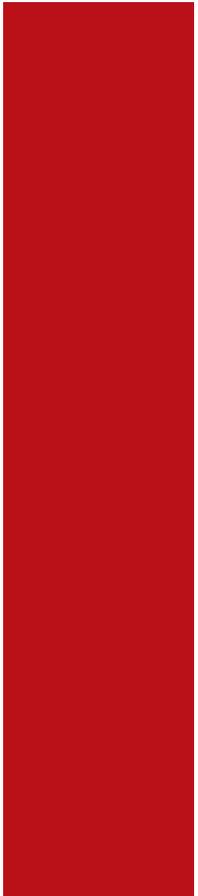


Cleveland  
Urban Area  
METROPOLITAN  
P L A N N I N G  
O R G A N I Z A T I O N

# Chapter 3

## Planning Area and Region

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# Planning Area and Region

This chapter describes the metropolitan area of Cleveland and Bradley County as well as the land development and population and employment changes that have occurred within the region over the last several decades. This information provides a foundation for understanding the region's growth and development trends and how these changes have and continue to influence transportation demands within the Cleveland and Bradley County area.

## MPO Area

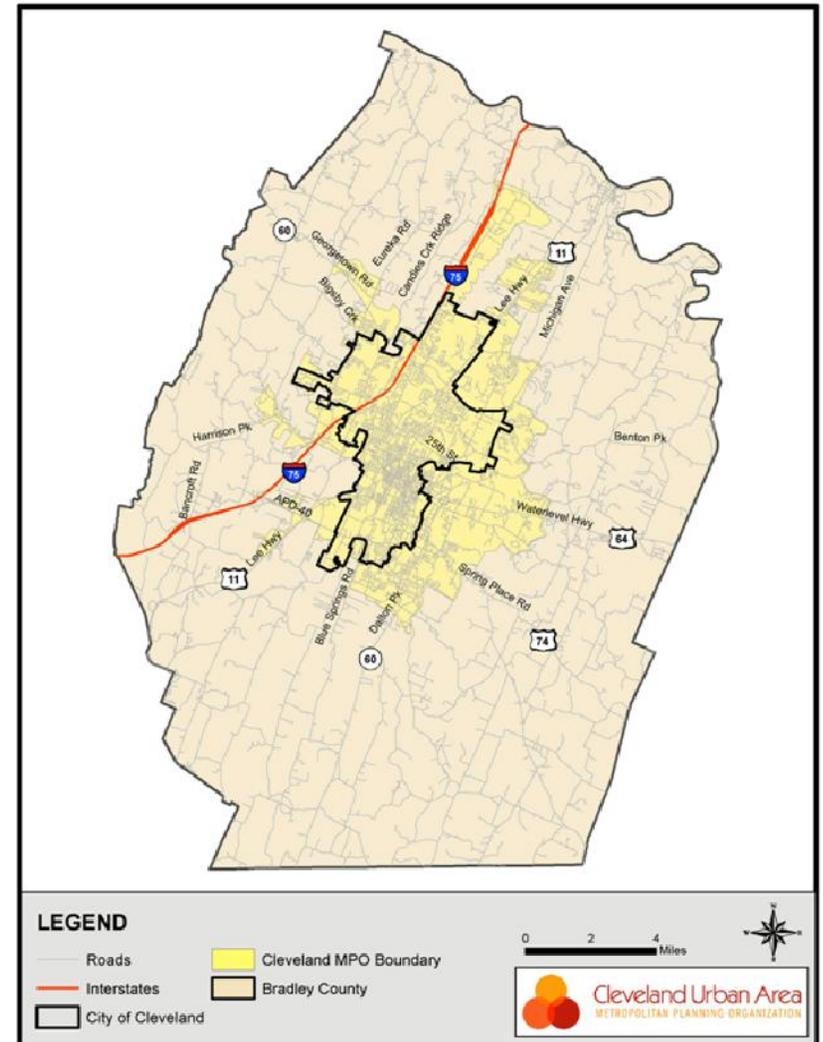
The Cleveland Metropolitan Planning Organization (MPO) serves the City of Cleveland and the adjoining urbanized portions of Bradley County (See Figure 3.1).

Bradley County is located in southeast Tennessee and is bordered by the Hiwassee River to the north, Georgia to the south and one county west (Polk County) of North Carolina. The City of Cleveland is the county seat of Bradley County which together with neighboring Polk County forms the Cleveland, Tennessee Metropolitan Statistical Area (MSA). The nearest larger cities are Chattanooga in neighboring Hamilton County (20 miles) and Dalton, Georgia (30 miles). Other larger cities nearby include Knoxville (80 miles), Nashville (150 miles), and Atlanta (150 miles).

Bradley County is approximately 330 square miles and is part of the Appalachian Mountain foothills which is characterized by a series of ridges and valleys running generally north and south parallel to the main mountain chain. The Appalachian region includes all of West Virginia and parts of 12 other states: Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, and Virginia.

