

State of the County Report: Mobility

COMMUNITY COMPASS REPORT NO. 16-12

Hamilton County, Ohio

Community
COMPASS



HAMILTON COUNTY
Regional
Planning
Commission

November 2004



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’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:
Mobility
Community COMPASS
Report No. 16-12

Subject:

Analysis of mobility findings that affect Hamilton County, Ohio and other counties of the Cincinnati Consolidated Metropolitan Region.

Date:

April 2004

Synopsis:

This report presents existing conditions and trends in Hamilton County related to mobility. The report identifies six 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
- Environmental and Social Justice
- Governance
- Health and Human Services
- Housing
- Land Use and Development Framework
- Mobility

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STATE OF THE COUNTY REPORT: MOBILITY

Executive Summary

FINDING 1

Congestion is growing as automobile dependency increases and more single occupancy vehicles crowd Hamilton County's streets and highways than ever before.

- Hamilton County commuters driving alone to work increased from 68.3 percent to 78.9 percent between 1980 and 2000. At the same time, usage of other modes of travel such as walking, bicycling, carpool, and public transit-decreased.
- Daily Vehicle Miles Traveled (DVMT) in the Cincinnati metropolitan region has been increasing steadily over the past 20 years, from 19,640,000 in 1982 to 33,000,000 in 2000. In 1982, the Cincinnati Metropolitan Region averaged 2.9 hours per day of congestion conditions, which increased to a span of 7.2 hours per day in 2000.
- It is projected that the annual cost of congestion to Cincinnati metropolitan region's drivers more than doubled in five years, increasing from \$250 million in 1995 to \$505 million in 2000.
- Nationally, the Cincinnati Metropolitan Region ranks 24th out of the 75 urban areas studied by the Texas Transportation Institute in terms of overall traffic congestion. Amongst the peer metropolitan areas of Indianapolis, Louisville, St. Louis, Columbus, Cleveland, and Pittsburgh; Cincinnati has the highest freeway DVMT (daily vehicle miles traveled) per lane mile; and Indianapolis and Cincinnati have the worst congestion conditions, as shown by the Roadway Congestion Index.

FINDING 2

Hamilton County continues to be impacted by road projects occurring outside the County.

- The congestion of new interchanges, roads, along with widening of highways in nearby counties is spurring outward growth for new residential, commercial, and industrial developments.
- In OKI's 2030 highway transportation plan, 23.63 miles of interstate highway widening projects are planned in the Cincinnati metropolitan region at a total estimated cost of \$404 million, excluding the costs for planned replacement of the Brent Spence Bridge.
- As highways expand, DVMT and congestion decrease in the short run, but finally increase as more and more commuters use the road increasing the annual congestion cost.
- The total annual congestion cost, which includes loss of work hours and fuel, has been increasing continuously in the Cincinnati metropolitan region. In the year 2000, annual congestion cost was \$505 million, and excess fuel consumed was 44 million gallons.

FINDING 3

Completion of "major investment" or corridor studies in various areas of the region may bring about changes in the road and transit networks.

- Major Investment Studies (MIS) to evaluate alternatives to meet future transportation capacity have been done or initiated for most of the County's major thoroughfares.
- In 1998, the *I-71 Corridor Transportation Study* examined the transportation needs of the highway from the Cincinnati/Northern Kentucky International Airport to southern Warren County, proposing a light rail on the corridor. A ballot initiative to provide partial funding for the I-71 light rail was defeated by county voters in 2001.
- MIS studies underway are the North South Initiative on I-75 and the *Eastern Corridor Project* in Hamilton and Clermont Counties.
- A *Western Corridor Study* is proposed for the western part of Hamilton County, focusing on I-74.

FINDING 4

Current design standards and patterns of development focus on the automobile, limiting the transportation options of Hamilton County residents.

- Suburban style subdivisions with multiple cul-de-sacs and few collector streets make the automobile a necessity for almost all trips.
- Limited transportation options and increased automobile dependency result in more congestion and higher household expenditures on transportation.

FINDING 5

Lack of adequate regional, multi-modal public transportation system increases dependency on automobiles and limits mobility of transit-dependent residents.

- The current public transit system does not access all the employment, retail, and office centers in the Cincinnati Metropolitan Region, thereby contributing to "spatial mismatch," where low-income households in the inner city cannot access entry-level job openings in the suburbs.
- Metro ridership remained fairly stable changing from 28.3 rides per capita per year in 1990 to 28.9 rides per capita per year in 2001, despite a decrease in Hamilton County's population.

FINDING 6

As the local economy grows, Hamilton County is facing pressure to accommodate increasing freight traffic.

- The Cincinnati Region's economy benefits from our increasing levels of freight movement. Warehousing shipments are focused by ODOT and the FHWA to increase at an average rate of 3.8 percent per year from 1998 to 2020.
- The Cincinnati Metropolitan Region, with its three interstate highways, is likely to gain jobs in the transportation sector due to increasing freight movement.

STATE OF THE COUNTY REPORT:

Mobility

THE VISION FOR HAMILTON COUNTY'S FUTURE:

Accessible, efficient and economical regional travel. Clean, safe, multi-modal transportation choices including mass transit, bike lanes, pedestrian walkways, and vehicular travel to reduce congestion.

INTRODUCTION

This report presents existing conditions and trends in Hamilton County related to mobility. The report identifies six 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.

This report presents existing conditions and trends in Hamilton County related to mobility. The report identifies six 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.

Transportation and mobility issues are both local and regional in scope. They affect not only traffic levels and patterns, but population growth, the character of nearby land uses, and economic development.

