	8.41	-53.27%

to construction of utilities, operation and maintenance costs, and upgrading of the existing infrastructure.

Another important issue is who actually pays the higher costs for infrastructure and services. In the absence of cost recovery tools such as impact fees, infrastructure development costs are distributed in part over the whole population. Hence, older communities in Hamilton County not only lose population and tax base, but also share in paying the costs of new developments occurring at the periphery of the County.

Key Indicators:

- *Percent of population in transit supportive densities (Figure 11)*
- *Residential land use in acres per 100 persons (Figure 15)*

Finding 3

GROWTH CENTERS AND INTERSTATES ARE SHAPING COMMERCIAL AND INDUSTRIAL DEVELOPMENT PATTERNS IN HAMILTON COUNTY AND THE CINCINNATI METROPOLITAN REGION.

As population moves beyond Hamilton County into rural areas and farmlands, commercial and industrial growth follows. Among the reasons for outward movement are accessibility to freeways, tax subsidies offered by competing communities, cheaper and more plentiful land, and proximity to transportation facilities such as the Greater Cincinnati Northern Kentucky International Airport. With this outward movement, the Cincinnati metropolitan region is becoming a "polycentric region" with many dominant residential and employment centers.

Over the past few decades, new areas of growth have emerged along the I-275 beltway and Interstates I-71 and I-75. Commonly known as growth centers[19], these areas have developed mainly due to relocation of or new development of large retail, office, and industrial centers; transportation facilities such as the international airport; or growth of the existing suburban residential areas.

Researchers have identified these rapidly growing growth centers in suburban communities by different names such as "Edge Cities", "Metrotowns", and "Boomburbs."[20] They are determining in large part, the future course of land development in metropolitan regions. Locations that could qualify as growth centers in the region are Tri-County, Eastgate in Clermont County, Union Centre in Butler County, the Fields Ertel area in Hamilton and Warren Counties, Florence in Boone County, and the area around the international airport in Northern Kentucky. In many cases, these growth centers provide urban functions and services of higher order and have characteristics similar on a smaller scale to urban centers. Many urban activities and facilities previously available only in the core area of a metropolitan region are now available in these growth centers.

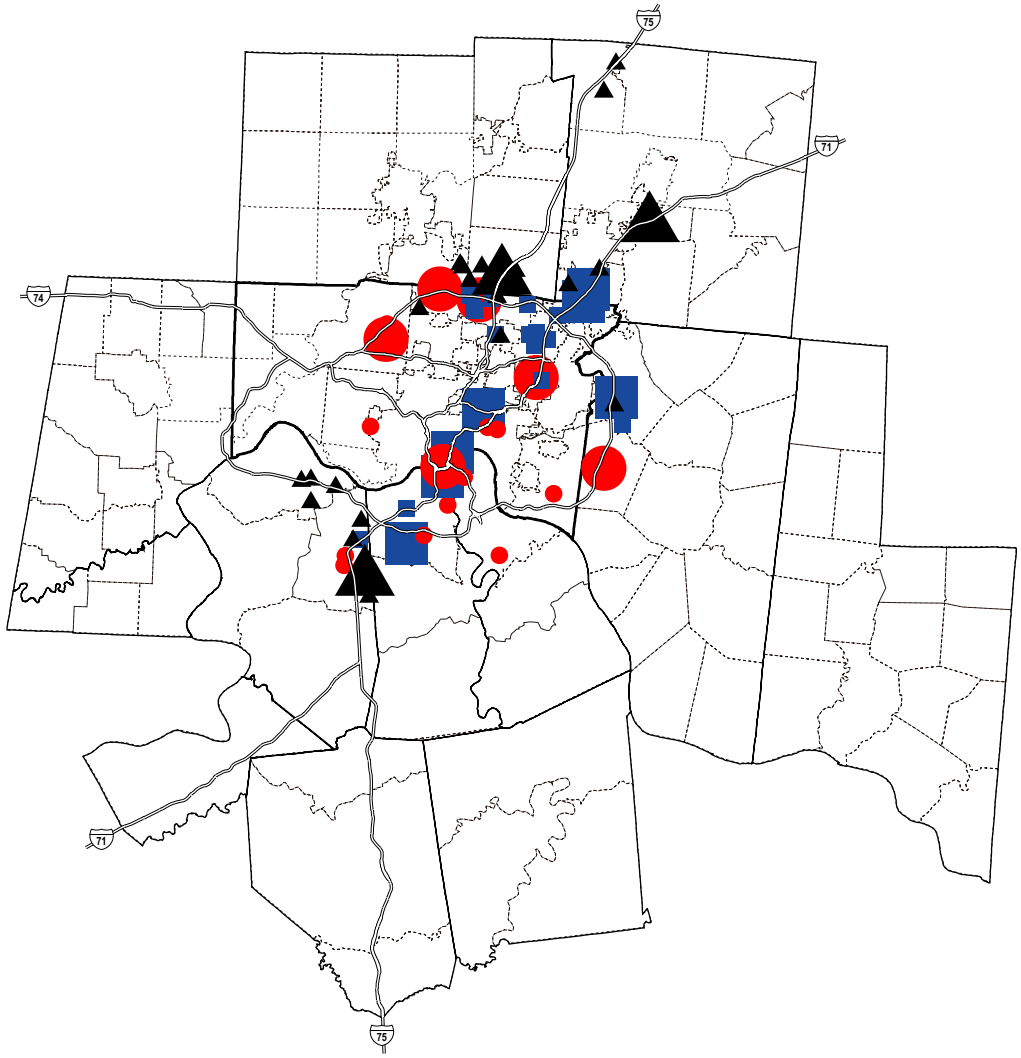
Figure 16 shows locations of the largest retail and office developments, as well as industrial parks in the metropolitan region. Major retail centers are located along the beltway, making them easily accessible from the urban core as well as suburban areas. Major of-

fice centers are primarily located along the I-71 corridor. As can be seen, major and medium size industrial parks are located along the I-75 corridor to the north and south of Hamilton County.

