Identifying Substance Use Trends & Using Data to Strengthen Community Collaboration

Data on Social Determinants of Health, Behavioral Health Disparities, and the use of Substances in Burke, Catawba, Cleveland, Gaston, Iredell Lincoln, Rutherford, Surry, and Yadkin Counties

Prepared by the Center for Housing and Community Studies for the
Juvenile Justice Partnerships & County Collaboratives Forum
Friday, June 14, 2019
Hosted by
Partners Behavioral Health Management

UNC GREENSBORO
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RURAL ADDICTION

In the late 1990s, prescribing practices around opiate pain medication changed, leading to increased prescriptions of these medications, for a couple of reasons:

- The American Pain Society encouraged physicians to treat pain more aggressively.
- The Veterans Health Administration launched a campaign to treat pain as the "fifth vital sign."

There is often a lower perception of harm with the use of prescription drugs, although these drugs are highly addictive *even when taken as prescribed.* When access to prescription opioids is removed without providing some sort of treatment services, addicted individuals are more likely to begin using heroin. The single strongest risk factor for addiction to heroin is previous addiction to opioid pain medication.

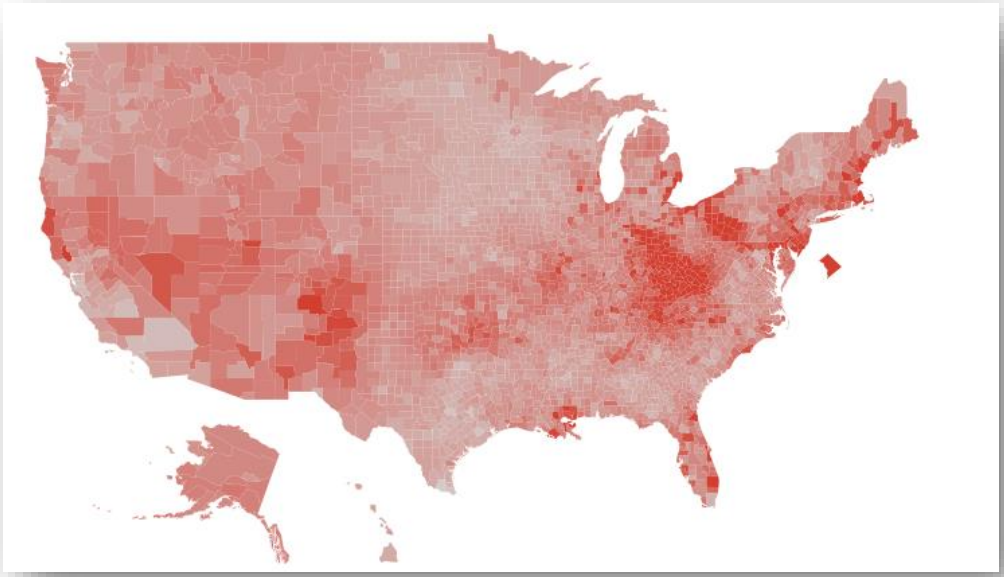


FIGURE 1 - DRUG POISONING DEATH RATES BY COUNTY (2017)