The City of Cleveland is located in the center of Bradley County with its historic downtown occupying a plateau between South Mouse Creek and two major tributaries, Woolen Mill Branch and Fillauer Branch. The City of Cleveland is less than 30 square miles in size and its urbanized

Figure 3.1 Boundary Map of the Cleveland Urban Area MPO



## Chapter 3

area, including the City, is about 50 square miles, or about one-sixth of the total Bradley County land area.

Cleveland and its urbanized area are characterized by a traditional central business district (CBD)/government center with an adjacent medical and professional office area, an adjacent large private university, an adjacent older but vibrant urban industrial area, and strong downtown neighborhoods. Urban development has occurred in a fairly dense concentric fashion around the original downtown with a more recent spoke-like pattern along valleys and ridge lines.

Other substantial commercial development has occurred immediately west of the downtown on Keith Street, the first US 11 bypass and its subsequent connector to Interstate 75 (Exit 25), and the 25<sup>th</sup> Street/Georgetown Road corridor.

More recent commercial development has occurred along the Paul Huff Parkway/Stuart Road Corridor that was connected with Interstate 75 in the early 1980s (Exit 27). The most recent areas of substantial commercial development have been along the APD 40 bypass near its intersection with Dalton Pike and at the western terminus of APD 40 at Interstate 75 (Exit 20).

Table 3.1 Summary of existing land use categories.

Existing Land Use	Total Acreage	% of County
Agricultural	91,462	43%
Commercial	1,591	1%
Forest/Undeveloped	54,437	26%
Industrial	4,467	2%
Infrastructure	8,875	4%
Institutional	2,533	1%
Office/Professional	376	0%
Parks and Recreation	1,218	1%
Residential	45,208	21%
Water	2,299	1%
Total	212,466	100%

Source: Bradley County GIS, Assessor, and MDC GIS Analysis, 2010.

More recent industrial development has occurred primarily in two places: along a corridor in northeast Cleveland generally defined by Old Tasso Road and Michigan Avenue Road/Dry Valley Road, and in south Cleveland near APD 40 and Westland Drive.

With the exception of infill development on individual lots and a few subdivisions, residential development within the urbanized area south of Paul Huff Parkway and east of Interstate 75 dates mostly from the 1970s or earlier and consists of single-family homes, intermingled in many places with two-to-four-family structures sited individually or in small groups, a few larger multi-unit apartment complexes, and a few mobile home parks. A substantial amount of infill development of two-to-four-unit residential structures has occurred mostly in older neighborhoods. Substantial residential development, much of it single-family subdivisions, has occurred more recently in Cleveland (most notably in the Freewill Road corridor,

## Planning Area and Region

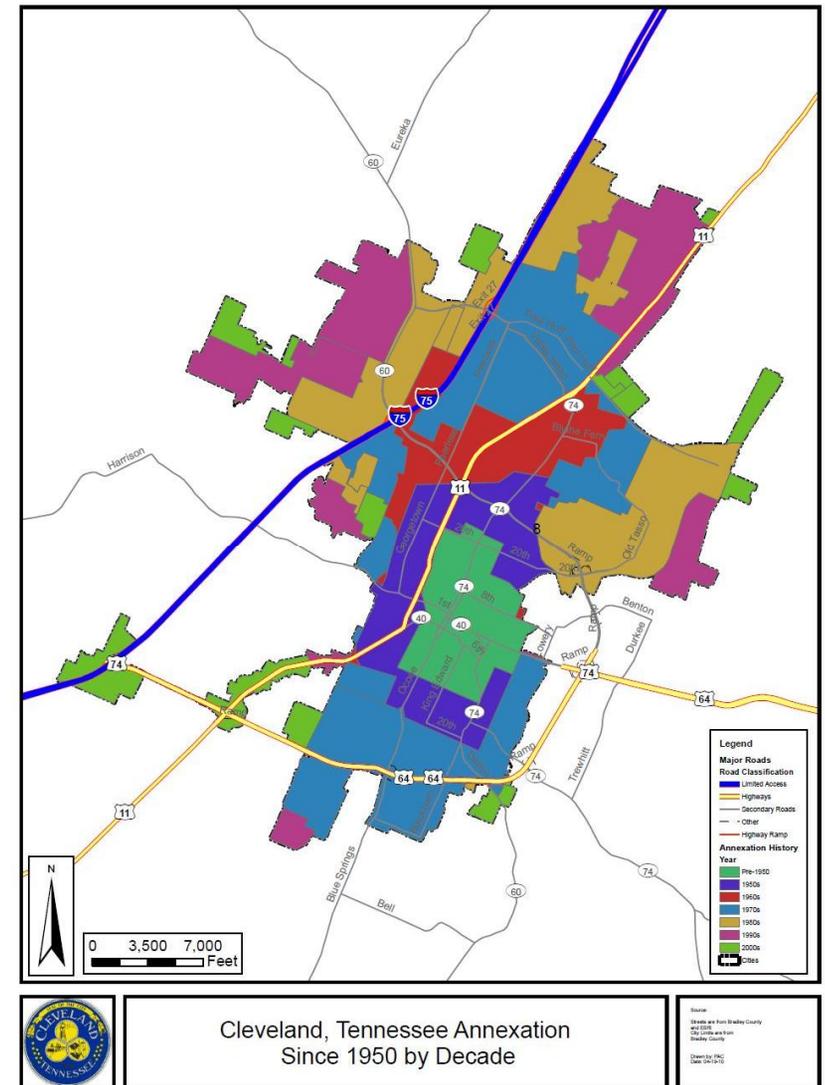
west of Interstate 75, north along Mouse Creek Road, and in in-fill areas of northeast Cleveland) and in Bradley County near Cleveland.