Interstate interchanges often become development magnets that attract shopping, office, and residential developments. A new interchange in 1997 for I-75 in Butler County, two miles north of I-275, became the catalyst for the 2,000 acre master planned Union Centre Boulevard site. From farmland less than a decade ago, this area in West Chester Township is under construction for several million square feet of mixed uses including a specially zoned "central business district."[22]

While commercial growth is moving outward, Hamilton County as the central county is experiencing changing types and scales of retail, office, and industrial development. Retail development in Hamilton County includes neighborhood centers serving residential communities; community centers serving many neighborhoods; downtown Cincinnati drawing consumers from the central city and suburbs; and big-box stores and malls drawing shoppers from all over the metropolitan region. New types of shopping centers and malls known as "lifestyle centers," "power centers," and "power towns" have recently become trendy

Figure 16
LARGEST MALLS, OFFICES, AND INDUSTRIAL LOCATIONS FOR THE CINCINNATI METROPOLITAN REGION, 2002



Source: Buisiness Courier, Winter 2002[21]

in metropolitan areas. Offering fine dining, upscale stores, and outdoor entertainment at one place, they are regional attractions. Very successful examples are Rookwood Commons and Rookwood Pavilion in the City of Norwood and Newport on the Levee, both of which have been catalysts for nearby revitalization.

Similar to retail, office development has different classifications. The Urban Land Institute defines Class A office buildings as those in excellent locations with high quality tenants, high rents, and professional maintenance. Class B spaces have good locations, good tenants, and good maintenance and management. Class C spaces are less desirable as they are typically more than a decade old and have the lowest rents. Important office centers in the Cincinnati metro region include downtown Cincinnati, Blue Ash, Union Centre in Butler County, Mason in Warren County, and Northern Kentucky. Although considerable office space is now located in the suburbs, downtown Cincinnati remains one of the largest markets for Class A office space in the region.

In the Cincinnati region, industrial uses are grouped into industrial parks as well as located in small and medium independent manufacturing facilities. Industrial parks vary from hundreds to thousands of acres depending on the demand and availability of land. Usually, industrial use requires large lots with an average size of 10 acres as suggested in *Planning Design Criteria*.[23] Northern Kentucky Industrial Park, with 1,336 acres, is the largest industrial park in the Cincinnati region according to the Cincinnati Business Courier.

Some of the new suburban retail, office centers, and industries drew residential developments to nearby areas, developing into large communities. In other cases office, retail, and industrial developments located in suburban communities grew to accommodate the growing residential developments. These full-grown suburban communities now are almost self-sufficient providing housing, jobs, entertainment, and open spaces at nearby locations.

The emerging patterns of retail, office, and industrial developments in the Cincinnati metropolitan region have had impacts at the local level (Figure 17). As mentioned earlier, once favorite locations for businesses - downtown Cincinnati, its neighborhood business districts, and retail centers of "first ring suburbs" - are losing customers to the new suburban malls, strip centers, and shopping centers.

With the decreasing population in Hamilton County, changing consumer preferences, and increasing number of shopping facilities, shopping centers have more competition and require a larger retail trade area. However, according to the International Council of Shopping Centers, on a national scale, shopping centers and leasable retail areas increased with a consistent growth rate of more than one to five percent per year, since the late 1990s. Similarly, consumers' shopping expenditures have also grown at the same time. In spite of increases in total retail sales, not all benefits accrue to the local retailers. Big-boxes, large discount retailers, and chain stores usually compete with the local retail outlets drawing a large share of consumer's shopping expenditures, often causing closure of small retail businesses.

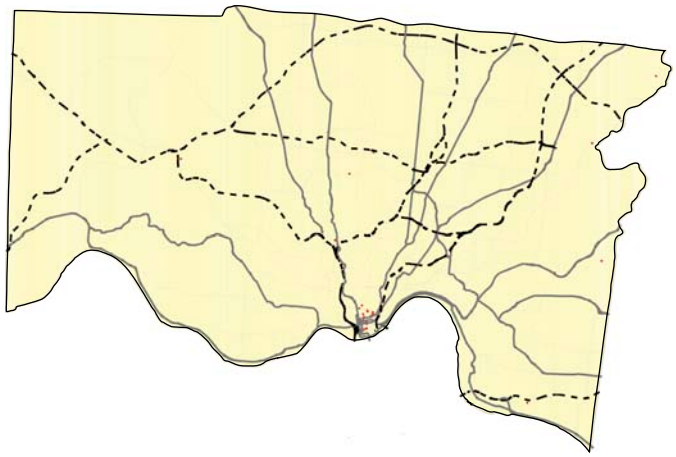
Recent comparative studies of chain retail and local stores show that consumer dollars spent on local stores have greater local economic impact than the chain retail businesses. For example, a comparative study between a chain and a local store in Austin, Texas found that for every $100 spent, local economic impacts generated by the chain store was $13 and was $45 for the local store.[24]

Figure 17

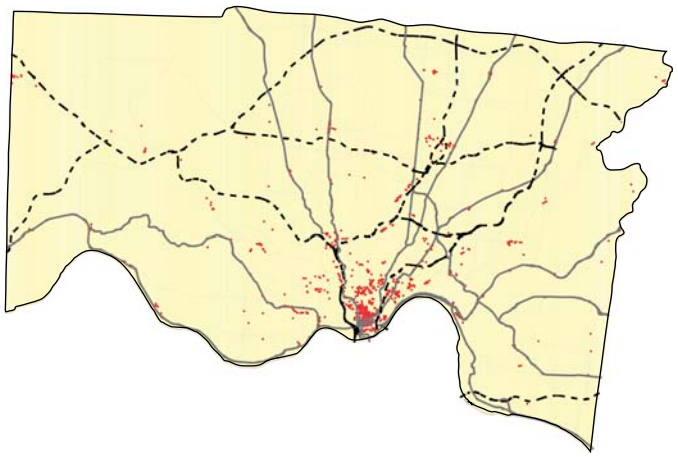
STAGES OF COMMERCIAL DEVELOPMENT (OFFICE AND RETAIL), 1850-2000

Note 1: The maps are indicative only, showing the pattern of commercial development; one dot represents one commercial structure that may have more than one commercial establishment
Note 2: Dashed lines indicate current locations of major highways.