This report considers how both transportation facilities like roads and public transit, and the level of people's mobility impact the region. The report focuses on levels of passenger and freight congestion, and examines how increasing traffic may affect our region's physical and socioeconomic environments. It also evaluates the links between the design of transportation infrastructure and housing developments in suburban counties, and their larger effects on the region.

The Vision Statement for Mobility, 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
-

FINDING 1

CONGESTION IS GROWING AS AUTOMOBILE DEPENDENCY INCREASES AND MORE SINGLE OCCUPANCY VEHICLES CROWD HAMILTON COUNTY'S STREETS AND HIGHWAYS THAN EVER BEFORE.

The number of single-occupancy vehicles on the road in Hamilton County and the Greater Cincinnati region has been steadily increasing since the 1980's. This is occurring as population density decreases in central areas and commuters move to outlying communities. People are making more and longer trips to work, school, shopping centers, and other activities as part of their daily routines.

The result of these trends is an increase in Daily Vehicle Miles Traveled (DVMT). DVMT is an indicator that measures the daily volume of traffic utilizing the roadways. Increases in the number of people in an area can affect DVMT, as well as changes in driving habits.

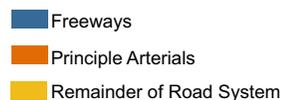
According to the 2002 Urban Mobility Report conducted by the Texas Transportation Institute

(TTI)¹, DVMT in the Cincinnati metropolitan region has been increasing steadily over the past 20 years, from 20,180,000 in 1983 to 33,000,000 in 2000 (See Figure 1).² This means that Hamilton County's roadways are accommodating more trips, more vehicles, or both. Hamilton County's roads face an ever-greater demand for efficiency in order to get drivers to their destinations in a safe and timely manner.

DVMT has increased most on the area's freeways, and has remained more constant on primary surface roads. This may be due to several reasons, including a rise in regional commuting, a build-up of economic activity along the I-275 beltway, increased through traffic on I-71 and I-75, and residents choosing freeways over arterials to make short trips within the county.

Daily commuting in particular has a major effect on congestion in Hamilton County. Most commuters prefer to drive to work alone, resulting in dominance of the single occupancy vehicle (SOV). As shown in Figure 2, the

Figure 1
DAILY VEHICLE TRAVELLED IN THE CINCINNATI METROPOLITAN STATISTICAL AREA



Source: Texas Transportation Institute Urban Mobility Report 2002

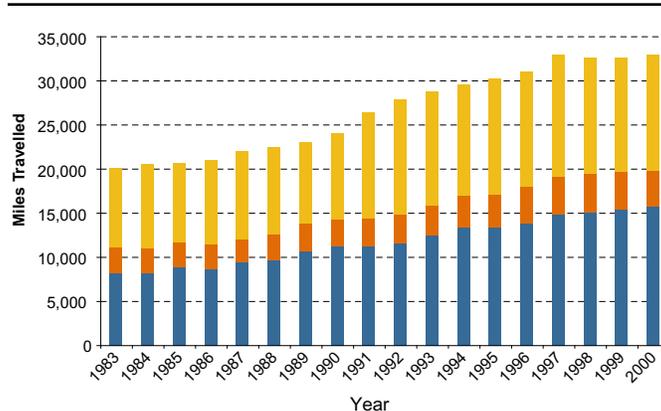


Figure 2
MEANS OF TRANSPORTATION TO WORK FOR WORKERS AGED 16 AND OVER IN HAMILTON COUNTY

Source: U.S. Census Bureau

Means	Percent 1980	Percent 1990	Percent 2000
Drove Alone	68.3	77.2	78.9
Carpool	17.3	11.0	9.72
Public Transit	8.1	5.8	5.0
Walk	4.2	3.4	2.9
Bicycle	n/a	0.1	0.1
Other Means	0.9	0.4	0.5
Work at Home	1.2	2.2	2.8

percentage of Hamilton County workers over the age of 16 who drove alone to work increased from 68.3 percent in 1980 to 78.9 percent in 2000. Workers who carpooled, used public transportation, walked, or used other means of transport to get to work generally decreased over the same time period.

Commuters also increase DVMT by traveling longer distances to work. Many of Hamilton County’s workers are driving to jobs in surrounding counties. According to the 2000 Census, the number of Hamilton County residents aged 16 and older who worked decreased by 931 persons between 1990 and 2000 (See Figure 3). In the same time period, the number of Hamilton County workers who commute to jobs outside of the county increased by 19,222 persons, up from the 12,997 persons who worked outside of the County in the previous decade. New entertainment and retail opportunities also draw trips to surrounding counties, especially on weekends.

Hamilton County residents are not the only drivers affecting DVMT and congestion. According to the 2000 Census, 166,005 workers from CMSA counties³ commuted to Hamilton County to work in 2000. Additionally, some commuters may not live or work in Hamilton County

but cross it every day, such as a worker driving from Boone County to Warren County.

Why Is This Important?

Congestion wastes time and money through longer commute times, increased gasoline consumption, increased vehicle wear and tear, and time spent sitting in traffic. As more drivers make more trips on Hamilton County’s roads, the length of rush hours and time spent in congestion also climb.

Increased congestion also contributes to more air pollution, as idling engines and starting and stopping a car contributes more pollutants into the air than a car operating at a constant speed. More information on congestion’s contribution to air pollution is provided in the “multi-modal public

transportation system” section of this report.