Road connectivity, slopes, soil suitability for septic tanks, and limitations on sewer service outside of Cleveland all affect the location of development, causing it to be more scattered outside the existing urbanized area. The three other more densely settled areas in Bradley County are: the small City of Charleston which is located on the Hiwassee River along US 11; Georgetown, a small community located in extreme western Bradley County on SR 60 at the Hamilton County line; and McDonald, a small community located in southeastern Bradley County on US 11. Except for these areas of more dense development outside of the Cleveland urbanized area, Bradley County is largely characterized by a rural landscape of mostly pasture and forest with significant agricultural operations (e.g. dairy farms, poultry production, horse farms, etc.) with outlying residential subdivisions, golf courses, schools, and scattered commercial, mining, and industrial uses.

The areas shown in purple and green in Figure 3.2 reflect the most recent annexations made by the City of Cleveland (in the 1990s and 2000s respectively).

In 2009 the MPO partnered with Bradley County, the cities of Cleveland and Charleston, the Bradley County Chamber of Commerce, local utility providers, and others to prepare a county-wide Strategic Plan. The goals of the 2035 Strategic Plan include themes of efficient growth, infrastructure directed growth, economic competitiveness, fiscal sustainability, transportation choices, housing choices, natural and cultural resource protection, livability and quality of life, placing value on existing communities and neighborhoods, and intergovernmental coordination.

Figure 3.2 Map of annexation and recent growth.

