

Appendix A: Western Piedmont Regional Profile

Population Demographics

The Western Piedmont (defined as Alexander, Burke, Caldwell and Catawba Counties, also known as the Hickory-Lenoir-Morganton Metropolitan Statistical Area or Hickory MSA) region population fell less than 0.1% from 365,497 in 2010 to 365,471 in 2015 (Table 1). Alexander County had the fastest growth rate over the past 5 years (2.0%) followed by Catawba County (1.0%). Since 2010 the population in Burke and Caldwell Counties has decreased. The lack of population growth in the Western Piedmont region compared to other regions in North Carolina is most likely due to substantial employment losses suffered in the region between 2007 and 2010 and a lack of net in-migration of younger households into the region.

County	Census 2010	2015 Estimate	Growth 2000-10	% Growth 2000-10	2025	2035	Growth 2015-35	% Growth 2015-35
Alexander	37,198	37,952	754	2.0%	38,745	39,189	1,237	3.3%
Burke	90,912	89,114	-1,798	-2.0%	90,002	90,179	1,065	1.2%
Caldwell	83,029	82,577	-452	-0.5%	83,411	83,666	1,089	1.3%
Catawba	154,358	155,828	1,470	1.0%	158,588	161,349	5,521	3.5%
Region Total	365,497	365,471	-26	<-0.1%	370,746	374,383	8,912	2.4%

Source: 2010 Census, US Census Bureau and NC Office of Management and Budget, 2016.

The North Carolina Office of Management and Budget (NCOMB) predicts only slow population growth in the region through 2035 with an increase from 365,491 to 374,383. This population growth of 8,912 persons represents only a small 2.4% increase over the next 20 years.

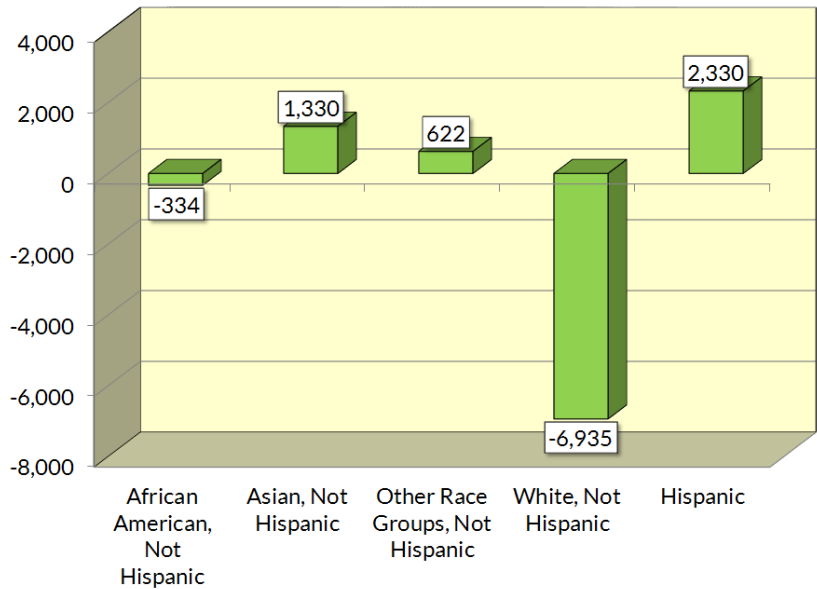
While the Western Piedmont region is predominately white, the area is becoming more ethnically diverse over time. African-Americans were the largest minority group in the region in 2015 with 25,728 persons (7.1%), followed by Hispanics with 25,393 (7.0%). Burke and Catawba Counties also have significant Asian-American populations due to the migration of Hmong families into the region over the last 30 years (Table 2).

County	White	% White	African-American	% African-American	Asian	% Asian	Hispanic (Any Race)	% Hispanic
Alexander	34,033	91.2%	2,219	5.9%	397	1.1%	1,670	4.5%
Burke	77,008	86.7%	5,640	6.3%	4,030	4.5%	5,380	6.1%
Caldwell	74,819	92.0%	4,127	5.1%	645	0.8%	4,083	5.0%
Catawba	131,003	84.5%	13,742	8.9%	6,660	4.3%	14,260	9.2%
Region Total	316,863	87.4%	25,728	7.1%	11,732	3.2%	25,393	7.0%

Source: 2015 Census Population Estimates, US Census Bureau.

Hispanics have been the fastest growing minority group in the Western Piedmont region over the past five years (Figure 2). By Census 2020 it is likely that Hispanics will become the largest minority group in the region. The number of Asian, not Hispanics in the region has increased by 1,330 since 2010 to 10,804 in 2015. Between 2010 and 2015 a small population gain occurred in “Other Race Groups, not Hispanic” due to growth in the number of persons counting themselves as “Mixed Race.” The number of White, not Hispanics and African-American, not Hispanics has declined in the region since 2010.

Figure 2.
Western Piedmont Region (Hickory MSA) Population Growth by Ethnic Group, 2010-2015



Source: 2010 Census and 2015 Population Estimates, US Census Bureau.

Table 3 displays Western Piedmont region age group populations for 2015. All four counties had similar age distributions, although Catawba County’s age distribution was slightly younger than the other Western Piedmont Counties. Burke’s 65 and older cohort equaled 18.8% of the County’s total population compared to 16.4% in Catawba County. Catawba County had a slightly higher percentage of population under 18 (22.6%) than the other three counties (20.7% to 20.8%). The age 18 to 44 cohort equaled about one-third of the total population in each Western Piedmont region County. A total of 103,673 persons, or 28.4% of the region’s population in 2015 was between the ages of 45 and 64.