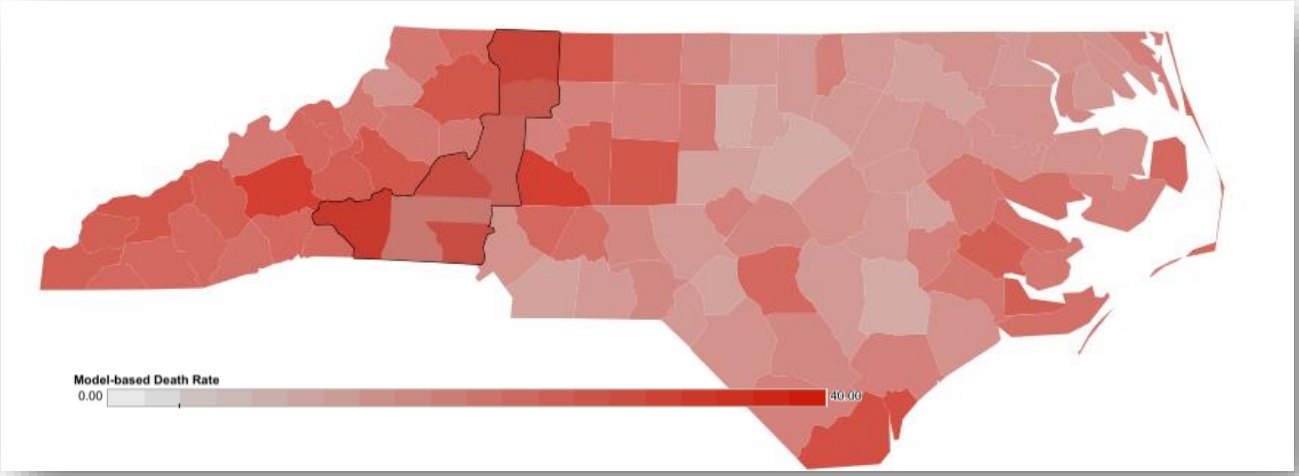


FIGURE 2 - DRUG POISONING DEATHS BY COUNTY NC (2017)

Opiate pain medications are prescribed at greater rates, leading to greater availability of these drugs in rural areas. Typically, rural populations are older on average than urban populations, and older populations tend to have more health issues, go to the doctor more, and get prescribed these kinds of medications more frequently to manage chronic pain issues. Out-migration of upwardly mobile young adults from rural areas creates an aggregation of young adults at higher risk for drug use. Tight kinship and social networks allow for quicker distribution of non-medical prescription opioids among those at risk. Increasing economic deprivation and unemployment create a stressful environment that places individuals at greater risk of use. Rural areas are often characterized by low educational attainment, poverty, unemployment, high-risk behaviors, and isolation, all of which function as risk factors for substance abuse.

Why do these issues persist in rural areas?

While nation-wide there is a shortage of mental health professionals, rurality is one of the best predictors of unmet need for a county. Using the USDA's 9-point Rural-Urban Continuum Code, for every one-point increase in rurality, there is a corresponding 3.3% increase in unmet need