The effects of congestion are problematic across the United States. In 2000, the Cincinnati region averaged 7.2 hours per day of congestion conditions, up from 2.9 hours in 1982. From 1998 to 2000, the number of rush hours per day in the Cincinnati region has remained constant, but this has much to do with the study’s assumption of seven hours of peak travel time that occurs each day. The levels of DVMT are used to determine what percentage of this seven-hour window is spent in congestion. DVMT has been generally increasing, and new road construction has been keeping pace with this rise, but increased population, additional cars on the roads, and longer commutes can further increase DVMT, thereby rendering the seven-hour peak travel

Workplace County	Number of Workers 1990	Number of Workers 2000	Percent Change
Hamilton (OH)	356,399	336,246	- 5.7%
Butler (OH)	10,859	18,452	69.9%
Warren (OH)	3,798	9,303	144.9%
Clermont (OH)	6,993	8,240	17.8%
Kenton (KY)	7,178	7,937	10.6%
Boone (KY)	3,044	6,505	113.7%
Campbell (KY)	2,604	2,739	5.2%
Montgomery (OH)	1,972	1,747	- 11.4%
Dearborn (IN)	860	1,335	55.2%
Other Counties	5,689	5,961	4.8%

Figure 3
HAMILTON COUNTY RESIDENTS' PLACE OF WORK, 1990 AND 2000

Source: U.S. Census Bureau

time assumption moot (See Figure 4).

Over the same period, the percentage of daily travel that occurs in congestion in the Cincinnati Metropolitan Region has increased from 8 percent to

31 percent. Nationally, the Cincinnati area ranks 24th out of the 75 urban areas studied by TTI in terms of overall traffic congestion (See Figure 5). Cincinnati ties with Indianapolis, and is ranked higher on

the Roadway Congestion Index than all of the other cities in the region. Cincinnati is above both the national average and the large urban area average for DVMT per lane mile on freeways. However, the region is below average for DVMT per lane mile on principle arterials, indicating that the bulk of the congestion occurs on freeways.

Congestion results in not only wasted time, but also wasted dollars and wasted fuel. TTI's 2002 Urban Mobility Report calculates that the annual cost of congestion to Greater Cincinnati drivers more than doubled in five years, jumping from \$250 million in 1995 to \$550 million in 2000. Thus, congestion results in an average cost of \$855 per person, paid for in fuel, repair, and time costs. For example, excess gallons of fuel consumed have increased from 26 million to 44 million in the same period (See Figure 6).

Controlling the growth of congestion is a key component of improving the flow of traffic. Road expansion — indeed any transportation improvement — does ease congestion in the entire transportation network in the short term, but expansion alone is not enough to be fully effective. The continued addition of lanes is expensive and is not sustainable over the long term. Expansion may also result

Figure 4
NUMBER OF RUSH HOURS PER DAY IN THE CINCINNATI METROPOLITAN STATISTICAL AREA, 1982-2000

Source: Texas Transportation Institute Urban Mobility Report 2002

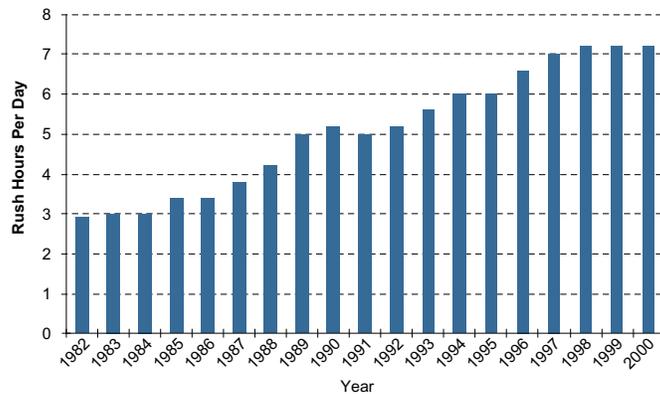


Figure 5
2000 ROADWAY CONGESTION INDEX FOR URBAN AREAS

* Out of 75 urban areas

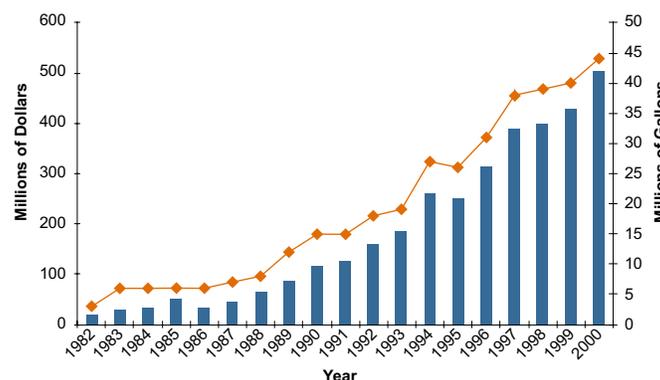
Source: Texas Transportation Institute Urban Mobility Report 2002

Urban Area	Population Size	Freeway DMVT per Lane Mile	Principle Arterial DMVT per Lane Mile	Roadway Congestion Index	Rank*
Cincinnati	Large	16,150	5,101	1.13	24
Indianapolis	Large	15,530	6,765	1.13	24
Louisville	Med	14,985	6,525	1.09	32
St. Louis	Large	14,460	5,675	1.03	39
Columbus	Large	13,940	6,555	1.02	40
Cleveland	Large	13,505	5,615	0.97	49
Pittsburgh	Large	9,355	5,940	0.77	70
75 urban area average		14,120	6,220	1.15	
Large area average		15,450	6,210	1.12	

Figure 6
CONGESTION COST VS. EXCESS FUEL CONSUMED IN THE CINCINNATI METROPOLITAN STATISTICAL AREA, 1982-2000

■ Total Annual Congestion Cost
◆ Total Annual Excess Fuel Consumed

Source: Texas Transportation Institute Urban Mobility Report 2002



in “induced travel” — a phenomenon which will be explained in the next section of this report.