Table 3. Western Piedmont Region (Hickory MSA) Population by Age Group, 2015								
County	Under 18	% Under 18	18-44	% 18-44	45-64	% 45-64	65 and Over	% 65 and Over
Alexander	7,872	20.7%	12,288	32.4%	10,831	28.5%	6,961	18.3%
Burke	18,428	20.7%	28,610	32.1%	25,355	28.5%	16,721	18.8%
Caldwell	17,190	20.8%	26,432	32.0%	24,091	29.2%	14,864	18.0%
Catawba	35,294	22.6%	51,643	33.1%	43,396	27.8%	25,495	16.4%
Region Total	78,784	21.6%	118,973	32.6%	103,673	28.4%	64,041	17.5%

Source: NC Office of Budget and Management, 2016.

Several Western Piedmont age group population trends can be observed in Table 4 on page 3. The largest population growth occurred in the 55 and older age groups. This result is due to the influence of the “Baby Boomer generation” as well as the net in-migration of retirees into the region since 2000.

The cohort with the greatest population percentage increase since 2000 is the 65 to 74 age group. The population in this group grew 56.7% from 24,456 in 2000 to 31,566 in 2015. This age cohort represents the peak of the Baby Boomer generation born between 1946 and 1964 (US Census Bureau definition). The oldest Baby Boomers turned 69 in 2015. The region's 60 to 64 age group grew 53.1% between 2010 and 2015, the 55 to 59 age group in the region increased by 38.5% from 2010 to 2015, while the 45 to 54 group grew 12.1%.

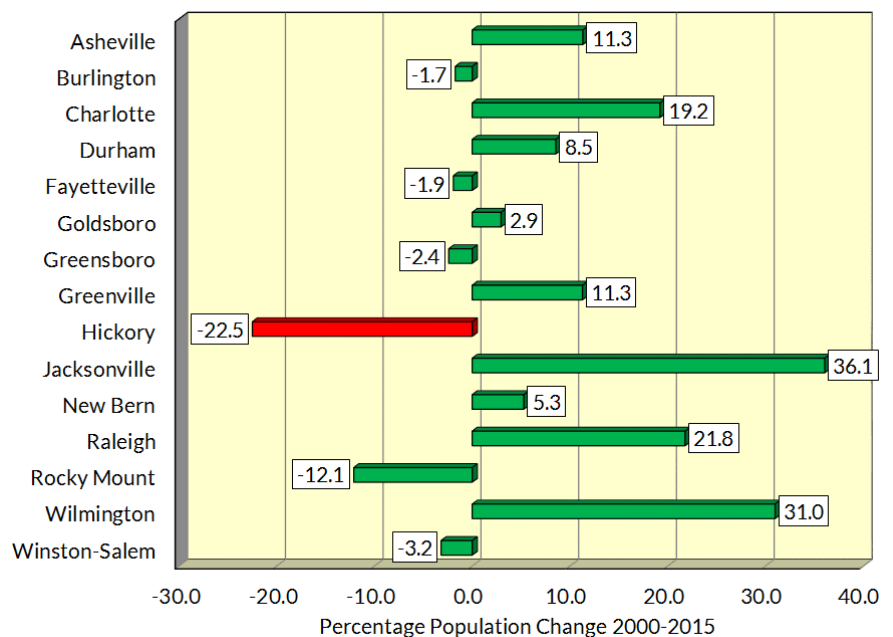
The youngest Baby Boomers turned 51 in 2015. Significant population growth also occurred in the Western Piedmont region's age 74 and over population groups. The number of persons in the 75 to 84 group grew 30.4% between 2000 and 2015, while the population age 85 and over increased 44.7%.

While several age cohorts experienced population growth between 2000 and 2010, other age groups suffered net population declines. The biggest percentage decrease was in the 25 to 34 age group. This group's total population declined 22.5% from 50,307 in 2000 to 38,994 in 2015. The 22.5% decline in the age 25 to 34 group was the greatest percentage decline of any Metro area in North Carolina (Figure 3). A population drop of 16.4% occurred in the 35 to 44 cohort between 2000 and 2010. The loss of population in these age groups (which led to fewer children being born), consequently, caused

Age Group	2000 Census	2010 Census	2015 Estimate	Change 2000-15	% Change 2000-15
Under 5 Years	22,057	21,592	19,034	-3,023	-13.7
5 to 9 Years	23,593	23,005	21,709	-1,884	-8.0
10 to 14 Years	23,225	24,277	23,071	-154	-0.7
15 to 19 Years	21,867	25,232	25,152	3,285	15.0
20 to 24 Years	20,547	19,957	24,504	3,957	19.3
25 to 34 Years	50,307	40,946	38,994	-11,313	-22.5
35 to 44 Years	54,178	51,674	45,293	-8,885	-16.4
45 to 54 Years	48,090	55,681	53,892	5,802	12.1
55 to 59 Years	18,934	24,638	26,230	7,296	38.5
60 to 64 Years	15,387	23,606	23,551	8,164	53.1
65 to 74 Years	24,456	31,566	38,329	13,873	56.7
75 to 84 Years	14,522	17,222	18,930	4,408	30.4
85 Years & Over	4,688	6,101	6,782	2,094	44.7
Total	341,851	365,497	365,471	23,620	6.9

Source: 2000 and 2010 Census, US Census Bureau and NC Office of State Planning, 2016.