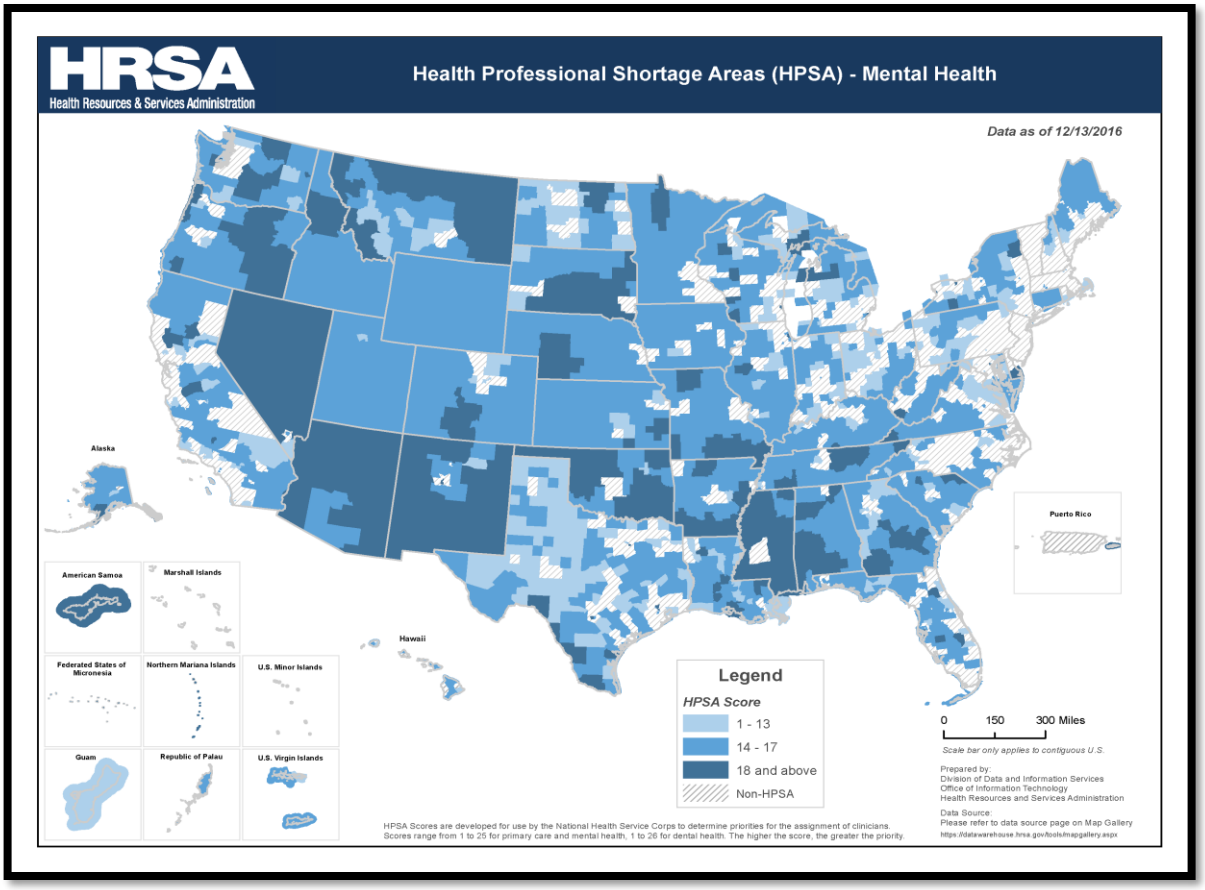


FIGURE 3 - HEALTH PROFESSIONAL SHORTAGE AREAS

for mental health services in that county. There are multiple community-level barriers to recovery in rural areas:

- Less access to treatment services
- Less access to professional support
- Less access to peer support
- Greater problems maintaining confidentiality and anonymity when seeking treatment

COMMUNITY PERCEPTIONS OF RURAL SUBSTANCE USE DISORDERS

Telephone interviews were conducted with prevention program coordinators in thirteen rural counties in 2017 by the UNCG Center for Housing and Community Studies. The interviews explored: local demographic and economic characteristics; coalition partnerships, activities, and successes; demographics of prescription medication misuse; current uses of data and data needs; obstacles to addressing local issues; and resource needs. Findings reported here include communities or populations who are experiencing disparate access to prevention/ treatment/ recovery and causal factors for prescription medication misuse among 12-25-year old.

Profile of Prescription Medication Misuse

Based on the coordinators' perceptions of the local community (derived from OD data, law enforcement reports, hospital ED visits, and anecdotal evidence), prescription medication abuse most impacts working aged persons and those over-65:

- **White working-aged, blue collar and white collar**
  - *Mid 20's working middle class. You will never know they are addicted because they work*
  - *Being white, being working age, being employed, being married are all things that increase access*
  - *OD deaths are White, about 38% in the age group 25-44, 33% in the age group 45-64*
  - *lot of men and women in their 30s*
  - *Mothers who get pregnant (20s and early 30s) have medication pushed on them by doctors*
  - *Increasing trends in adolescents, but data shows middle aged white men*
  - *Most overdoses are still across the board, hitting every demographic*
  - *In our community, more adults than youth*
  - *Data from hospital, very rarely is it someone in their 20s, most of the time it is in their 30s-60s*
- **Over 65**
  - *over the age of 65 are most affected*
  - *16% of OD deaths are seniors*
  - *Grandparents who are abusing medications*
  - *55 and older misusing*

Substances Being Used

Substances mentioned include opioids, tranquilizers, sedatives, and muscle relaxers, OTC medications, alcohol, marijuana, and tobacco. One coordinator explained that in her area, "Kids will take amphetamines and benzos to study and to have fun at the bonfire." Another coordinator said

that opioids are taken more by the late 20s' and early 30s' and over 65 populations. Several coordinators mentioned increasing heroin use as there has been a crackdown on prescriptions. Also, OTC medications have been noted with younger populations due to ease of access.