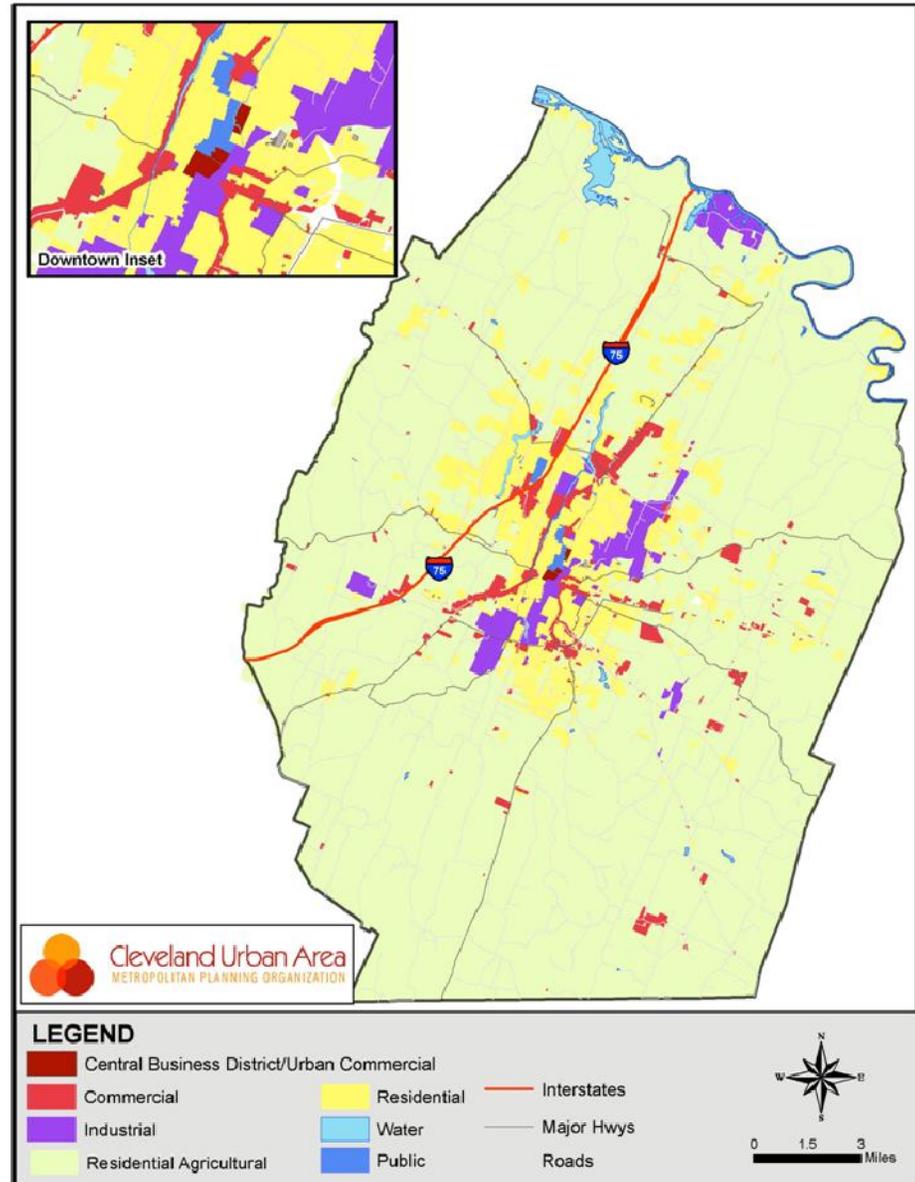


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Figure 3.3 depicts current land uses within Cleveland and Bradley County. The future land use plan developed in the BCC Strategic Plan reflects conscious coordination with transportation planning and likely future transportation infrastructure. The position of major transportation infrastructure in the north-south valleys traversing Bradley County (Interstate 75, Norfolk-Southern Railroad, US 11) are reflected in the concentration of industrial and commercial, office, and institutional land use and zoning designations, especially at points somewhat near the urbanized center (Cleveland) where there is nearby access to expressways, arterials, and connectors that can facilitate east-west movement.

The transportation facilities and land uses are strongly connected and influence one another. Some of the challenges of the past have involved suburban level development intensities along rural routes creating higher traffic volumes and different traffic patterns than what the roads were designed to handle. The relationship between land use and transportation is very important throughout the region, but particularly at locations like the four Interstate 75 interchanges and in areas targeted for growth. The roadways and alternative transportation systems must be supportive of and compatible with the land use and development pattern and intensity.

Figure 3.3 Existing Cleveland and Bradley County land uses.



### Population Growth and Urbanization

The MPO area has grown steadily over the last sixty years (See Table 3.2) and that growth is expected to continue into the future. Since 1950 Bradley County has added over 65,000 persons to the county's population. From a regional, state and national perspective, Bradley County has experienced a higher than average rate of growth compared to other areas.

With this increase in population, Cleveland and Bradley County have experienced a relatively steady increase in population density. In the 1990s there was an extraordinary increase in population density across the state of Tennessee and even more so in Bradley and Hamilton Counties. While the rate has slowed between 2000 – 2009, the number of people per square mile continues to increase. As a comparison, while not as dense as Hamilton County (Chattanooga), Bradley County's 2009 population density was 297 persons per square mile as shown in Table 3.3, an increase of more than 11% since 2000. This percentage increase is similar

to that of Hamilton County and the state of Tennessee.

In order to support the additional people in Bradley County, lands that were historically agricultural or farmlands have been converted to higher density residential areas. Bradley County has retained a greater percentage of its farmland over the past century than surrounding counties, but the percentage has declined by more than 50%.

The data in preceding tables suggest a number of things important to land use and transportation planning in Bradley County: first, that Bradley County began the urban era with a high endowment of

Table 3.2 Population Growth 1950-2009.

	1950	1990	2000	% Growth 1990 - 2000	2009	% Growth 2000 - 2010
United States	151,325,798	248,709,873	281,421,906	13%	307,006,550	9%
Tennessee	3,291,718	4,877,185	5,689,283	17%	6,296,254	11%
Hamilton County	208,255	285,536	307,896	8%	337,175	10%
Bradley County	32,338	73,712	87,965	19%	97,710	11%

Table 3.3 Population per square mile.

	Land Area (square miles)	1990 Population per Square Mile	2000 Population per Square Mile	% Change 1990 - 2000	2009 Population per Square Mile	% Change 2000 - 2009
Tennessee	41,217	49	138	182%	153	11%
Hamilton County	542	124	568	359%	622	10%
Bradley County	329	48	268	459%	297	11%

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lands well-suited to farming; second, that agricultural lands have been dramatically reduced in Bradley County but that agriculture has competed relatively well with urban uses compared with other counties in the study area; and third, that Bradley County's agricultural lands are a valuable resource that need to be protected through wise planning for urbanization (See Table 3.4).

## Future Population Growth

Historically, the location and intensity of growth has been influenced by availability of suitable land, utilities (sewer and water), the market, and land owners' willingness to develop land. Recent growth has occurred to the north of downtown Cleveland in the Mouse Creek area and additional pockets of growth have occurred throughout the rural parts of the county along major roads. This reflects a past trend for the market to be attracted to property located along the major roadways in the outlying areas of the county. Although it is impossible to predict exactly where the private market will target future growth, the Volkswagen plant is anticipated to be a major regional catalyst for growth. It is feasible that the plant will create demand for development

Table 3.4 Farmland Acreage Change 1990 – 2007.