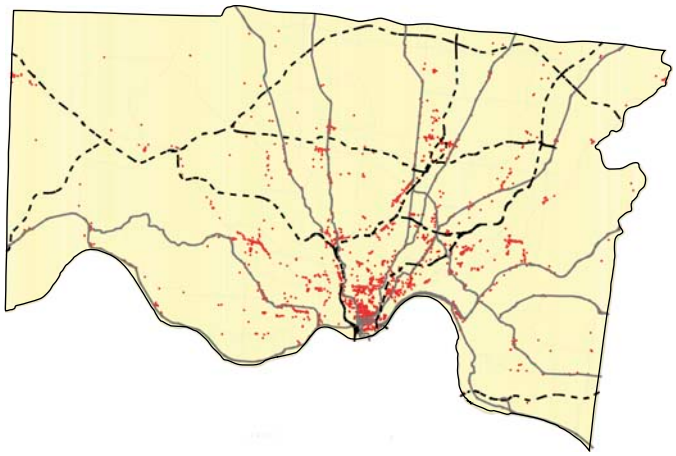
Source: Hamilton County Auditor's Database, Hamilton County regional Planning Commission



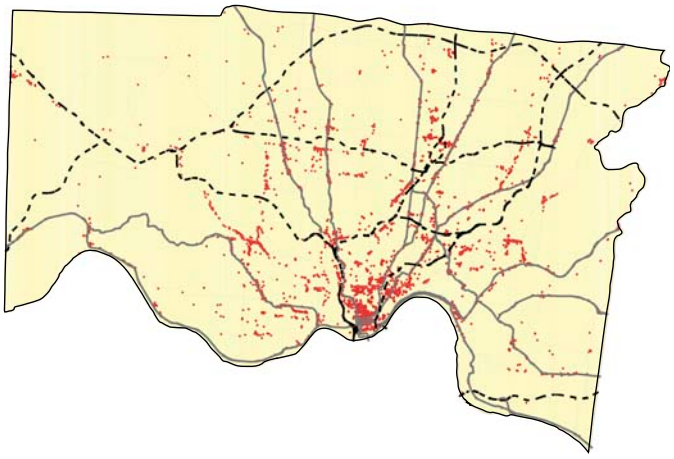
1850
Commercial areas located in the downtown or the urban core



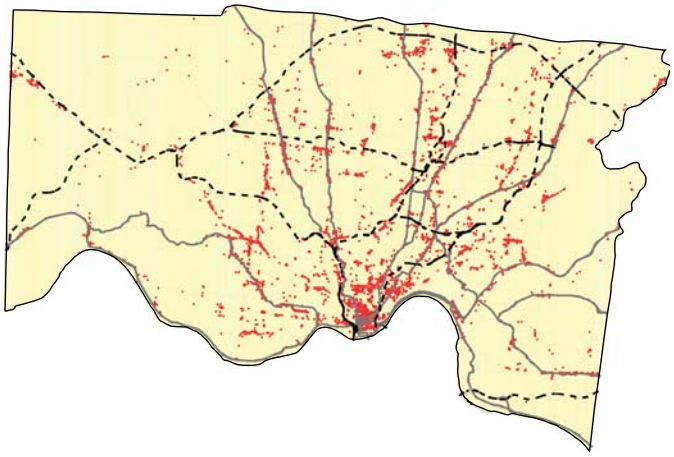
1900
More commercial development in downtown and spreading to the north; small neighborhood centers at road intersections



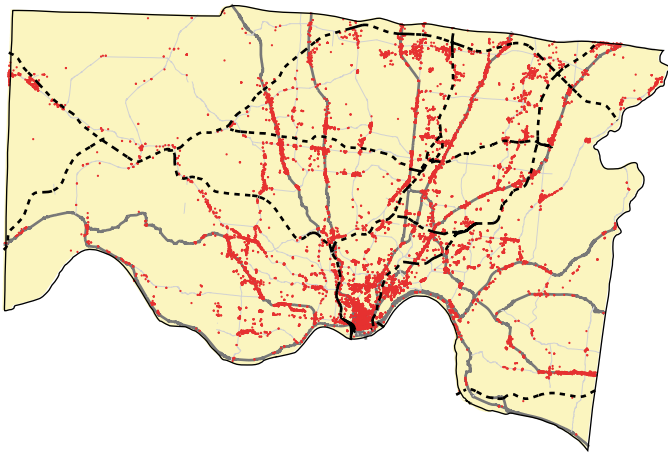
1940
More establishments in downtown and to the north of downtown, linear development along secondary roads, new development on road intersections, existing neighborhood centers expanded



1960
Further growth of Downtown area, intensive linear development along major roads and more commercial establishments near road intersections



1980
Intensive linear commercial development along major roads following residential development, growth of existing commercial centers, and development of commercial centers along interchanges of the beltway and interstates



2000
The trend continues from previous decades with further growth along interchanges of beltway and interstates and development of new centers in outlying residential areas

In spite of continued commercial land development in Hamilton County, data on per capita commercial land use and ongoing vacancy rates indicate that the County has more than what is considered adequate commercial development as per planning standards.[25] Figure 18 shows retail (see note for Figure 18) and industrial land uses in acres per 100 persons in 1960 and 2000 estimated using available data[26], and adjusted for suitable comparisons. Between 1960 and 2000 the amount of retail and industrial land uses in acres per 100 persons increased by 150 and 45 percent respectively. The large retail growth can be attributed to recent trends of booming commercial real estate in a prosperous economy, the popularity of big boxes, and mall developments. As estimated in the *1964 Plan*, Hamilton County experienced development of an additional 5,000 acres for commercial uses from 1960 making a total of about 8,446 acres in 2000. However, population growth did not follow the *1964 Plan's* forecast of continued increase.

Based on available standards for shopping centers, approximately 2,100 acres of retail for neighborhood, community, and regional shopping centers would serve the needs of Hamilton County's population of 845,303.[28] However, Hamilton County has about 3,035 acres of land area in retail based on an estimate of Cincinnati Area Geographic Information System (CAGIS) data.[29] Although part of this retail area serves the entire metropolitan region, and recent shopping centers and malls use more land than older style establishments, the overbuilding of retail results in vacancies, abandonment, and frequent closures of establishments.