Causal Factors

Respondents believe that "prevalence of use in 12-25 is not nearly as much of a problem as for middle-aged and older adult populations." One coordinator noted that OD deaths are 7% in the age group 19-24. They explained that kids are "more victim of parents" with parent giving them higher doses of medication prescribed making them think it is okay to take more. There was variability in prevalence among 12-25-year-olds based on location. One coordinator explained that in her county "middle and high school; in high school, past 30-day use was around 20%, highest in 12th grade." Factors that are related to use included:

- **Easy access**
  - *friends and family members have them*
  - *parents and grandparents keep their medicines unlocked*
  - *Overprescribing for Sports injuries*
  - *Accessibility maybe causal factor. So easy for community to get them.*
  - *Doctors prescribing out the wazoo.*
- **Lack of opportunities for young people, boredom, and sense of hopelessness**
  - *Lack of resources for after school programs for youth*
  - *Boredom has a positive correlation with drug use, according to assessment*
  - *Real problem with kids who are graduating high school and aren't plugged in to community college or furthering their education and are just hear without engaging in anything.*
- **Parental attitudes and behaviors**
  - *Kids are watching their parents doing it and increasing their risk.*
  - *Mom and Dad giving them the medication to calm them down, even multiple doses. If they can take one, then they can take three.*
  - *parents are doing it and its around, its easy access*
  - *parents allowing kids to use and drink at home*
- **Poverty among seniors**
  - *Seniors selling prescriptions*
- **Social acceptability**
  - *pill parties*
  - *Low perception of harm*
  - *the doctor prescribed this must be safe*
  - *Doctor prescribed it. Okay to share it.*
- **Other reasons**
  - *Deal with stress etc.*
  - *Need to sleep*

- *Help with study/ concentration*
- *Untreated depression or trauma*

Social Obstacles

There were several attitudinal and cultural factors that play a role in the success or failure of local efforts to mobilize communities to address prescription misuse. They were identified as:

- **Awareness**
  - *People do not understand ⅓ of the issue is heroin and ⅔ is prescription drugs*
- **Stigma**
  - *Stigma about what it means to be addicted, people who won't seek help or admit that there is an issues because of the stigma*
  - *Fear, do not want it to become public that this is an issue with the schools and youth*
  - *Stigma, people are not willing to talk about it. Recent parents night about prevention, only 57-60 people there. Parents discussed that coming to events is an admission of a problem.*
- **Denial**
  - *Belief that "it's not a problem here" and lingering sense of denial, especially among parents*
  - *Culture of not addressing the problem*
  - *Everyone points a finger at someone else*
- **Culture of Use**
  - *Alcohol is a rite of passage. First age of alcohol use in nine years old*
  - *Cultural norm of drinking in communities. Picking up a 12 pack is not unusual*
  - *A culture of sharing. People don't think twice about it*
  - *Multigenerational "culture", that doesn't necessarily start with opioids but other medications that encourages sharing what you have*