**Figure 3.
NC MSA 25 to 34 Age Group Percent Population Change, Census 2000 to 2015 Estimate**



Source: 2000 Census, US Census Bureau and NC Office of Management and Budget, 2016.

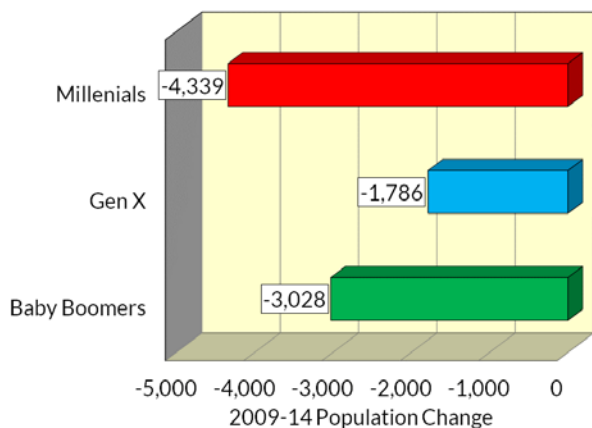
population declines in the under age 5, age 5 to 9 and age 10 to 14 cohorts.

There are a few reasons behind these population declines. First, the 35 to 44 cohort was impacted by the last of the baby boomers aging into the 45 to 54 group. The more significant reason, however, is due to the economic recessions the region has suffered over the past 15 years. The net loss of over 40,000 jobs in the region since 2000 has definitely affected the 20 to 44 age cohorts. These results indicate that some people age 20 to 44 have left the region over the past 15 years to seek job opportunities elsewhere.

Another way to analyze population change is to look at growth or declines of three generations in the Western Piedmont region: Baby Boomers born between 1946 and 1964, Generation X born between 1965 and 1979 and Millennials born between 1980 and 1990. A recent study completed by Syneva Economics (Asheville NC www.syneva.com) analyzes population change by generation between 2009 and 2014 for all counties in the United States. A closer look at the data for the area reveals that while all three generation lost population between 2009 and 2014, Millennials lost more population than any other generation (Figure 4). The population of the Millennial group decreased by 4,439 persons from 2009 to 2014. In other words, the region’s Millennial population decreased by 2.37 persons per day between 2009 and 2014. The Western Piedmont Millennials, consequently, had a greater percentage population decline in the region than any other generation group (Figure 5).

Figure 4.

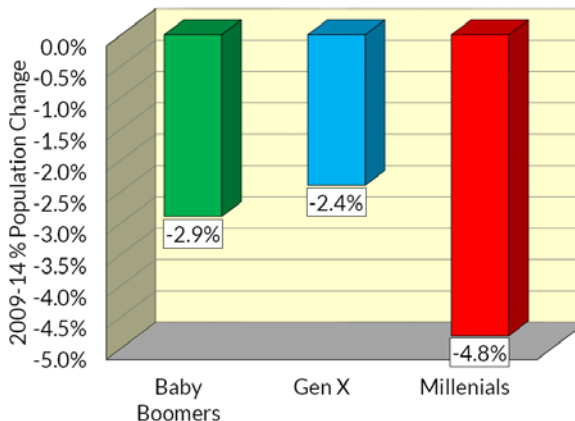
Western Piedmont Region (Hickory MSA)
Population Change by Generation,
2009-2014



Source: US Census Bureau and Syneva Economics, 2016.

Figure 5.

Western Piedmont Region (Hickory MSA)
Percentage Population Change by
Generation, 2009-2014



Source: US Census Bureau and Syneva Economics, 2016.

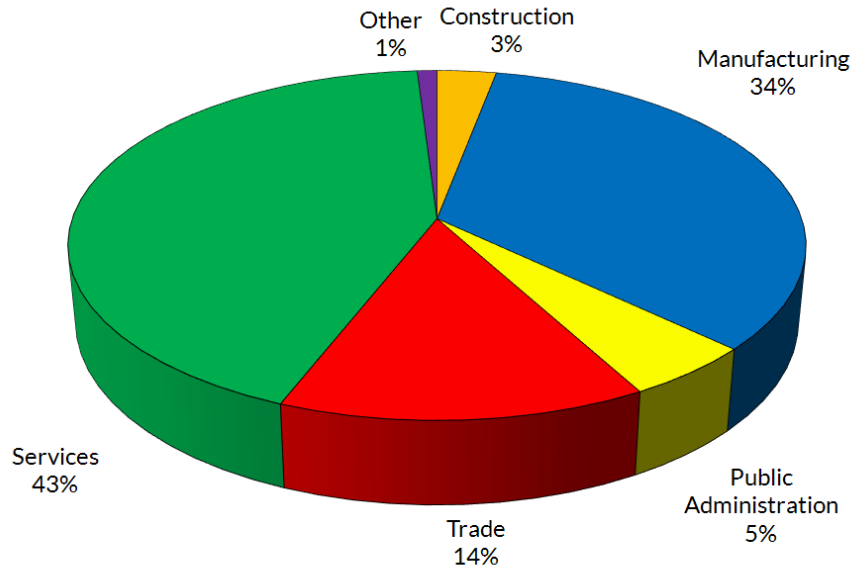
Employment

Employment data from the NC Department of Commerce, Labor and Economic Analysis Division, indicates that the Western Piedmont region continues to change from a manufacturing to a more service-based economy (Figure 6, page 5). In 2000 just over 34% of the region’s employees were involved in manufacturing. By 2015 just 28% of the workforce was employed in manufacturing.