Hamilton County, like many other urban areas, faces a major challenge in improving the capacity and efficiency of its transportation network within budgetary constraints. As analysis of the past 20 years shows, demand for more capacity has been increasing rapidly. Projections show that this demand will only continue to rise. Continued comprehensive planning efforts that integrate transportation and land use decisions, both locally and regionally, are essential to choose effectively and implement appropriate actions.

Key Indicators:

- *Daily vehicle miles traveled (Figure 1)*
- *Means of travel to work (Figure 2)*
- *Commute patterns (Figure 3)*
- *Daily rush hours (Figure 4)*
- *Roadway congestion index (Figure 5)*
- *Excess fuel consumed (Figure 6)*
- *Travel time index (Texas Transportation Institute for CMSA)*
- *Percentage of streets and highways with congestion (Texas Transportation Institute for CMSA)*
- *Percentage of lane-miles with congestion (Texas Transportation Institute for CMSA)*

FINDING 2

HAMILTON COUNTY CONTINUES TO BE IMPACTED BY ROAD PROJECTS OCCURRING OUTSIDE THE COUNTY.

The links between transportation and economic development have been studied for many years. Many cities in the United States and the world would not have developed were it not for their locations on major rivers, deep harbors, or rail lines. From ship transport in the 18th centuries to road and air transport today, the success of a region is related to the number and character of connections it has with the outside world.

Growth outside of Hamilton County continues today and will continue in the future. Stronger education systems, reduced crime, and higher standards of living have long been factors contributing to suburban growth. This growth is being sustained in part by the rapid access to jobs and recreational activities that the interstate highway system makes possible. The National Cooperative Highway Research Program (NCHRP) identifies factors that influence decisions about where to

develop — including accessibility and visibility — as well as location in growth corridors.

According to the NCHRP, transportation investments influence land use because accessibility is very important to households and businesses. Transportation projects such as new interchanges can create nodes of development, or change or hasten the development process.⁴ This process is evident in the suburban counties just to the north

of Hamilton County. The new Interchange Boulevard of Union Center has spurred tremendous growth in office spaces, manufacturing, distributing, and upscale retail. Clearly new interchanges increase the accessibility and development of these suburban locations. Another example, the controversial expansion from a westbound only to a full interchange between Interstate-75 and the Michael A. Fox Highway in southern Butler County is anticipated to create a great deal of new development in the area. The interchange would open over 600 acres of commercially-zoned land to Interstate-75.⁵ Liberty Township and Butler County officials say the interchange is necessary because Liberty Township — a jurisdiction wherein population increased 147 percent between 1990 and 2000 — needs the business revenue. They predict that the new interchange could generate 15,000 jobs and a lot of tax revenue for Butler County.⁶ However, opposition to the interchange cites sprawl, poor land use, congestion and increased crime.

This outward growth contributes to highways becoming increasingly congested over longer periods of time. In its 2030 highway transportation plan, OKI plans interstate highway widening projects in the metropolitan area of

23.63 miles of roadway at a total estimated cost of \$403.65 million.⁷

Researchers are uncovering evidence showing that as highways expand, DVMT and congestion decrease in the short-term, but *increase* in the long term. This effect, often referred to as “induced travel,” may be caused by a host of reasons.⁸

Some researchers think that “induced travel” is a normal response from drivers, as they all wish to take the “path of least resistance” — that is any path that gets the driver to his or her destination quickly and easily. As more drivers discover this path, DVMT on the roadway increases and congestion often worsens. The problem of “induced travel” is exacerbated when new interchanges or intersections are built, as land near those intersections increases in commercial value. The business establishments that eventually settle in the area create new destinations for drivers, more time spent in congestion, and - others argue - more sprawl away from the city center.

Why Is This Important?

As highway improvements make suburban land more attractive to large-scale private investment and development, central cities are, more often than not, negatively impacted. According to White, Binkley, and Osterman, employment in suburbs usually flows from central cities, as business owners - particularly manufacturers - need larger, more efficiently designed buildings with good truck access to compete in the global marketplace. Finance, insurance, and real estate offices also migrate to suburban areas to be closer to the growing population there.⁹ In the case of the Cincinnati metropolitan region, that suburban population growth is largely fueled by residents leaving Hamilton County for nearby counties, not persons from outside of the region moving in.

Key Indicators:

- *Commute times (U.S. Census Bureau for County)*
- *Roadway congestion index (Figure 5)*
- *Level of service (OKI for Major Roads)*

COMPLETION OF “MAJOR INVESTMENT” OR CORRIDOR STUDIES IN VARIOUS AREAS OF THE REGION MAY BRING ABOUT CHANGES IN THE ROAD AND TRANSIT NETWORKS.

Since 1993, federal regulations have required that planning organizations undertake “Major Investment Studies” (MIS), or “corridor studies” in areas where proposed transportation changes will significantly impact a community’s quality of life. In this region, MISs are conducted by OKI with continual public input. The results of the studies are usually a set of alternatives addressing future transportation, transit, and land use issues.

One important MIS underway is the “North-South Initiative” - a joint effort between OKI and Dayton’s metropolitan planning organization, the Miami Valley Regional Planning Commission (MVRPC). Both groups - in addition to the Ohio Department of Transportation, the Kentucky Transportation Cabinet, and at least 20 communities - are evaluating the needs of the Interstate-75 corridor from the I-71/75 split in Boone County, Kentucky through Miami County, Ohio. Interstate-75 is the busiest trucking route on the continent with more than 100,000 trucks passing through Dayton, Middletown, and Cincin-

nati per day. Moreover, the rail lines that parallel Interstate-75 carry about 250 freight trains a day.¹⁰

Preliminary recommendations for the North-South Initiative include: upgrade the highway and rail, expand Interstate-75 to four lanes through the length of the study area, modify interchanges to improve traffic flow, utilize high-occupancy vehicle (HOV) lanes, and incorporate light rail in some capacity through the corridor.