Several realtors in the region confirm that not only retail but office and industrial vacancy rates also increased over the past few years. Vacancy for the metro region stands at 12.8 percent for retail, 16.5 percent for office, and 31.3 percent for industrial.[30] To give some context, the Columbus region has vacancy rates of 14.2 percent for retail, 19.1 percent for office, and 26.8 percent for industry.

Why Is This Important?

Growth centers have the potential for developing into full-fledged, serviced communities nearly independent from the urban core. According to author Joel Gaurreau, these new frontiers or "edge cities" are the places where most Americans work and around which most of them live. Almost two-thirds of all American office spaces are in these centers.[31] In the beginning of the suburbanization era, assumptions were that growth of sub-

Figure 18
RETAIL AND INDUSTRIAL LAND USE CHANGE IN HAMILTON COUNTY, 1960-2000

Land Use	1960	2000	Percent change 1960-2000
Retail	0.4 acres/ 100 persons	1.00 acres/ 100 persons	150.68%
Industrial	1.1 acres/ 100 persons	1.60 acres/ 100 persons	45.04%

Note: The 1960 data grouped together retail and offices, but offices at that time were predominantly in the urban core or as mixed use in neighborhood business districts. The 2000 data does not include offices since the more recent pattern of large-scale suburban office parks would skew the comparison. However, included in the 2000 numbers is the "mixed use" category which contains smaller-scale offices in neighborhood business districts

Source: 1964 Hamilton County Master Plan; CAGIS[27]

urban communities with jobs, housing, and urban amenities at one location would reduce unemployment and travel for work, as people would stay and work at nearby locations. However, even though people live in "edge cities" or growth centers, they do not necessarily work or shop within that particular community. In the Cincinnati metropolitan region, these centers have developed in part because of the flight of population and employment from the central city and county. This has the effect of *spatial mismatch* for housing and jobs as discussed earlier in this report.

Commercial and industrial land uses generate different types of trips (e.g., work, shopping, and entertainment) that result in considerable back and forth traffic within the region. The suburban retail and office centers accessed by I-71 and I-75 cause an inter-mixing of local residents, local goods delivery, and pass-through traffic. A recent study on mobility by the Hamilton County Regional Planning Commission finds that the biggest increases of traffic over the last two decades has been on the interstates. Congestion has increased from two hours stuck in traffic per person in 1982 to 20 hours in 2001. Not only is this a loss of time for drivers, but the economic impact to the region for 2000 is estimated at $550 million.[32]

Suburban commercial and industrial developments also have affected commuting patterns in the region as suburb-to-suburb work trips are increasingly forming a significant part of the total jobs related trips in the region. For the eight county OKI region, county to county commuting increased from 34 percent in 1990 to 41 percent in 2000. Commuting from outside Hamilton County into Hamilton County decreased from 62 percent in 1990 to 55 percent in 2000.

Various studies have uncovered that movement of businesses from the central county to suburbs does not provide much real economic gain to the region. Research on the costs and benefits of a firm relocating from the central county to the suburbs found that after considering costs of increased unemployment and abandoned properties in the central county, and increased travel, accidents, pollution, and loss of open space in suburban counties, benefits only partially offset actual costs.[33] This current trend of offices and industries moving out from the core area can be viewed as a net loss to the central county if not the entire region.

Key Indicators:

- *Vehicle miles traveled and vehicle hours traveled (Texas Transportation Institute for the CMSA)*
- *Vacancy rates of retail, office, and industrial spaces (realtor websites for the CMSA)*
- *Retail and industrial land uses in acres per 100 persons (Figure 18)*

Finding 4

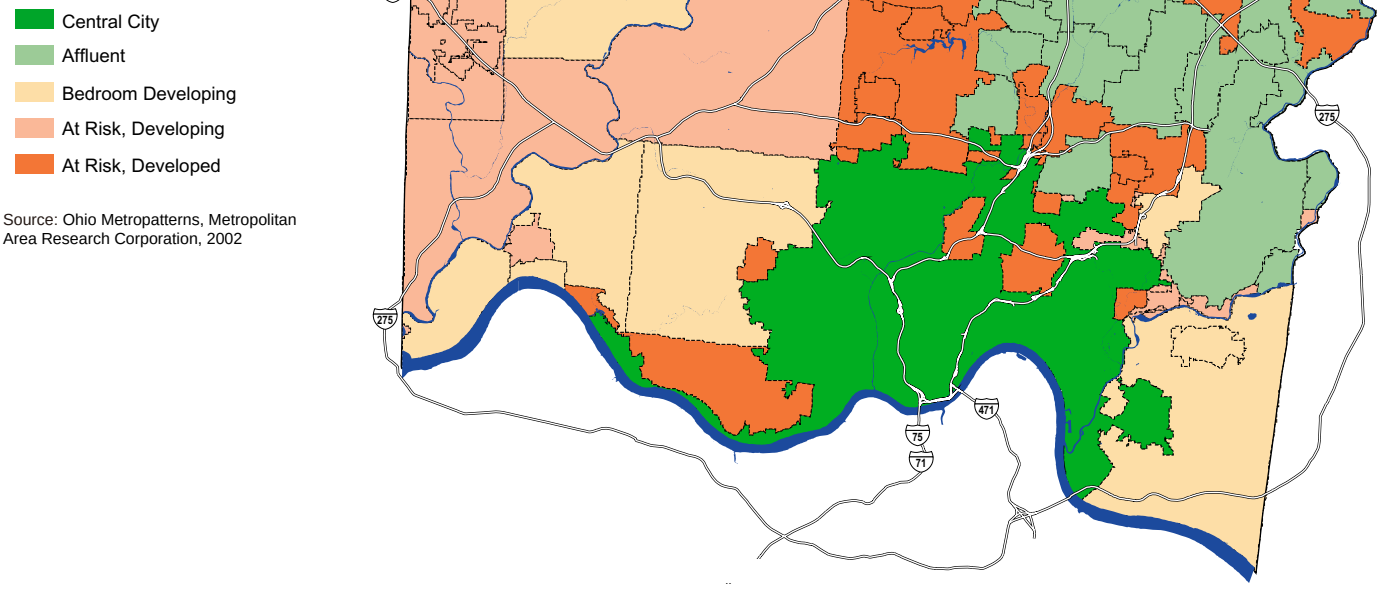
AS GROWTH MOVES OUTWARD, FISCAL CAPACITY OF OLDER COMMUNITIES IN HAMILTON COUNTY IS IMPACTED.