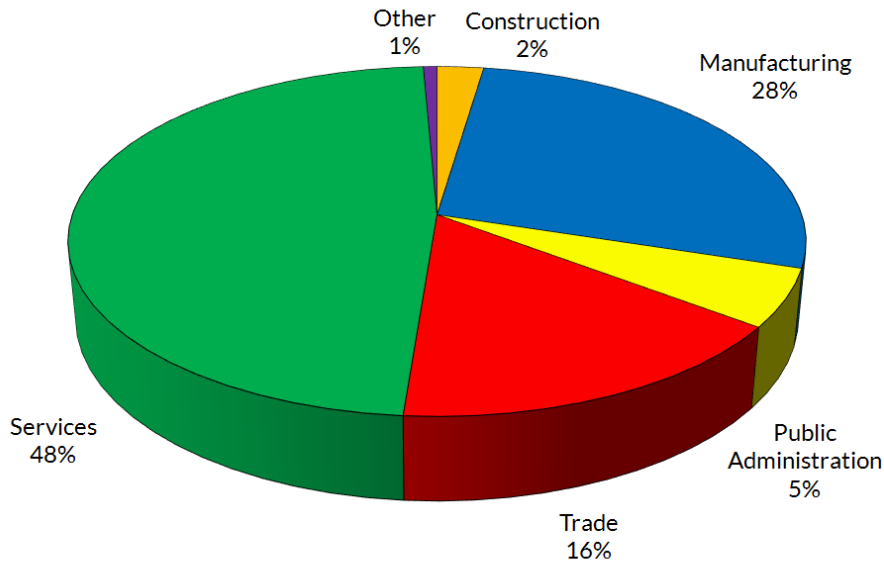
Figure 6.

Change in Western Piedmont Region (Hickory MSA) Employment by Percentage, 2000-2015

2000 Western Piedmont Region (Hickory MSA) Employment (185,093)



2015 Western Piedmont Region (Hickory MSA) Employment (144,880)



Source: NC Department of Commerce, Labor and Economic Analysis Division, 2016.

Even with these employment decreases, the region's manufacturing employment still has more than three times the national average of 9% manufacturing employment. Manufacturing will thus remain an important economic cluster in the region for the foreseeable future.

General service employment, which includes banking, education, health care, and warehousing/distribution, is becoming a more critical portion of the local economy. In 2000 services comprised only 43% of the region's jobs. By 2015 the percentage of service jobs had

grown to 48%. Recent trends indicate employment growth in business support services, health care, restaurants, and technical and profession services.

The Western Piedmont region has suffered the greatest percentage job loss of any metro area in North Carolina. Between 2000 and 2010 the region experienced a net loss of 46,999 jobs (or 25% of its workforce), mostly in the manufacturing sector (Table 5). All four region counties lost at least 20% of their jobs between 2000 and 2010. From 2010 to 2015 the region has gained back 6,785 jobs. Most of the employment gains have occurred in Catawba County (6,007 job gain). Caldwell County has suffered a net loss of more than 1,100 jobs since 2010.

Table 5. Western Piedmont Region (Hickory MSA) Employment, 2000-2015								
County	2000	2005	2010	2015	Change 2000-10	% Change 2000-10	Change 2010-15	% Change 2010-15
Alexander	10,810	10,183	8,615	8,958	-2,195	-20.3%	343	4.0%
Burke	37,550	33,904	27,959	29,505	-9,591	-25.5%	1,546	5.5%
Caldwell	35,099	29,245	24,445	23,334	-10,654	-30.4%	-1,111	-4.5%
Catawba	101,635	86,385	77,076	83,083	-24,559	-24.2%	6,007	7.8%
Region Total	185,094	159,717	138,095	144,880	-46,999	-25.4%	6,785	4.9%

Source: NC Department of Commerce, Labor and Economic Analysis Division, 2016

Education

Education is a key element in the future success of the Western Piedmont region. Based on the employment trends, it is clear that the region’s workforce will need to continue to upgrade skills and education levels to compete for jobs in higher-skilled industries. Many of these better-paying occupations are likely to demand more technology training and experience than were demanded by the region’s traditional manufacturing industries.

Data from the American Community Survey indicate that significant progress has been made in the region’s educational attainment levels; however, the region still lags behind most other Metro areas in the State. ACS results show that in 2015 the Hickory MSA had the second lowest percentage of persons over 25 with attainment levels of a high school diploma or higher (81.5%) of the 14 metro areas in North Carolina (Table 6, page 6). Census 2000 data indicated that 70.3% of the region’s population (over 25) had attained a high school degree or higher.