The Eastern Corridor MIS recommends a variety of alternatives including highway improvements, expanded bus service, rail transit service, and transportation system management measures. Covering nearly 200 square miles in parts of Hamilton and Clermont Counties in Ohio and parts of Campbell County in Kentucky, the project area extends east from the Cincinnati Business District to Milford, Batavia and Amelia, and into Northern Kentucky along I-275 and I-471. Although the initial planning phases included improvements to be made in the Northern Kentucky region of the

Eastern Corridor area, all planned improvements now focus on Ohio.¹¹

The Eastern Corridor Project took a unique approach by analyzing current and future land use along with possible transportation improvements. This “land use visioning method” looked at existing patterns of land use and, through examining land capability, environmental concerns, planned transportation improvements, market conditions and public input, determined a desired “template” for future land use in the Eastern Corridor.¹² The current land use vision analysis and recommendation calls for an increase in residential, light industrial, greenspace, commercial and agricultural uses in the area, with less vacant residential and industrial space.

Another MIS that was completed in 1998 was the I-71 Corridor Transportation Study. This study examined the transportation needs of the highway from the Cincinnati / Northern Kentucky International Airport to southern Warren County. It recommended the development of a light rail line along the corridor

between the two points. The local transit agency, SORTA, included the light rail suggestion in its “MetroMoves” plan, but the plan did not receive the necessary funding. More information on the Metro-Moves Plan can be found in the “multi-modal public transportation system” section of this report.

In the future, an MIS will be initiated for a Western Corridor Study. This study will examine the Interstate-74 Corridor and much of western Hamilton County and Boone County. OKI is currently awaiting funding from the Federal Government to implement this study.

Why Is This Important?

Transit and transportation enhancements occurring in Hamilton County clearly have an impact on the social, economic, and cultural aspects of the community.

Such enhancements occurring in adjacent counties also impact Hamilton County -- and not always for the better. The increase in single-family housing units on the urban fringes necessitates road improvements, but those road improvements in turn accelerate residential growth and attract commercial development. Such suburban and exurban growth is usually accomplished at the expense of the central city and county.

Key Indicators:

- *Number of MISs funded (OKI for Eight Counties OKI Region)*
- *Percentage of MIS recommendations implemented (OKI for Eight Counties OKI Region)*

FINDING 4

CURRENT DESIGN STANDARDS AND PATTERNS OF DEVELOPMENT FOCUS ON THE AUTOMOBILE, LIMITING THE TRANSPORTATION OPTIONS OF HAMILTON COUNTY RESIDENTS.

Urban and suburban designs that focus on the automobile make it difficult for residents to walk, bike or use other forms of transportation in both commercial and residential areas. This occurs in both the residential development - an isolated suburban subdivision - and commercial

development – a big-box infill development in an urban setting. Long commercial strips often feature large parking lots in front of the stores that pedestrians and transit riders must cross. Individual retail businesses that are not connected can force pedestrians through park-

ing lots and landscaping to move from one store to another. The more likely scenario, though, is that a driver must enter and exit the highway to access two unconnected adjacent businesses. Multiple curb cuts for automobile access to each business increase hazards for both drivers

and pedestrians. These types of development not only discourage alternate forms of transportation, they make it dangerous. Mobility and connectivity suffer as a result.

In addition to commercial growth, new residential subdivisions continue to grow in size and number in the expanding commuter zone. Between 1997 and 2002, the Hamilton County Regional Planning Commission has approved 91 major subdivisions for residential development in the unincorporated areas that fall under its administration (See Figure 7). During that time, a total of 2,707 acres were approved for subdivision into 2,890 new lots. Subdivisions in the suburban and rural counties that ring Hamilton

County are increasing at an even faster rate.

Suburban style subdivisions with multiple cul-de-sacs and few collector streets tend to make the automobile a necessity for almost all trips. Additionally, some of these neighborhoods are built without sidewalks. Large minimum lot size zoning requirements reduce population density and thus public transit feasibility. Fixed-route public transit needs high concentrations of people and commercial activities, so accordingly, far-flung housing and commercial strip development make transit difficult. The “cul-de-sac and collector” design patterns isolate neighborhoods from each other and other land uses, forcing residents to drive even for short trips. This

system also increases congestion on collector roads by requiring many residents to use only one access point. Vehicle miles traveled are increasing not just because of commuting, but also short trips to the store, school, recreation, and other household activities.

Why Is This Important?

Recent land use patterns make us dependent on automobiles. Many commercial strip developments and residential subdivision designs are not pedestrian-friendly. These areas lack connectivity, internally and to each other, making walking or biking between destinations difficult. Designs that do not consider transit limit access and