The current patterns of outward growth, disinvestment in older communities, and competition for tax dollars provide economic challenges for many Hamilton County communities. Compared to the beginning of the 20th century, people now shop and recreate in suburban communities, thereby generating revenues for those communities. The existing taxation system in Ohio is not designed to mitigate the impacts of these changing economies and commuting patterns in metropolitan regions. In the absence of any tax-sharing program or incentives for redevelopment and infill, older communities often become fiscally constrained or do not generate necessary revenues to cover costs of community services.

These older communities, often termed "first suburbs," are built out, have older homes, aging infrastructure, face shrinking tax bases, have reduced housing demand, vacant retail, abandoned real estate, and concentrations of low- to moderate-income households. Moreover, recent research including a study of "first suburbs" in the Midwest by the Brookings Institute emphasizes that adequate policies and programs at the federal and state level are not available for these communities. They are not poor enough to qualify for many federal and state reinvestment programs and are not large enough to receive federal and state funds directly.[34] Such studies assessing fiscal capacity of communities have utilized indicators such as taxable value of real property, total tax capacity per household, land available for new development, etc.

Using a variety of social, fiscal, and physical characteristics, the Metropolitan Area Research Corporation (MARC) in 2002

Figure 19
COMMUNITY CLASSIFICATION



Source: Ohio Metropatterns, Metropolitan Area Research Corporation, 2002

developed a classification for Ohio communities in their *Ohio Metropatterns* report.[35] Figure 19 shows the classifications for Hamilton County in four categories: *Affluent, Bedroom-Developing, At Risk-Developing,* and *At Risk-Developed.* Many of those communities falling into the *At Risk-Developed* category are "first suburb" communities who experience problems similar to the central city. They typically have slow-growing tax bases. *At-Risk Developing* communities are doing better in terms of tax base and growth of population. However, as new growth continues, they will become increasingly challenged to cover the costs of that growth. The *Bedroom-Developing* communities are low-density, middle class, fast growing places, whereas *Affluent* communities have a high tax base, better public services, and less affordable housing. Hamilton County shows a combination of all types of communities indicating inequality as well as a diversity of communities in the County.

Similarly, an earlier study by MARC - *Cincinnati Metropatterns* - classified communities in the Cincinnati metropolitan region based on fiscal capacity, which included total tax capacity per household, property tax base per household, and school district resources.[36] The majority of incorporated areas with higher tax per household than the regional average, such as Indian Hill and Blue Ash, are located to the northeast of the City of Cincinnati. Many "first suburb" areas including Cheviot, Mount Healthy, North College Hill, and Reading showed a lower tax capacity than the regional average. In general, central city and older suburbs showed a lower fiscal capacity than the new fast growing suburbs. This study found the Cincinnati region to be 24th out of the 25 largest metropolitan areas showing a high degree of inequality in total tax capacities of the communities.[37]

Why Is This Important?

A recently published study, *Halfway to Everywhere: A Portrait of America's First Tier Suburbs* cites that first suburbs typically make up roughly 25 percent of a metropolitan region's land area and population.[38] They consist of a variety of

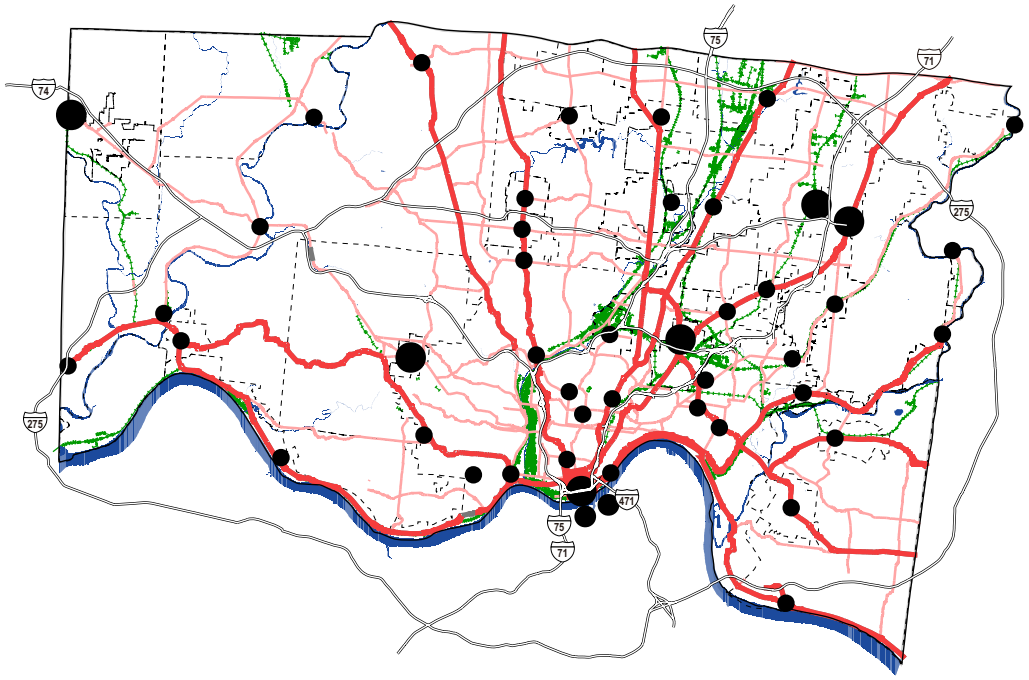


Figure 20
TRADITIONAL TOWN CENTERS

Traditional Center
US and State Routes
Arterial Road
Rail Road

Source: Michael Gallis and Associates prepared for Hamilton County Regional Planning Commission, 2000

communities with different demographic and economic profiles who face different kinds of problems, making it difficult to have a single solution. The study finds that in general, most of these communities are deteriorating. It will require considerable resources to reverse their conditions, especially if they become similar to inner city neighborhoods.