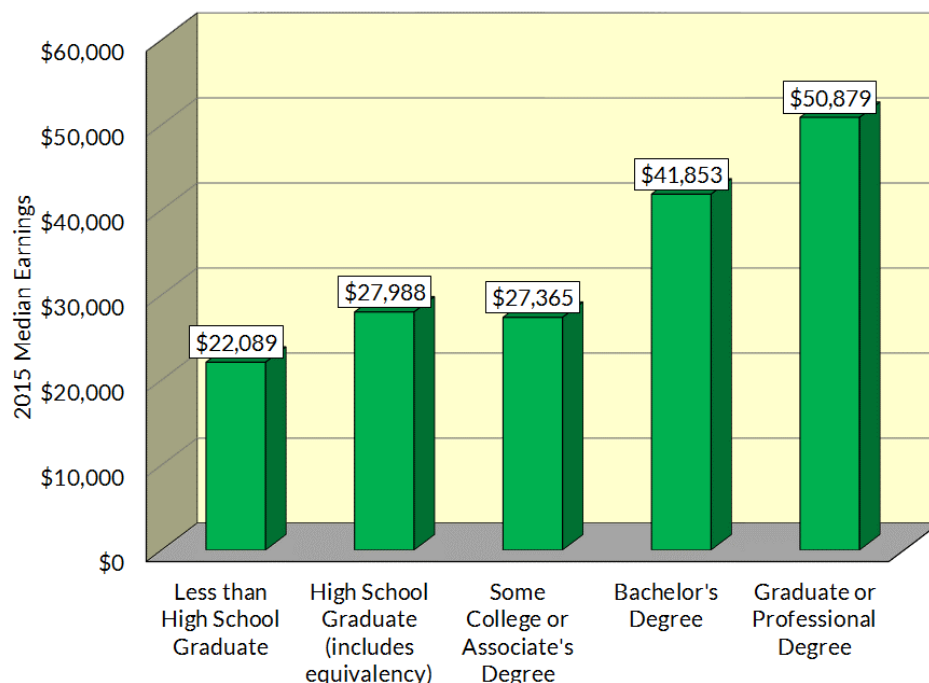
American Community Survey results for 2015 indicated that 18.5% of the population older than 25 possesses a bachelor’s degree or higher. This percentage was the second lowest among the State’s 15 MSAs. Results from the 2000 Census showed that 13.6% of the Hickory MSA’s population over age 25 had a bachelor’s degree or higher (the second lowest percentage of any metro area in North Carolina). It is also important to mention that a significant percentage of the region’s workers are classified as “some college, no degree” or “associate degree.” A total of 56,593 persons over 25 (22.5%) had some college, no degree, while 26,002 (10.3%) had an associate degree (2015 ACS). These workers will be an important part of any future economic and workforce development in the region.

Table 6. Education Attainment for Persons 25 and Older by NC MSA, 2015				
NC MSA	% High School Diploma or Higher	Ranking (1=Highest %)	% Bachelor's Degree or Higher	Ranking (1=Highest %)
Asheville	88.4	7	32.8	5
Burlington	83.3	13	22.9	11
Charlotte-Concord-Gastonia	87.9	9	33.5	4
Durham-Chapel Hill	88.1	8	45.1	1
Fayetteville	90.2	4	25.2	9
Goldsboro	85.3	12	21.9	12
Greensboro-High Point	85.9	10 (Tie)	28.0	7
Greenville	89.5	6	31.6	6
Hickory-Lenoir-Morganton	81.5	14	18.5	14
Jacksonville	91.4	2	20.8	13
New Bern	89.6	5	23.0	10
Raleigh	90.9	3	44.4	2
Rocky Mount	81.2	15	16.4	15
Wilmington	92.4	1	34.3	3
Winston-Salem	89.5	10 (Tie)	26.9	8

Source: 2015 American Community Survey, US Census Bureau.

ACS data for 2015 clearly shows the relationship between educational attainment and income (Figure 7). Western Piedmont region median earnings for the population over age 25 jumps from \$22,089 for less than high school graduate to more than \$27,000 for high school graduates and persons with some college or associate's degree. Median earnings (2015) for persons over 25 with a bachelor's degree equaled \$41,853, and the region's median earnings exceeded \$50,000 for a person over 25 with a graduate or professional degree.

Figure 7.
Western Piedmont Region (Hickory MSA) Median Earnings for Population Over 25 by Educational Attainment Level, 2015



Source: 2015 American Community Survey, US Census Bureau.

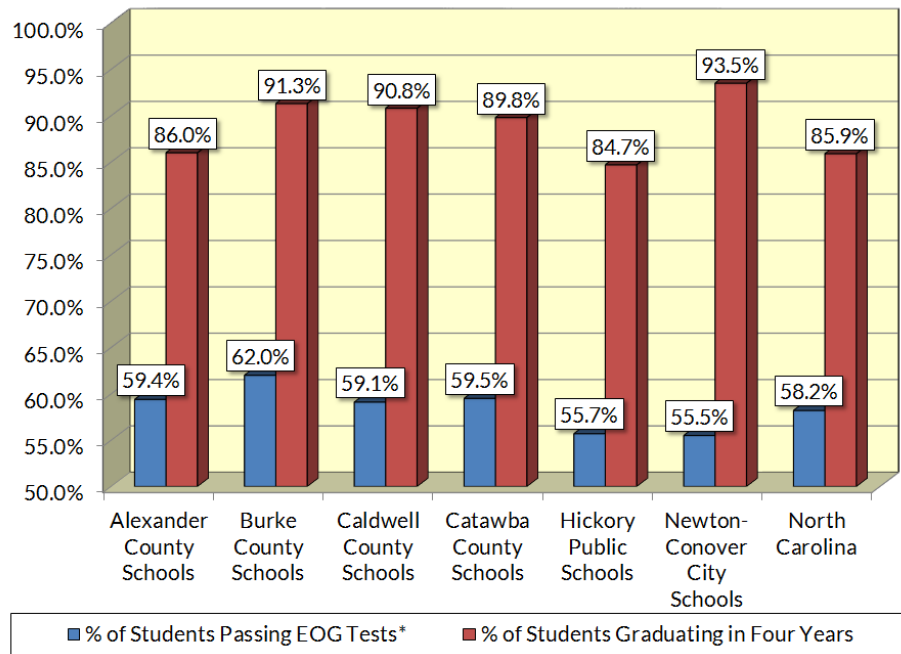
K-12 public school data released by the North Carolina Department of Public Instruction (NCDPI) indicate that the region's graduation rates for the 2015-16 school year ranged from 84.7% in for the Hickory Public Schools to 93.5% in Newton-Conover City Schools (Figure 8).