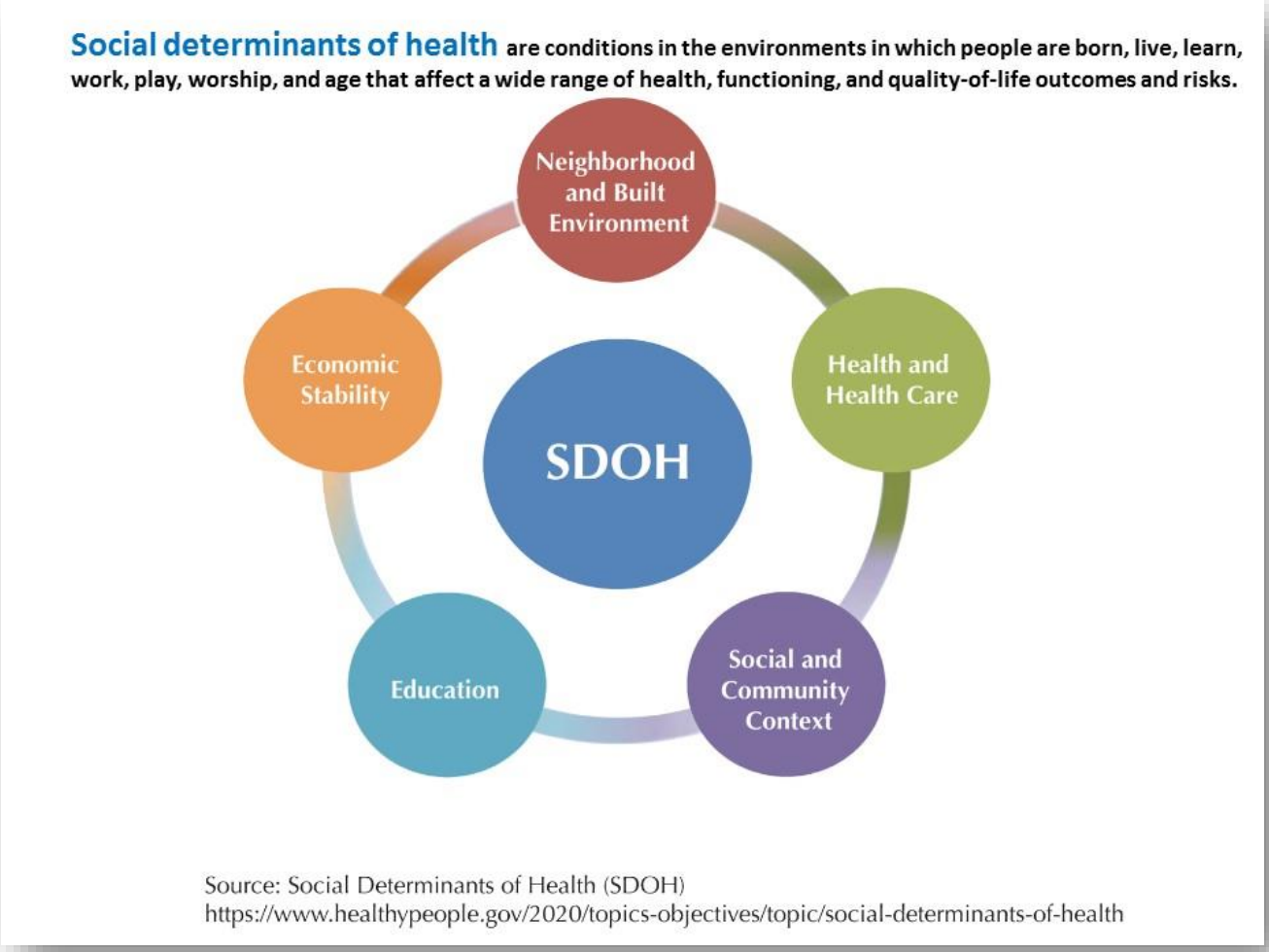
Populations with Disparate Access to Services

Interviews yielded several populations who potentially experience disparate access to prevention, treatment, and recovery resources. This disparity included those who were geographically isolated in very rural areas, LGBTQ youth, those without insurance, Native American, and Hispanic/Latino populations.

- **Geographically Isolated**
  - *Pockets of really rural economically deprived communities that they probably aren't reaching.*
  - *Everyone knows that they have a very big opioid problem there, have had heroin problem for 15 years and no one has been going out there to reach out to them.*
  - *No mobile resources*
- **LGBTQ**
  - *LGBTQ are not being served.*

- **Uninsured**
  - *Because so rural, there are more social determinants like lack of access to care and lack of insurance, pretty significant percentage of adults that are uninsured that perpetuates the sharing and lack of disposal.*
- **Native American**
  - *The native population based on drug courts. More Natives than anyone else. You can expect that population has higher use than anyone else.*
- **Hispanic/Latino**
  - *Try really hard to pull in Hispanic community because they are left out, pushback with stigma and history. Hispanic community claims the issue is alcohol and not prescription drugs, not aware that their youth are still using pills. Also with political climate Latino community is isolating itself from federal and professional.*
  - *Pretty large Hispanic community, don't have resources in Spanish. Literacy council does a lot of work with the Hispanic population but prevention messages are limited. Burke Recovery holds a couple of treatment groups a week in Spanish*