On the positive side, "first suburbs" have many unique advantages such as their strategic location between the central city and the fringe. They usually have qualities of traditional neighborhoods like town centers, grid street systems, sidewalks, human scale built form, social networks, architectural heritage, and a sense of place. *New Urbanism*, a current planning and design movement, calls for similar qualities in neighborhood design for new communities. In this regard, Hamilton County has a variety of early settlements that provide the kind of atmosphere that *New Urbanism* proposes. Having retained their distinct built forms and character of development many early settlements formed the core for surrounding developments. These traditional town centers are a valuable feature of many Hamilton County communities (Figure 20).

The current patterns of growth do not seem to sustain the fiscal health of either older communities or newer suburban developments. Many high growth outlying communities are finding it challenging to keep pace with the demand for public services such as schools and road maintenance. Generally, residential land uses pay one-quarter to one-half the cost of the services a community provides to them. Nonresidential uses such as commercial pay two to five times the cost of public services.[39] In order to pay the rising costs of services, many jurisdictions compete among themselves to attract businesses by offering tax abatement incentives along with other lures. Such competition among local communities hinders our ability to work together as one region in the regional, national, and global economy.

Key Indicators:

- *Total taxable value of real property per capita (Ohio Department of Development, 2001- $17,241 per capita)*
- *Percent change in assessed value of property (Hamilton County Auditor for county jurisdictions, 1992-2002, 66 percent increase)*
- *Number of at-risk developed and at-risk developing communities in Hamilton County (Figure 19)*

Finding 5

ALTHOUGH TOTAL DEVELOPED LAND IN HAMILTON COUNTY ALMOST DOUBLED SINCE 1960, INDUSTRIAL AREAS HAVE REMAINED ALMOST THE SAME, AND FORESTS, CROPLAND, AND PASTURES CONTINUE TO DECREASE.

The total developed land in Hamilton County almost doubled in acreage from 1960 to 2000. Residential, commercial, and public and institutional land uses increased by almost the same proportions. Industries on the other hand increased by only 14 percent. This is likely attributable to the change from a manufacturing to service-based economy. With the increase in developed land, forests, cropland, and pastures have continued to decrease.

Land cover and land use generally show the state, activity, and characteristics of development on a land parcel. Land covers consist of natural and man-made features and are usually derived from remote sensing data or satellite imageries. The common land cover classifications are agricultural land, barren land, pastures, forests, wetlands, water, and built-up land comprised of buildings and pavements. Land use is a term used for describing activities taking place on a particular piece of land. A piece of land has residential land use if it has homes, or commercial use if it has a shopping center.

The activities taking place on a piece of land are regulated by zoning in all Hamilton County communities except for Whitewater Township.

An analysis of land cover compiled by the Ohio State University shows that total urban land in Hamilton County increased by 11.6 percent between 1982 and 1997, while forests, cropland, and pastures decreased by 18.6 percent, 32 percent, and 47.2 percent respectively (Figure 21). The trend shows that total urban land is increasing, whereas forestland, cropland, and pastures are decreasing. Derived from remote sensing data, this land cover classification does not include federal land within the County.

Compared to land cover, land use classification is an inventory of uses in developed and undeveloped land for taxation purposes and has a detailed classification of activities. In the case of developed or built-up land, Hamilton County observed a 90 percent increase in developed land between 1960 and 2000, bringing the total of developed land today to about 305 square miles (out of the 414 square miles in the County). However, despite such a large increase in developed land and accompanying growth in the economy, the proportion of residential, commercial, and public/institutional uses within the developed land changed only slightly. In comparison, the share of industrial land use decreased significantly. In other words, apart from

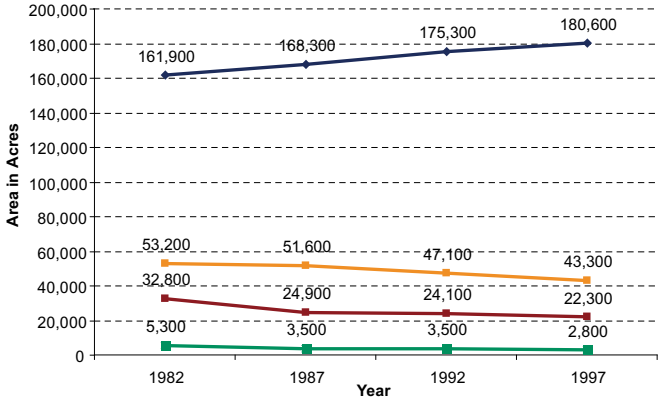


Figure 21
LAND COVER CHANGE IN HAMILTON COUNTY, 1982-1997

Source: The Exurban Change Project, Ohio State University[40]

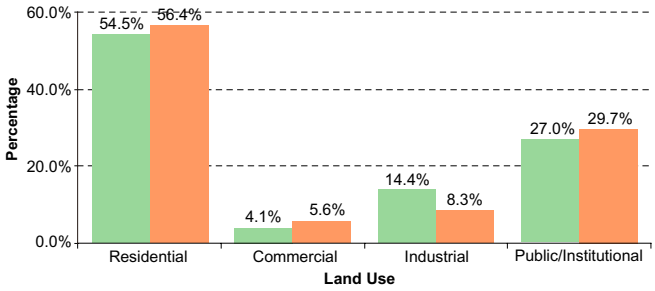
industrial land use, the proportion of land used for housing, shopping and office centers, and institutions within the developed land in the County remained almost the same even after 40 years (Figure 22).

The decrease in percentage of industrial land use is explained in part by the shift away from manufacturing to a more service based economy along with outward movement of several industries and warehouses from Hamilton County. Similarly, the slight increase in percentage of commercial land use is mainly due to large-scale malls and super centers.