	1990 Acres in Farms	2002 Acres in Farms	% Change 1990 - 2002	2007 Acres in Farms	% Change 2002 - 2007
Tennessee	20,342,058	11,681,533	-43%	10,969,798	-6%
Hamilton County	225,697	63,413	-72%	54,599	-14%
<b>Bradley County</b>	<b>192,081</b>	<b>94,598</b>	<b>-51%</b>	<b>95,602</b>	<b>1%</b>

along the southern Interstate 75 corridor. The opportunity for major economic development and the impact this could have on the existing community are important factors to consider. Likewise, the Wacker Chemie plant currently under construction at the north end of the county will likely add to the growth pressures in the Mouse Creek Area.<sup>1</sup>

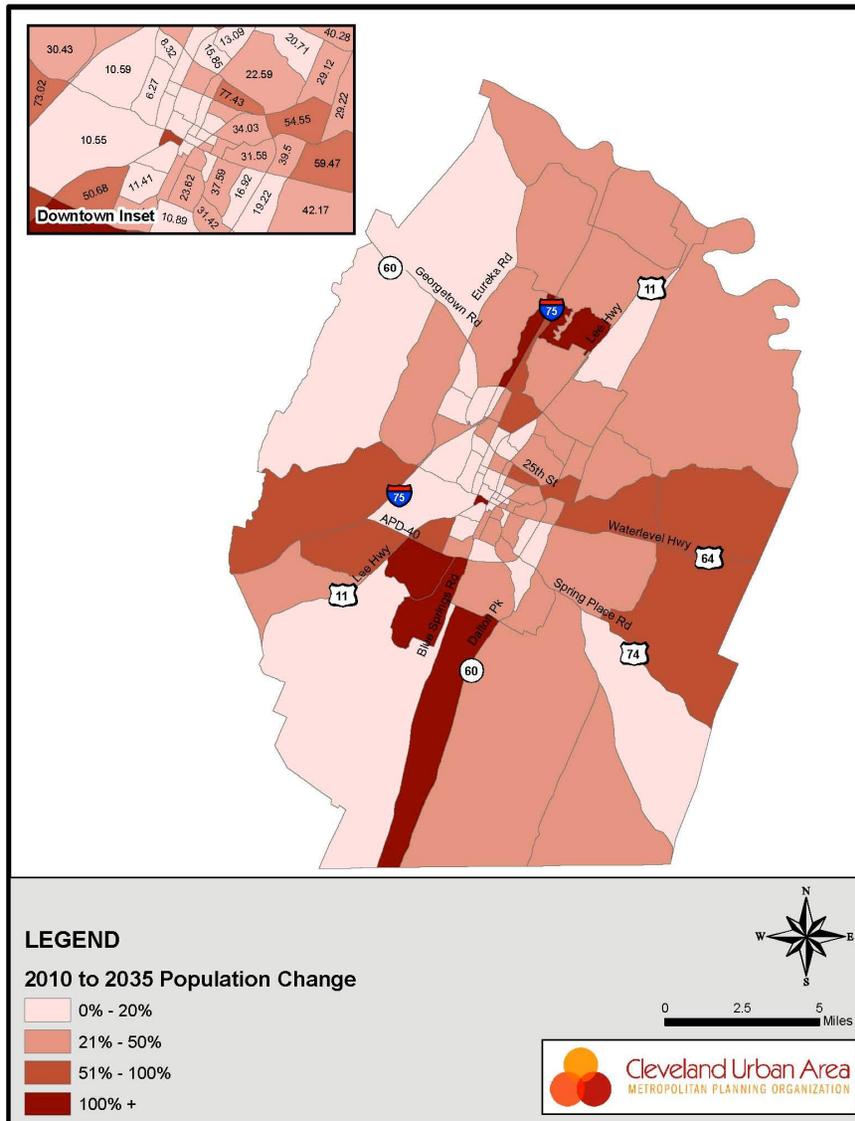
As part of the BCC Strategic Plan, growth forecasts were developed for the county through 2035. The forecasts (See Table 3.5) include the impacts estimated from the new Wacker Chemie plant in the northern part of the county and the new Volkswagen plant in adjacent Hamilton County. Based on these growth forecasts the county population is expected to grow from an estimated 98,520 residents in 2010 to 131,212 by 2035. This is a total increase of over 32,000 residents in

Table 3.5 Future Population Growth.

Year	Annual Growth Rate*	Total Population	Population Change	New Households	Household Change
2010		98,520		39,910	
2015	1.64%	106,871	8,351	43,861	3,951
2020	1.10%	112,887	6,016	46,619	2,758
2030	1.04%	125,136	12,249	51,564	4,945
2035	0.95%	131,212	6,076	54,066	2,502

# Planning Area and Region

Figure 3.4 Population Change 2010—2035.



twenty-five years.<sup>2</sup>

Within Bradley County, population growth is expected to be the highest in the outer areas of the urbanized area where sewer is available or might more readily be made available, and in the surrounding areas where the arterial street network can be accessed readily. Figure 3.4 shows the percentage of population growth by location. Areas anticipated to have the highest rates of growth include land in northern Bradley County adjacent to Interstate 75, as well as land in the southern portion of the county, bordering Interstate 75 and between US 11 and Dalton Pike.