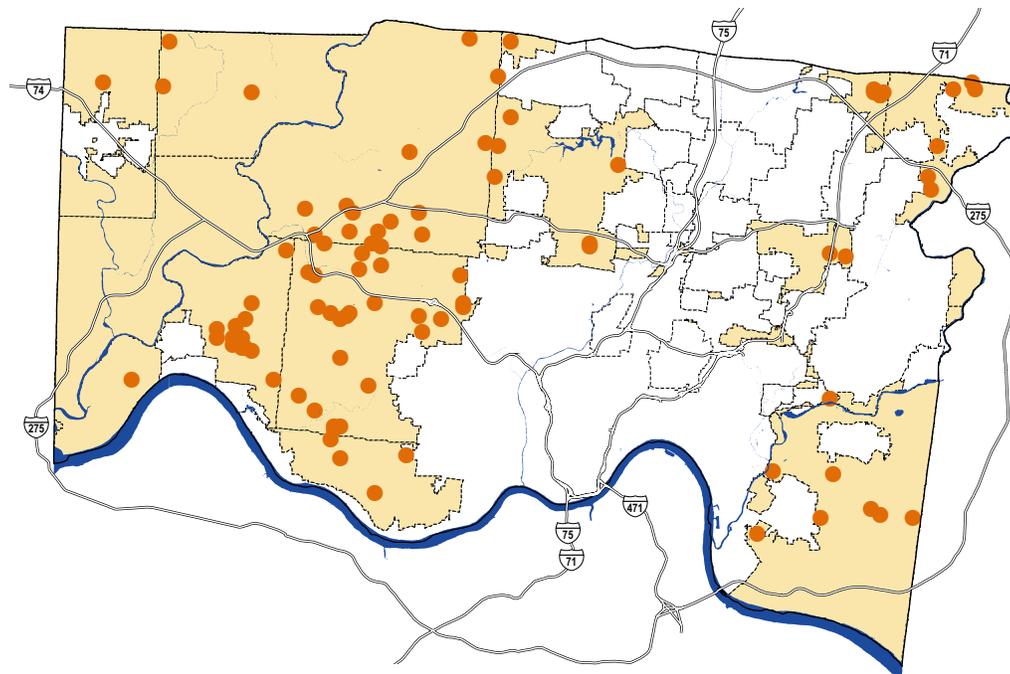


Figure 7
**MAJOR SUBDIVISIONS
IN UNINCORPORATED
AREAS, 1997-2002**

- Major Subdivisions
- Incorporated Areas
- Unincorporated Areas

Source: Hamilton County Regional Planning Commission

make expansion of public transportation challenging. Limited transportation options and increased automobile dependency result in more congestion and higher household expenditures on transportation.

Key Indicators:

- *Percentage of streets ending in cul-de-sacs or dead-ends (CAGIS and HCRPC for county)*
- *Miles of roadway without sidewalks (CAGIS and HCRPC for County)*
- *Persons per square mile (HCRPC for County)*

FINDING 5

LACK OF AN ADEQUATE REGIONAL, MULTI-MODAL PUBLIC TRANSPORTATION SYSTEM INCREASES DEPENDENCY ON AUTOMOBILES AND LIMITS MOBILITY OF TRANSIT-DEPENDENT RESIDENTS.

There have been numerous forms of public transportation in Cincinnati in the 19th and 20th century, including streetcars, trolley busses, and inclines. However, today, busses provide the sole means of public transportation in the Cincinnati Metropolitan Area.

Two major public transit systems exist in Greater Cincinnati — the Southern Ohio Regional Transit Authority, or SORTA (which operates “Metro”) and the Transit Authority of Northern Kentucky (TANK).

TANK serves Boone, Campbell, and Kenton Counties in Kentucky with connections to downtown Cincinnati. Metro primarily serves much of Hamilton County and

small portions of Butler and Warren Counties with approximately 500 buses on 51 routes. It also owns 53 Access vehicles, which provide service to people with disabilities who are unable to ride regular busses. Additionally, Metro transports many of Cincinnati’s public and parochial junior and senior high school students during the school year.

The Metro bus lines operate on a traditional “hub and spoke” system radiating from downtown Cincinnati. They run primarily in a radial pattern, with only two true cross-town routes and little connection between suburbs.

The Metro system was well suited to the land use

pattern of Cincinnati until circa 1970, since a large concentration of residents still lived and worked there, and most households had only one worker and one car. However, the region has changed considerably in the last three decades. Today, population and employment have shifted outward into the suburbs and adjacent counties. While most of the region’s jobs are still located in downtown Cincinnati, employment has become less centralized, contributing to a “spatial mismatch” between low-income households living in the central city, and many new entry-level jobs being created in suburban jurisdictions.

Ridership has not been immune to population and

employment shifts. According to the 2000 Census, 19,959 workers above the age of 16 in Hamilton County used public transportation as their primary means of transportation to work — down from 22,362 workers in 1990. However, Metro ridership has remained fairly stable throughout the 1990s even as the county’s population has declined, and as the percentage of households with no vehicles has decreased from 15.5 percent of all households in 1990 to 13.5 percent in 2000 according to the Census Bureau. According to the agency’s farebox revenue, in 1990 there were 24,567,169 total passenger trips, equaling 28.3 rides per capita per year. In 2000 there were 24,409,853 passenger trips, or 28.9 rides per capita. The largest dip in ridership occurred in 1993, concurrent with the last fare increase. Ridership was again climbing until 2001. SORTA attributes this drop to the economic downturn that occurred during this period (most bus riders take the bus to work), the riots which occurred in April of that year, and the relatively low gas prices that existed throughout much of that year (Figure 8).

As articulated in Community COMPASS’s External Influences Report, automobile-based transportation regimes are

often the least economical. The public costs of road construction and continual maintenance throughout the Cincinnati region will total nearly \$5 billion from 2000 to 2030. The private costs each person pays to use the system — the costs of the vehicle, its maintenance, fuel, insurance, and health care costs resulting from diminished air quality — are not included in this \$5 billion figure. Public transportation costs less (estimated at \$3.2 billion over the 30-year period for busses and \$1.2 billion over the same period for light rail) but federal and state subsidies to roads continues to exceed subsidies for transit.¹³

In hopes of improving its service throughout the area, making public transportation more competitive, and receiving subsidies for transit initiatives, SORTA developed the Metro Moves Regional Transit Plan in 2001. The plan states that “Metro’s current service configuration does not reflect the population and employment trends

in the region today, nor is it positioned to meet the region’s future transportation needs.”