Three of the six school systems in the region had graduation rates higher than 90%. The State has a four-year cohort graduation rate of 85.9%.

The percentage of students passing (defined by NC Department of Public Instruction as “grade level proficient) all End of Grade (EOG) testing given in grades 3-8, ranged from 55.5% for the Newton-Conover City Schools to 62.0% in Burke County. EOG results for the 2015-16 school year showed that Alexander, Burke, Caldwell and Catawba County schools exceeded the North Carolina average of 58.2% passing.

Figure 8.

Regional K-12 Outcomes, 2015-16 School Year



*Defined as Grade Level Proficient.
Source: NC School Report Cards, NC Department of Public Instruction, 2016.

Income, Wages and Poverty

Between 2000 and 2010 the average annual Western Piedmont region wage has increased from \$26,780 to \$33,384 (Table 7). The 24.7% increase in wages was less than the rate of inflation between 2000 and 2010 (26.6%) and the NC average wage percentage increase (32.4% to \$41,132).

Table 7. Western Piedmont Region (Hickory MSA) Average Annual Wage, 2000-2015								
County	2000	2005	2010	2015	Change 2000-10	% Change 2000-10	Change 2010-15	% Change 2010-15
Alexander	\$24,128	\$26,156	\$28,548	\$31,030	\$4,420	18.3%	\$2,482	8.7%
Burke	\$25,896	\$29,640	\$32,136	\$34,916	\$6,240	24.1%	\$2,780	8.7%
Caldwell	\$24,596	\$27,976	\$30,368	\$34,241	\$5,772	23.5%	\$3,873	12.8%
Catawba	\$28,132	\$31,460	\$35,360	\$40,081	\$7,228	25.7%	\$4,721	13.4%
Region Total	\$26,780	\$30,108	\$33,384	\$37,528	\$6,604	24.7%	\$4,144	12.4%

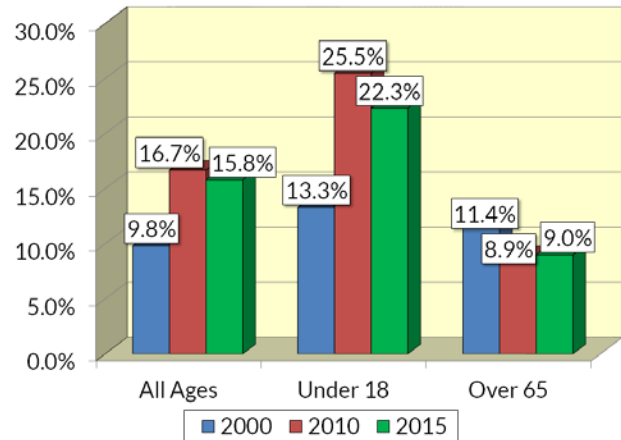
Source: NC Department of Commerce, Labor and Economic Analysis Division.

Between 2010 and 2015 Western Piedmont region wages increased by \$4,144 to \$37,528. The 12.4% increase was more than the rate of inflation between 2010 and 2015 (8.7%) but was slightly less than the North Carolina average wage percentage increase (13.2%). Growth in the region’s wages since 2010 has been caused by more workers finding full-time as opposed to part-time employment, as well as employment growth in higher paying manufacturing and service

sectors such as furniture manufacturing (1,665 jobs), durable goods wholesalers (633) and professional, scientific and technical services (549).

As a result of the employment losses, the region’s poverty rate for all individuals increased from 9.8% in 2000 to 16.7% in 2010 (Figure 9). The region’s economic recovery has caused the poverty rate for all persons to fall slightly to 15.8% in 2015. Poverty is especially hard on children in the Western Piedmont region. In 2000, 13.3% of children were living below the poverty level. By 2010 more than 25% of children (20,959) under 18 were living in poverty. Since 2010 the region has had some success in lowering the under 18 poverty rate. In 2015 the under 18 poverty rate was 22.3% (16,857). The poverty level for a family of four in the region is about \$24,000.

Figure 9.
Western Piedmont Region (Hickory MSA)
Poverty Rates, 2000-2015



Source: 2000 Census and Small Area Income and Poverty Estimates, US Census Bureau.