## Age

Population age data can provide important information for decision-making in the transportation planning process. Increases in school age population can affect morning and afternoon peak hour traffic around school facilities or increase demand for sidewalk and bicycle facilities that provide connectivity to schools. Larger numbers of seniors may indicate a need for design sensitivity for roadways, pedestrian facilities, and transit, and perhaps the possibility of more off-peak travel.

The data in Table 3.6 indicate that the Bradley County population has been ag-

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ing for several decades but the increase in median age has not been as dramatic as in other area counties, especially the more rural ones. A larger proportion of the population is seniors but this is less the case in Bradley County than in most other area counties. Some area counties, including Bradley County, enjoyed a slight resurgence in the proportion of the population under age five over the 1990s, though the number has fallen since 1980.

### Education

The data in [Table 3.7](#) show dramatic gains in the percentage of the population age 25 and over who have at least a high school education. In a workplace that is increasingly oriented toward technology, a high school diploma represents a minimum threshold in terms of literacy, math skills, etc. that is needed to make a worker trainable.

These data in [Table 3.8](#) also reflect those persons with college degrees or at least some college, which have also increased. Education levels in the workforce have been and will continue to be important to the location decisions of employers and residents, and therefore will impact traffic in the area.

Table 3.6 Median Age.

	1990	2000	% Change 1990 - 2000	2009	% Change 2000 - 2009
United States	32.9	35.3	7%	36.5	-3%
Tennessee	33.5	35.9	7%	37.3	-4%
Hamilton County	34.7	37.4	8%	39.0	-4%
Bradley County	33.1	35.5	7%	37.3	-5%

Table 3.7 Percent population with High School Education.

	1990	2000	% Change 1990 - 2000	2009	% Change 2000 - 2009
Tennessee	67.1%	75.9%	13%	81.8%	7.8%
Bradley County	64.4%	73.2%	14%	79.6%	8.7%

Table 3.8 Percent of population with College Degree.

	1980	1990	2000	% Change 1990 - 2000	2009	% Change 2000 - 2009
Tennessee	12.6%	16.0%	19.6%	23%	22.4%	14.3%
Bradley County	10.5%	11.9%	15.9%	34%	19.2%	20.8%

### Income and Poverty

The household income data shown in Table 3.9 is a measure of the relative wealth of households in Bradley County compared to the United States, Tennessee and Hamilton County. Bradley County continues to grow its median income, but at a rate lower than the comparison geographies. The good news is that the income gap is being narrowed and relative buying power has increased in Bradley County and the MPO region over the last three decades.

Table 3.10 is based upon data from the Appalachian Regional Commission. It shows dramatic reductions in the percentage of the overall population living in poverty throughout the region from 1960 to 2000. A similar dramatic reduction in the percentage of persons living in poverty is shown for Bradley County between 1960 and 2000. The reduction

Table 3.9 Median Household Income 1990-2008.

	1990	2000	% Change 1990 - 2000	2008	% Change 2000 - 2008
United States	\$39,213	\$41,994	7%	\$52,029	24%
Tennessee	\$32,364	\$36,360	12%	\$43,610	20%
Hamilton County	\$34,603	\$38,930	13%	\$47,574	22%
Bradley County	\$33,501	\$35,034	5%	\$40,532	16%

Table 3.10 People Living Below Poverty.

	1990	2000	% Change 1990 - 2000	2008	% Change 2000 - 2008
United States	13.1%	12.4%	-5%	13.2%	-6%
Tennessee	15.7%	13.5%	-14%	15.5%	-15%
Hamilton County	13.1%	12.1%	-8%	14.1%	-17%
Bradley County	13.8%	12.2%	-12%	13.2%	-8%

ranged from 78.6% in Dade County, Georgia to 57.2% in Hamilton County, Tennessee, with Bradley County being 67.2%. In 1960, the percentage of persons in poverty was lower in Bradley County than in ten of the region's 15 counties and the same held true in 2000.

Rising incomes and reductions in poverty are good news and may lead to greater freedom of mobility for many persons in the MPO area. A likely outcome with higher incomes is more cars and a greater number of miles driven locally. While personal transportation in the form of automobiles may continue to be unaffordable for many residents, there may be greater elasticity in transit fares to ease the operating burden. There is likely to be a relatively greater demand upon the transportation system as a whole as the economic standing of the average resident improves.

### Employment

Changing employment patterns impact the demand for transportation. The historical employment data discussed here is from the Appalachian Regional Commission and is by place of work. For purposes of this discussion, service jobs include jobs in all categories that are not included in one of the other categories, for example, wholesale and retail employment.