The “Metro Moves” Plan proposed the addition of light rail service and expanded bus service, with additional suburb and cross-town connections along with a regional focus. The Plan also called for the formation of new neighborhood transit hubs. SORTA hoped to finance the plan’s implementation with a half-cent sales tax increase. As such increases must be approved by referendum, the increase was put up for public vote and was defeated by a wide margin in November 2002.

Why Is This Important?

As significant portions of our population are not able to operate their own vehicles (due to financial and/or physical constraints), public transit is necessary to ensure the mobility of every citizen in the com-

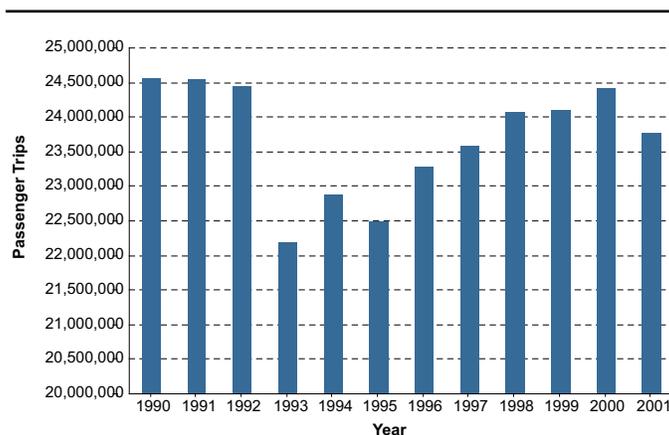


Figure 8
**METRO SERVICE AREA
ANNUAL RIDERSHIP,
1990-2001**

Source: Southwest Ohio Regional Transit Authority

munity. Public transit does not access all employment and retail areas in the region, however, and so in that sense, ownership of at least one car has become a desire for many in the nine percent of Hamilton County households with no available vehicles.¹⁴ As jobs and entertainment venues move beyond the reach of public transit, the problem of “spatial mismatch” will undoubtedly increase.

Public transportation is also important in that it helps reduce air pollution. While the Cincinnati Metropolitan Area meets air quality standards for five pollutants outlined by the federal Clean Air Act Amendments, it exceeds the limit on ozone — the primary component of smog.—Ozone is formed when sunlight reacts with hydrocarbons and nitrogen oxides. A major source of both of these gases is au-

tomobile and truck travel. Ozone is beneficial in the upper atmosphere; between 6 and 25 miles above sea level, ozone absorbs harmful ultra-violet radiation that comes from the sun. At ground level, however, ozone irritates the human respiratory system and inhibits plant growth.

While federal mandates on vehicle emissions and gasoline volatility have helped reduce the amount of hydrocarbons released in the atmosphere, people are driving further and longer and are spending more time in congestion — thereby off-setting the gains made by strict emission controls. Though we are currently seeing a wave of vehicles that use alternative, cleaner fuels, mass use of these fuels is some years away. In the meantime, increased use of public transportation is seen by many as an important way of reducing air pollutants.

Key Indicators:

- *State and Federal expenditures on transit in Hamilton County (OKI for Eight Counties OKI Region)*
- *Annual Metro ridership (Figure 8)*
- *Transit ridership per capita (SORTA)*
- *Vehicle miles of transit routes (SORTA)*
- *Means of commuting to work (Figure 2)*
- *Level of air quality (Hamilton County Department of Environmental Services for County)*

AS THE LOCAL ECONOMY GROWS, HAMILTON COUNTY IS FACING PRESSURE TO ACCOMMODATE INCREASING FREIGHT TRAFFIC.

As our local economy continues its steady growth, the demand to move goods and people from place to place grows in tandem. According to a report released in June 2002, *Freight Impacts on Ohio's Roadway System*, the Ohio Department of Transportation (ODOT) and the Federal Highway Administration (FHWA) stated that freight traffic in the state is increasing, but the infrastructure (specifically, road) improvements needed to keep pace with this increase were occurring too slowly. These demands upon infrastructure and other pressures — such as freight-related fatalities, increasing regulation to manage public health, and the need for intermodal terminals — “may increase costs and reduce productivity in the next years.”¹⁵

Hamilton County and the Greater Cincinnati Region are likewise feeling the pressure of increased freight traffic. With regard to truck freight, much of the traffic destined for or passing through this area along Interstate-75 is delivering to or picking up goods from warehouses. According to ODOT and the FHWA, “warehousing shipments are forecast to increase at an average rate of 3.8 per-

cent per year from 1998 to 2020.”¹⁶ Areas with a large number of employees in the trucking and road support businesses, like Columbus and St. Louis will undoubtedly benefit from this increasing truck traffic. Greater Cincinnati — with its three interstate highways — likewise stands to gain jobs in this sector. Moreover, Hamilton County’s warehousing and trucking sectors have increased employment by 419 from 1998 to 2000 (Figure 9).