Table 8 shows Western Piedmont county poverty rates for all persons and children under 18 as well as median household income in 2015. Poverty rates for all individuals ranged from 15.1% in Catawba County to 16.7% in Burke County. All four counties in the region had poverty rates for children under 18 higher than 20%. The Western Piedmont region median household income in 2015 was \$41,441. County level median household income varied from \$39,636 in Caldwell County to \$42,711 in Burke County.

Table 8. Western Piedmont Region (Hickory MSA) Poverty Rates and Median Household Income, 2015					
County	All Persons Below Poverty	All Persons Poverty Rate (%)	Persons Under 18 Below Poverty	Persons Under 18 Poverty Rate (%)	Median Household Income
Alexander	5,555	15.5%	1,692	22.3%	\$41,092
Burke	14,434	16.7%	3,981	23.6%	\$42,711
Caldwell	12,963	16.2%	3,993	23.9%	\$39,636
Catawba	23,050	15.1%	7,191	20.8%	\$41,745
Region Total	56,002	15.8%	16,857	22.3%	\$41,441

Source: Small Area Income and Poverty Estimates, US Census Bureau, 2016.

Housing

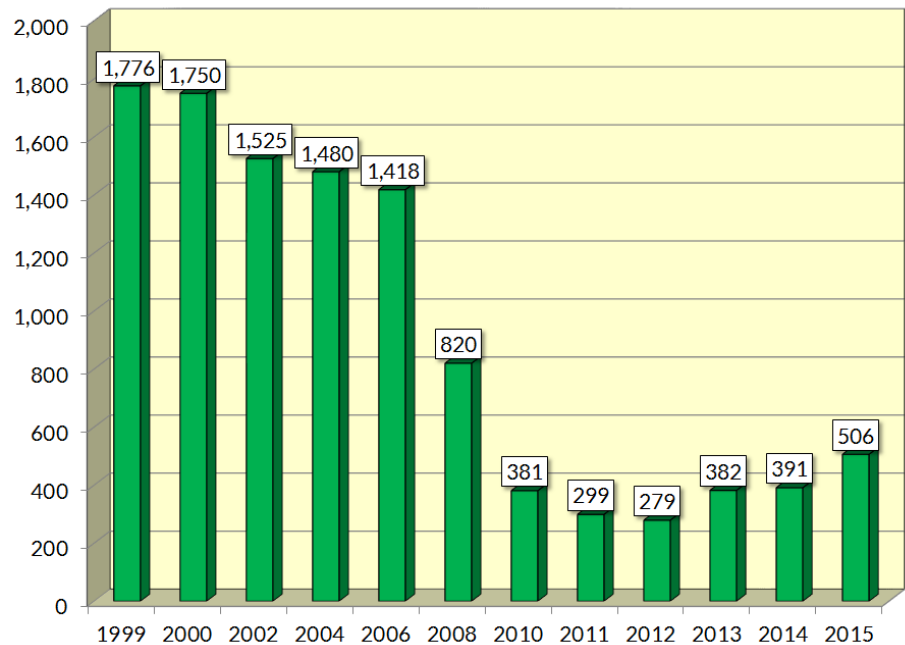
The amount and location of housing growth in the Western Piedmont region will also play a role in the region’s future economic development. Economic recessions and the bursting of the “housing bubble” have definitely had an impact on housing construction in the region over the past decade. In 1999 the number of new single-family site-built permits peaked in the region with 1,776 units being added (Figure 7, page 10). The recession between 2001 and 2003 caused the number of new single-family permits to fall to 1,398 units per year in 2003. After showing little change between 2004 and 2007, single-family site-built construction in the region began to decrease dramatically in 2008 to 820 units. New single-family building permit activity fell below 500 per units per year in 2009. By 2012 the number of new single-family units had declined to just 279, the lowest construction activity since 1982. Since 2012, single-family construction has

increased due to better economic conditions in the region. Between 2012 and 2015 the number of new single-family permits issued grew to 506 housing units.

Single-Family site-built building permit activity increased in three of the four Western Piedmont region counties between 2010 and 2015 (Table 9). The number of new single-family permits in Alexander County grew from 38 in 2010 to 68 in 2015 (78.9% increase). In 2015, Burke had more than 100 new single-family permits issued for the first time since 2010. New single-family residential construction exceeded 200 permits during 2015 in Catawba County.

Figure 7.

Western Piedmont Region (Hickory MSA) Single-Family (Site-Built) Permits, 1999-2015



Source: Western Piedmont Region Building Inspection Departments, 1999-2015.

Table 9.
Western Piedmont Region (Hickory MSA) Single-Family (Site-Built) Building Permits by County, 2010-2015

County	2010	2011	2012	2013	2014	2015	Change 2010-2015	% Change 2010-2015
Alexander	38	33	34	57	43	68	30	78.9%
Burke	102	68	50	65	79	126	24	23.5%
Caldwell	89	74	62	82	84	88	-1	-1.1%
Catawba	152	124	133	178	185	224	72	47.4%
Region Total	381	299	279	382	391	506	125	32.8%

Source: Western Piedmont Region Building Inspection Departments, 2010-2015.

Two other issues that the Western Piedmont housing market faces are a high percentage of vacant units and an aging housing stock. According to the 2015 American Community Survey, nearly one in seven housing units in the region are vacant (Table 10). The number of vacant units in the region has more than doubled since 2000 to 22,188 units as of 2015.