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For the region as a whole, employment grew from 162,481 jobs in 1960 to 384,168 jobs in 2000, an increase of 136.4%. Bradley County's employment grew from 13,872 jobs in 1960 to 42,469 jobs in 2000, an increase of 206.1%. Bradley County's share of total jobs within the region has risen from about 8.5% in 1960 to about 11.1% in 2000. The share of employment between major sectors has shifted dramatically over the period 1960-2000. The overall number of agricultural and mining jobs within the region has been reduced by more than half over the 40-year period, for the region but the reduction in this sector has been much less in Bradley County (this corresponds to the relatively strong tendency to preserve farms in Bradley County). Still, jobs in agriculture and mining accounted for less than 2% of jobs in either Bradley or the region in 2000, compared with a little less than 7% of jobs in Bradley County and the region in 1960. Some amount of freight traffic related to agriculture, such as from the poultry industry, will be present on Bradley County Roads.

Jobs in construction have grown substantially over the period 1960-2000, both for the region and Bradley County. As a percentage of total jobs, the increase has not been that dramatic, rising from 5.6% to 7.0% for the region, and from 5.8% to 7.5% for Bradley County. Bradley

County's relatively higher growth in this sector may be a reflection of its comparatively higher rate of population growth. Freight traffic from building materials and supplies will be present in proportion to growth.

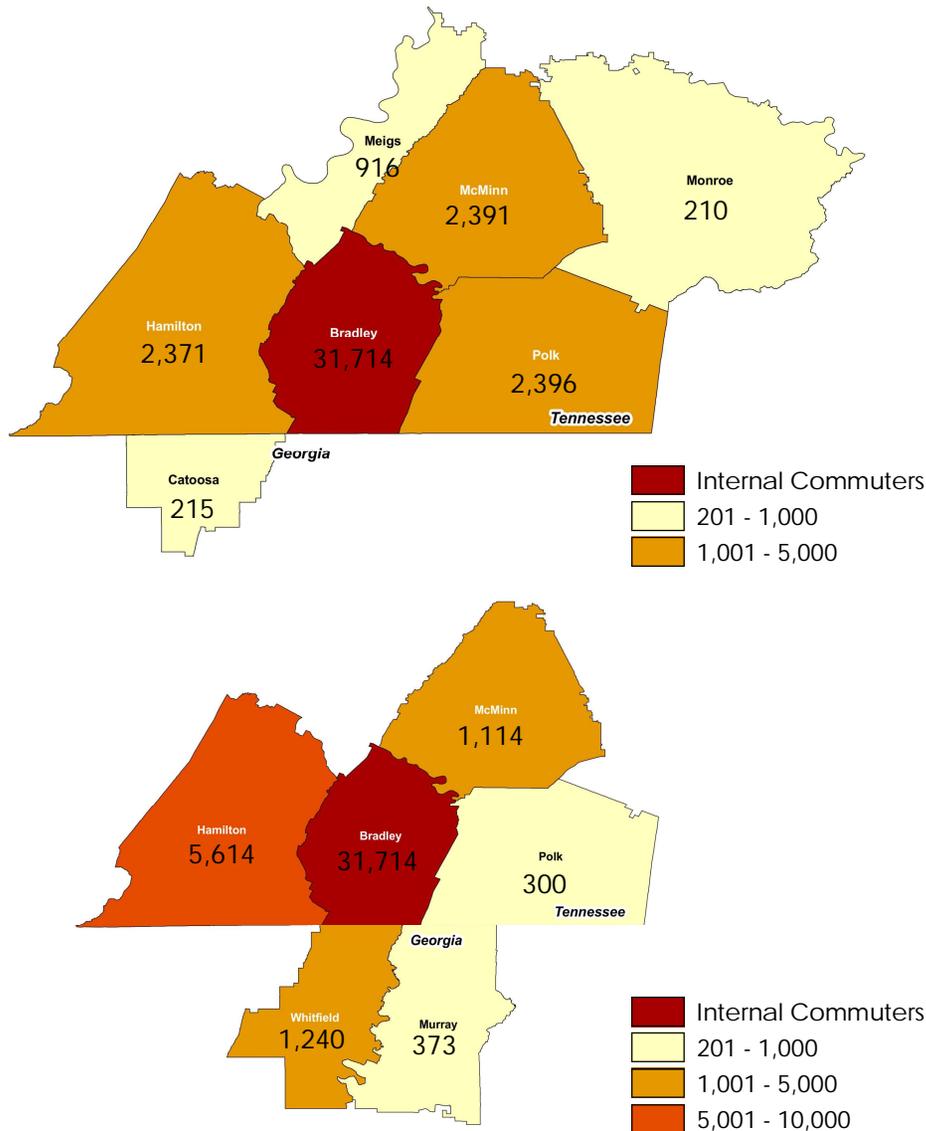
Jobs in manufacturing grew within the region by 80.8% over the period from 1960 to 2000, but within Bradley County over the same period the growth in manufacturing jobs was 93.3%. Between 1960 and 2000, the manufacturing sector declined as a percentage of overall employment, from 35.0% to 26.8% in the region and from 45.7% to 28.9% in Bradley County. While the percentage of employment is still relatively high in manufacturing for Bradley County compared to the region as a whole, Bradley County has experienced a more dramatic shift away from manufacturing as a percentage of its overall employment. This difference between Bradley County and the region appears to be mostly accounted for by a dramatic rise in service sector employment. The manufacturing sector has been strong in Bradley County and this will likely continue, impacting freight traffic and traffic from workers.