Rail and water modes are also important in freight transportation. According to the Greater Cincinnati Chamber of Commerce, the Cincinnati Metropolitan Region is serviced by 175 miles of mainline train track. Three major railroad freight companies also operate in the area.¹⁷ With regard to river traffic, Cincinnati is the fifth busiest inland port in the United

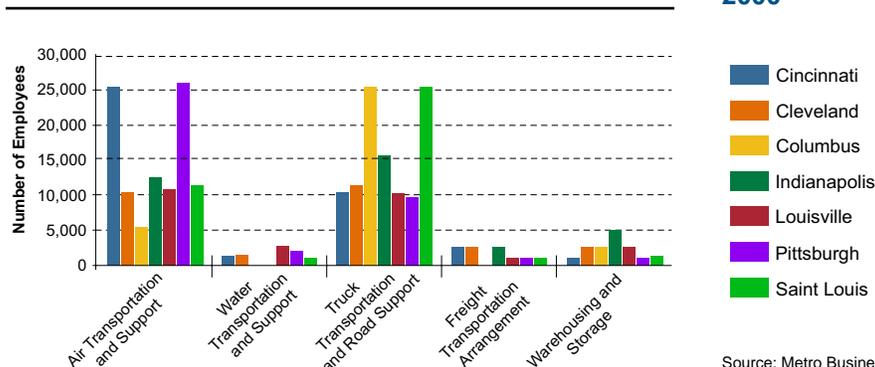
States in terms of tonnage, much of which comes from the receipt of coal and coke used to generate power.

The Cincinnati/Northern Kentucky International Airport is also an important component in freight transportation in the region. The airport is a domestic hub for DHL, the world’s largest air express carrier. Delta Airlines also uses the airport as a hub, providing direct passenger flights to gateways around the world. As shown in Figure 9, Greater Cincinnati’s employment in air transportation is relatively high for comparable Midwestern cities, with a maximum of 25,500 jobs in the Year 2000.

Why Is This Important?

Levels of freight and connections to other cities are important indicators of a

Figure 9
MAXIMUM NUMBER OF EMPLOYEES IN INDUSTRY BY METROPOLITAN AREA, 2000



Source: Metro Business Patterns, NAICS, U.S. Census Bureau, 2000

city's or region's economy. By those measures, the Cincinnati Metropolitan Region is quite well off, considering that the usage of all transportation modes throughout the region (as measured by tonnage or passengers) has steadily increased since the end of the 1970s.

In Ohio, however, rail, air, and ship traffic are projected to increase at rates slower than the increase in truck traffic, according to ODOT and the FHWA. These changes in rates reflect "a shift in the economy toward production and trade of lighter, higher-value goods and more frequent shipment of smaller loads that travel primarily by truck."

If increases in the level of truck freight are not effectively managed, it could have economic consequences. Greater Cincinnati is an important mid-way point between major markets in the United States and Canada. Much of the truck traffic in this area drops off products in warehouses, or takes products from the warehouse to the market. If non-truck traffic congestion increases and improvements such as the construction of truck lanes or bottleneck reduction projects are not undertaken, it may make the region less attractive to warehousing and transportation industries. More-

over, increases in truck freight raise the likelihood of accidents with local non-truck traffic.

Key Indicators:

- *Freight tonnage for goods shipped by air, rail, road, and water (U.S. Census Bureau for CMSA)*
- *Number of warehousing establishments (U.S. Census Bureau for County)*
- *Number of employees in interstate transportation firms (Figure 9)*
- *Number of accidents involving trucks (Ohio Department of Transportation for County)*

Appendix A

Endnotes

1. Texas Transportation Institute's study area covers U.S. Census designated urbanized areas of metropolitan regions. In the Cincinnati Metropolitan Region, urbanized area consists of part of Hamilton, Warren, Butler, Clermont, Dearborn, Boone, Kenton, and Campbell Counties.
2. Texas Transportation Institute. 2002. *2002 Urban Mobility Study*. <http://mobility.tamu.edu/ums/>.
3. Consolidated Metropolitan Statistical Area (CMSA) includes Hamilton, Butler, Warren, Clermont, Brown Counties in Ohio; Kenton, Boone, Campbell, Grant, Gallatin, and Pendleton Counties in Kentucky; and Dearborn, and Ohio Counties in Indiana.
4. Transportation Research Board. *Land Use Impacts of Transportation Guidebook. NHRP Report 423A*. 1999. Washington, DC: National Academy Press. 112.
5. Edwards, Jennifer. 19 October 2002. "City vs. Suburbs? Friction Heats Up: Highway Opposition Riles Leadership." *The Cincinnati Enquirer*.
6. Edwards, Jennifer. 23 October 2002. "Butler Ready to Fight for Fox Interchange." *The Cincinnati Enquirer*.
7. This figure does not include the planned replacement of the Brent Sprence Bridge.
8. See DeCorla-Souza, Patrick, and Harry Cohen. "Accounting for Induced Travel in Evaluation of Urban Highway Expansion." White Paper Session No. 9. Federal Highway Administration. www.fhwa.dot.gov/steam/doc.htm for more information on "induced travel."
9. White, Sammis B., Binkley, Lisa S., and Jeffrey D. Osterman. 1993. "The Sources of Suburban Employment Growth." *Journal of the American Planning Association*. 59.2. 193-204.
10. Parsons Brinkerhoff, Inc. 2003. *North South Transportation Initiative*. www.nsinitiative.com.
11. HSR Business to Business, Inc. 2003. *The Eastern Corridor PE/EIS Project Web Site*. www.easterncorridor.org.
12. Ibid.
13. Hamilton County Regional Planning Commission. 2003. *External Influences Report*. Community COMPASS Report 14. pp. 54-55.
14. Figure taken from the 2000 Census.
15. Cambridge Systematics, Inc. June 2002. *Freight Impacts on Ohio's Roadway System*. Report commissioned by Ohio Department of Transportation, Federal Highway Administration.
16. Ibid.
17. Greater Cincinnati Chamber of Commerce. 2002. "Rail Service." Created by Cincinnati USA/Partnership for Greater Cincinnati. Accessed May 15, 2003. www.cincinnatiusa.org/pdf/trans/rail.pdf.

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.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 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. Master Plan and Strategies (Nov. 2004) (Implementation Recommendations, Authority and Responsibility)

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