Although Hamilton County is comprised of 49 political jurisdictions, the developed areas in most instances are connected and are part of one urban system. In total about 74 percent of the land in the County is developed. Similarly, the proportion of developed land for the remainder of the County, after removing Cincinnati, has remained almost the same. Research on urban land uses finds that such a high proportion of developed land is a typical characteristic in large cities exceeding 250,000 population.[41] Similarly, Hamilton County's land use distribution of 41 percent residential, 16 percent public services, 4 percent commercial, and 5 percent industrial is characteristic of land use distribution in large urban areas (Figure 23).

The existing land use classifications are derived from the available land use classifications in the Cincinnati Area Geographic Information System (Figures 24 and 25). Land use included under transportation infrastructure, such as roads and railroads, are part of other adjacent land uses.

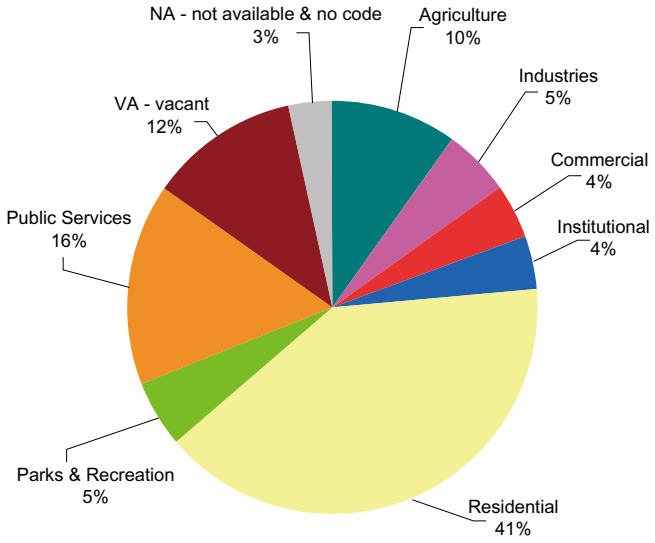
Figure 22
LAND USE DISTRIBUTION OF DEVELOPED LAND IN HAMILTON COUNTY, 1960 and 2000



Note: Land use distribution is for developed land only and does not include agriculture and vacant lands

Source: 1964 Hamilton County Master

Figure 23
LAND USE DISTRIBUTION IN HAMILTON COUNTY BY PERCENTAGE, 2000



Note: Land use distribution is for total geographical area

Figure 24
LAND USE DISTRIBUTION IN HAMILTON COUNTY BY ACRES, 2000

Land Use	Area in Acres
Agriculture	24,744
Industries	13,232
Commercial	10,968
Institutional	10,403
Residential	100,221
Parks and Recreation	12,821
Public Services	39,708
Vacant	30,226
Not available and no code	8,217
Total	250,537

Source: CAGIS, Hamilton County Regional Planning Commission

Why Is This Important?

With the exception of the western third of the County, most of the land has been

developed. The majority of remaining undeveloped land is not easy to develop due to constraints such as floodplains, slope, and soil conditions. In order to accommodate growth and at the same time preserve critical environmental features, higher intensity growth areas could be designated along with potential environmental protection areas. Otherwise, hillsides, riparian areas within floodplains, wildlife habitat, prime agricultural land, and forests may come under development pressures in the future.

Land development processes can cause loss of trees and green cover, fragmentation of wildlife habitats, degradation of air and water quality, and flooding if forests, croplands, and pastures are used excessively for development. The loss of wildlife and biodiversity in a place is primarily due to loss of wildlife habitats, trees, and forests. Similarly, an increase in storm water runoff in urban areas caused by paving and compaction of soils can result in flooding and pollution of water bodies. Land development without considering the environment and ecology of a place may result in loss of biodiversity, changes in ecology, and more pollution of water resources. Most of these environmental changes become largely irreversible, which means once changed, it will be extremely difficult and expensive to bring them back to their original state.

Key Indicators:

- *Land cover change (Figure 21)*
- *Land use distribution (Figures 23, 24, and 25)*