Table 10.
Western Piedmont Region (Hickory MSA) Housing Units, 2000 Census-2015 ACS

Year	Housing Units	Occupied Housing Units	Vacant Housing Units	Percentage Vacant Units
2000 Census	144,874	133,966	10,908	7.5%
2010 Census	162,613	144,504	18,109	11.1%
2015 ACS	162,285	140,097	22,188	13.7%

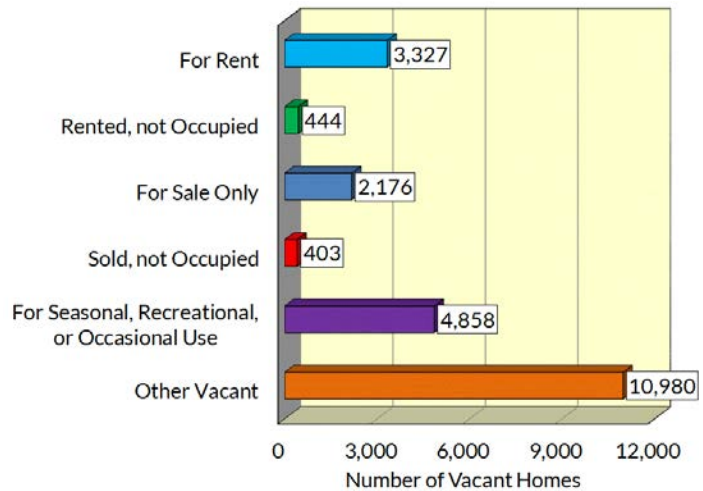
Source: 2000 and 2010 Census and 2015 ACS, US Census Bureau.

Of the 22,188 estimated vacant units in 2015, 4,858 (21.8%) are seasonal homes, 3,327 (15.0%) are for rent, and 2,176 (9.8%) are for sale (Figure 8). Another 10,980, or 49.5% of all vacant homes, are described by the Census Bureau as “other vacant” or abandoned homes. The region also has a much higher percentage of “other vacant” homes than the North Carolina average (35.5%), and a lower percentage of seasonal homes than the State average (33.4%).

The Western Piedmont region also has an aging housing stock. About 60,800 homes, or 27.7% of all homes in the region were built before 1970 (Table 11). In comparison, about 25% of the State’s housing stock was built before 1970. Only 34.5% of the region’s housing stock is less than 25 years old (or built before 1990). North Carolina data results indicated that about 45% of the State’s housing stock was built before 1990.

Figure 8.

Western Piedmont Region (Hickory MSA)
Vacant Homes by Type, 2015



2015 American Community Survey, US Census Bureau.

Table 11. Western Piedmont Region (Hickory MSA) Year Built of Housing Units		
Year	Housing Units	Percentage of Housing Units
Total Housing Units	162,285	100.0%
Built 2010 to 2015	2,391	1.4%
Built 2000 to 2009	22,158	13.7%
Built 1990 to 1999	31,553	19.4%
Built 1980 to 1989	26,192	16.1%
Built 1970 to 1979	29,187	18.0%
Built 1960 to 1969	20,549	12.7%
Built 1950 to 1959	13,515	14.5%
Built 1940 to 1949	7,395	4.6%
Built 1939 or Earlier	9,345	5.8%

Source: 2015 American Community Survey, US Census Bureau.

Transportation

The Greater Hickory Metropolitan Planning Organization (GHMPO) continues to make progress in improving the region’s transportation network. Since the last CEDS plan, the following major projects have been completed or are under construction:

- 1) A portion of 13th Ave. Dr. SE between McDonald Pkwy and 21st St Ln (Hickory)
- 2) New Interchange on US 321 and Connelly Springs Road (Lenoir)
- 3) Connector from Grace Chapel Road to US 321 (Behind MDI)

- 4) Upgrades to Lovelady Road in Valdese and Rutherford College
- 5) I-40/NC 18 interchange (Exit 105) in Morganton,
- 6) I-40/Enola Road interchange (Exit 104) in Morganton.

The complete list of transportation projects from the Spot 3.0 and Spot 4.0 NCDOT process that received support from the Greater Hickory MPO Transportation Advisory Committee can be found in Appendix X.

Environment

Air quality conditions have been steadily improving in the Hickory Metro since the 2012 CEDS, thanks to efforts from federal and state agencies and the Western Piedmont Air Quality Committee. No violations of the federal ozone standard have occurred at the Lenoir or Taylorsville ozone monitor sites in the past five years. New federal ozone guidelines scheduled to be issued in 2020, however, may substantially lower the standard and could once again put the region in jeopardy of nonattainment status for ozone.

Since the 2012 CEDS, PM 2.5 readings from the Hickory Water Tower Monitor show that the region has been well below the federal standard. New federal PM 2.5 guidelines to be issued in 2017, however, may substantially lower the standard and could put Catawba County in jeopardy of nonattainment status for PM 2.5.

The region's water quantity (availability) and quality will be impacted by growth and development in the region, leading to increased impervious surface runoff and sedimentation. Drought conditions have impacted the water supply of the region several times in the past five years. Another water quality issue facing the region is the Nonpoint Discharge Elimination System (NPDES) Phase II regulations, which dictate that local communities, depending on size, must control storm water runoff. Storm water is North Carolina's number one water pollution issue. In 2007 Lake Rhodhiss made the federal list of impaired water bodies for nutrients.