Jobs in services grew within the region by 191.7% during the period from 1960 to 2000, as compared with 350.4% for Bradley County. Employment in services as a percentage of total employment rose from 52.7% to 65.0% for the region between 1960 and 2000, while it rose from 42.3% to 62.2% during the same period in Bradley County. As can be seen from this data, the shift toward the service sector as a major provider of jobs has been dramatically stronger in Bradley County than for the region as a whole. An important caveat is that these service sector jobs include wholesale and retail trade data. Retail trade (a mall, two Super Wal-Mart stores, Hickory Grove Shopping Center, etc.) and warehousing and distribution (e.g. Peytons) have grown significantly within Bradley County. All of these factors will impact freight traffic as well as other traffic from shoppers and employees that come from Bradley County and surrounding counties.

Figure 3.5 shows a comparison of where Bradley County workers live and where residents work. According to the information, approximately 77%

# Planning Area and Region

Figure 3.5 Comparison of where Bradley County residents live and work.



## Where Do Bradley County Workers Live?

### Bradley County Workers

Who live in Bradley County	31,714	77%
Who live elsewhere	9,497	23%
<b>Total</b>	<b>41,211</b>	<b>100%</b>

### Top 5 Counties

Polk County, Tennessee	2,396	5.8%
McMinn County, Tennessee	2,391	5.8%
Hamilton County, Tennessee	2,371	5.8%
Meigs County, Tennessee	916	2.2%
Catoosa County, Georgia	215	0.5%
<b>Total</b>	<b>8,289</b>	<b>20.1%</b>

## Where Do Bradley County Residents Work?

### Bradley County Residents

Who work in Bradley County	31,714	77%
Who work elsewhere	9,641	23%
<b>Total</b>	<b>41,355</b>	<b>100%</b>

### Top 5 Counties

Hamilton County, Tennessee	5,614	13.6%
Whitfield County, Georgia	1,240	3.0%
McMinn County, Tennessee	1,114	2.7%
Murray County, Georgia	373	0.9%
Polk County, Tennessee	300	0.7%
<b>Total</b>	<b>8,641</b>	<b>20.9%</b>

Source: U.S. Census 2000 County-To-County Work Flow Files, July 2009 (Prepared by TACIR, October 2009)

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of Bradley County workers reside in Bradley County, with small percentages of Bradley County workers living in adjacent counties. In addition, while a majority of residents of Bradley County work within the county, approximately 14 percent of county residents work in neighboring Hamilton County.

### Future Employment Growth

Between 2010 and 2035, employment is expected to grow in Bradley County by nearly 20,000 jobs. The projected employment growth (See [Table 3.11](#)) will change the travel demand on area roads and has a significant impact on the travel patterns and transportation needs in an area.

The BCC Strategic Plan took an in-depth look at future employment growth and the trends likely to impact that growth. Key information related to employment growth includes:

- Strong growth in the Health Care, Real Estate, and Accommodation and Food Service sectors;
- Manufacturing jobs are projected to decline by 2,140 from 2010 to 2040; however, recent new job announcements include Wacker Polysilicon at 500 jobs; Schering-Plough at 106 jobs and the Whirl-

Table 3.11 Future Employment Growth.

Year	Total Employment	Change in Employment	% Change
2010	48,810	n/a	n/a
2015	54,510	5,700	12%
2020	59,159	4,649	9%
2030	65,186	6,027	10%
2035	68,237	3,051	5%
Total		19,427	

pool expansion at 500 jobs;

- Decline in jobs per household from 1.41 in 2000 to 1.19 in 2030. The post-2007 decline may be influenced by the 9.3 percent spike in 2010 unemployment; and
- No growth in the Retail sector.

Due in large part to the future VW Plant in Chattanooga, the Wacker Chemie Plant in Bradley County and anticipated supporting industries, 2035 employment growth is anticipated to be the greatest in the areas along the Interstate 75 corridor (See [Figure 3.6](#)). The future jobs will be located along Interstate 75 from near Hamilton County, north to the Bradley County line. An extensive area of expansion is anticipated near the Interstate 75 and APD 40 interchange in the southwestern portion of the county. For additional detailed information and statistics related to employment growth, refer to the BCC Strategic Plan.

Figure 3.6 Employment Change 2010—2035.