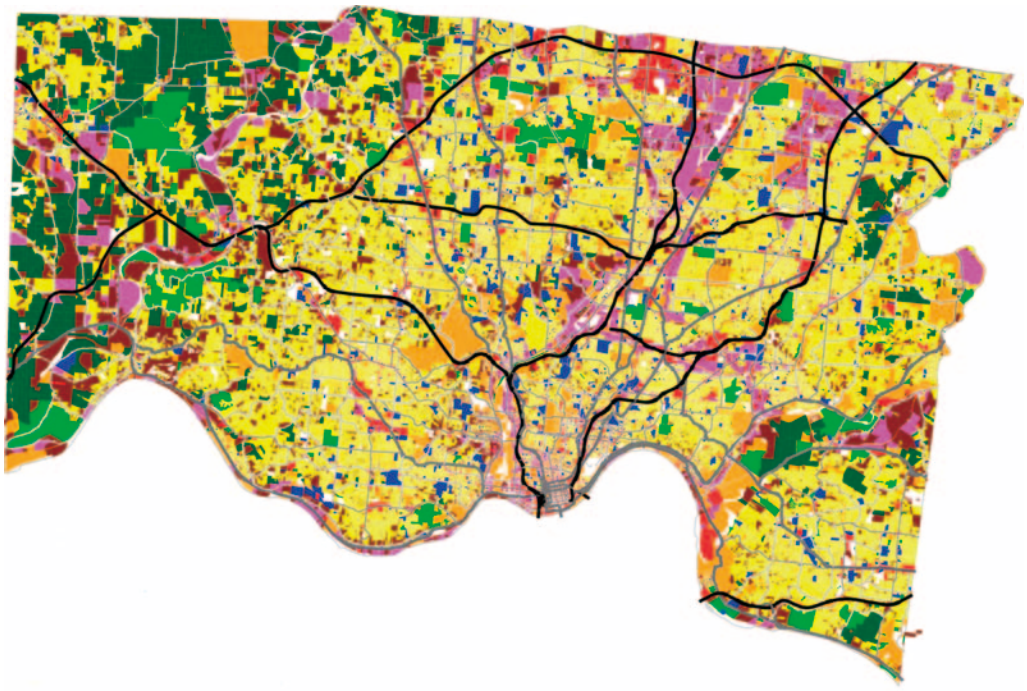


Figure 25
EXISTING LAND USE, 2000

Source: CAGIS, Hamilton County Regional Planning Commission

Appendix A
Endnotes

1. Relative population change is the proportion of 2000 with respect to CMSA minus the proportion of 1990. Proportion of a jurisdiction's population to the total regional population is calculated for the years 1990 and 2000. The relative population change is a proportion of 2000 minus the proportion of 1990. Further, this range is classified into five categories by using the "Quantile" method and then the middle three ranges are grouped into one range.
2. Miami Valley Regional Planning Commission (MVRPC). Land Use Trends. *www.mvrpc.org/cs/cslanduse.htm.*
3. Gallis, Michael and Associates. *Greater Cincinnati Metro Region Resource Book: Preparing for the New Millennium*. Metropolitan Growth Alliance. 1999.
4. Hamilton County Regional Planning Commission. 2003. *State of the County Report: Economy and Labor Market*. Community COMPASS Report No. 16-1.
5. FHWA, "Metro Area Trends" *www.fhwa.dot.gov/ctpp/jtw/jtw2.htm.*
6. Hamilton, Clermont, Boone, Campbell, Kenton, Warren, and Dearborn Counties
7. Ohio Department of Development. *County Indicators Report*. *www.odod.state.oh.us/research/FILES/S101.pdf.*
8. Hamilton County Regional Planning Commission. *Spreading Out: March to the Suburbs*. Comprehensive Plan Research Report Number 99-05. pp4.
9. A calculation of Coefficients of Variation, Lorenz Curve estimates for population densities for Hamilton County indicates uniform densities in 2000 compared to 1990.
10. Ewing, Reid, Pendall, Rolf and Don Chen. "Measuring Sprawl and its Impact." *www.smartgrowthamerica.org/sprawlindex/MeasuringSprawlTechnical.pdf.*
11. Fulton, William, Pendall, Rolf, Nuguyen, Mai, and Alicia Harrison. "Who Sprawls Most? How Growth Patterns Differ Across the U.S." Center on Urban and Metropolitan Policy. The Brookings Institution. 2001.
12. Ewing, op.cit.
13. *Planning in the Age of Sprawl: Conflicting Views on Suburbanization*. Hamilton County Regional Planning Commission. Community COMPASS Special Research Report No. 3-2. pp. 10.
14. Residential gross density is the ratio of population to residential land use in acres
15. Knaap, Gerrit and Terry Moore. "Land Supply and Infrastructure Capacity: Monitoring for Smart Urban Growth. "Lincoln Institute of Land Policy. Working Paper. 2000.
16. Orfield, Myron and Thomas Luce. "Ohio Metropatterns." Metropolitan Area Research Corporation. pp.5. 2002
17. Natural Resources Defense Council. "Another Cost of Sprawl: The Effects of Land Use on Wastewater Utility Costs." *www.nrdc.org/cities/smartGrowth/cost/execsum.asp* .
18. Eisner, Simon, Gallion, Arthur, and Stanley Simon. *The Urban Pattern.* Van Nostrand Reinhold: New York, 1993. pp.261.
19. The term growth center is used generically implying fast growing areas within the metropolitan region.
20. Christopher Leinberger and Charles Lockwood called them Urban Villages (1986); Paul Goldberger described them as Outtowns (1987); Michael Romanos, Carla Chifos and Tony Fenner called them Metrotowns (1988); and Joel Garreau coined the phrase Edge Cities (1991). The newest term is Edgeless Cities coined in 2003. A study by Robert E. Lang, Virginia Polytechnic and State University, identified 44 terms for the new metropolitan form (2002).
21. Locations of retail, office, and industrial centers are indicative.
22. *www.westchesterdevelopment.com/techcorridor.html*.
23. Chiara, De Joseph and Lee Koppelman. *Planning Design Criteria*. New York. Van Nostrand Reinhold Company. 1969.
24. "Economic Impact of Locally Owned Businesses." *www.civiceconomics.com/BEA_Show.pdf*..
25. Chiara, op.cit.
26. 1964 Plan, CAGIS, Auditor's land use classification, and U.S. Census Bureau. 100 persons have been used to avoid decimals from land area calculations.
27. Retail use includes commercial classification in CAGIS, and does not include office.

28. Chiara, op.cit.

29. Estimated approximately using the Auditor's retail classification under commercial, office, and mixed land uses.

30. Cincinnati Market Statistics. *www.officespace.com/osoweb/mktstats.cfm?RgnNm=Cincinnati*.

31. Garreau, Joel. *Edge Cities: Life on the New Frontier*. Doubleday. New York. 1991. pp 5.

32. Texas Transportation Institute. 2002. 2002 Urban Mobility Study. *mobility.tamu.edu/ums*/.

33. Wiewel, Wim. *New Directions for Central City and Suburban Development*. Great Cities Institute, College of Urban Planning and Public Affairs, University of Illinois at Chicago. *www.uic.edu/cuppa/gci/publications/working%20papers/subject/metropolitan_sustainability.htm*.

34. Orfield, Myron and Robert Puentes. *Valuing America's First Suburbs*. The Brookings Institution. 2002. pp.3.

35. Orfield, Myron and Thomas Luce. Ohio Metropatterns. Metropolitan Area Research Corporation. 2002. pp.2.

36. Orfield, Myron and Thomas Luce. *Cincinnati Metropatterns*. Metropolitan Area Research Corporation. 2001. pp.15-16.

37. Ibid. pp13.

38. Hudnut III, William H. *Halfway to Everywhere: A Portrait of America's First-Tier Suburbs*. Urban Land Institute. Washington D.C. 2003. pp.65.

39. Burchell, Robert W., David Listokin, et al. *Development Impact Assessment Handbook*. Washington, D.C.: ULI-the Urban Land Institute, 1994

40. Ohio State University. The Exurban Change Project. *aede.osu.edu/programs/exurbs/pdf/LUfigures/Hamilton2.pdf*.

41. Bartholomew, Harland. *Land Uses in American Cities*. Harvard University Press. Cambridge. 1955.

Appendix B
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.comm unitycompass.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 trends, 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)

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