SOCIAL DETERMINANTS OF HEALTH



Examples of Social Determinants

1. Access to educational, economic, and job opportunities
2. Access to health care services
3. Access to mass media and emerging technologies (e.g., cell phones, the Internet, and social media)
4. Availability of community-based resources in support of community living and opportunities for recreational and leisure-time activities
5. Availability of resources to meet daily needs (e.g., safe housing and local food markets)
6. Culture
7. Exposure to crime, violence, and social disorder (e.g., presence of trash and lack of cooperation in a community)
8. Language/Literacy
9. Public safety
10. Quality of education and job training
11. Residential segregation
12. Social norms and attitudes (e.g., discrimination, racism, and distrust of government)
13. Social support
14. Socioeconomic conditions (e.g., concentrated poverty and the stressful conditions that accompany)
15. Transportation options

Examples of Physical Determinants

1. Natural environment, such as green space (e.g., trees and grass) or weather (e.g., climate change)
2. Built environment, such as buildings, sidewalks, bike lanes, and roads
3. Worksites, schools, and recreational settings
4. Housing and community design
5. Exposure to toxic substances and other physical hazards
6. Physical barriers, especially for people with disabilities
7. Aesthetic elements (e.g., good lighting, trees, and benches)
8. Availability of resources to meet daily needs (e.g., safe housing and local food markets)

SOURCE: https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health

HUMAN CENTERED LANGUAGE

Changing the Conversation: Human-Centered Language

Human-centered language is person-centered and strength-based; it is descriptive as opposed to judgmental and is key to reducing stigma.

Instead of...	Use...
Addict Junkie Burnout Fiend	Person with a Substance Use Disorder (PWUD) Person Who Uses Substances
Relapse	Return to Use
Clean Dirty	Abstinent Positive/ Negative Test Result
Methadone Maintenance Opioid Replacement	Medication Assisted Recovery Medication Assisted Treatment
Born Addicted Crack baby	Born with Prenatal Substance Exposure Newborn Opioid Withdrawal

Source: Ashford, R.D., Brown, A.M., & Curtis, B. (2018). Substance use, recovery, and linguistics: The impact of word choice on explicit and implicit bias. Drug and Alcohol Dependence, 189, 131-138.

While some stigmatizing language may be acceptable in mutual aid settings, its use should be avoided in public, when advocating, and in journalism.

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National and State-Level Trends in Adolescent Substance Use

Prescription Misuse

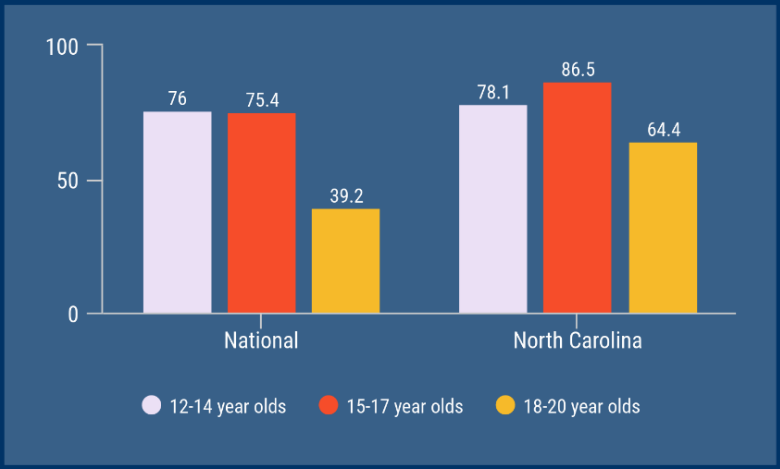
15% of NC high school students report misusing prescription pain medicine at least once in their lifetime

Among sexually active high school students, nearly **1 in 5** report using alcohol or other drugs before sexual intercourse

Age of Onset

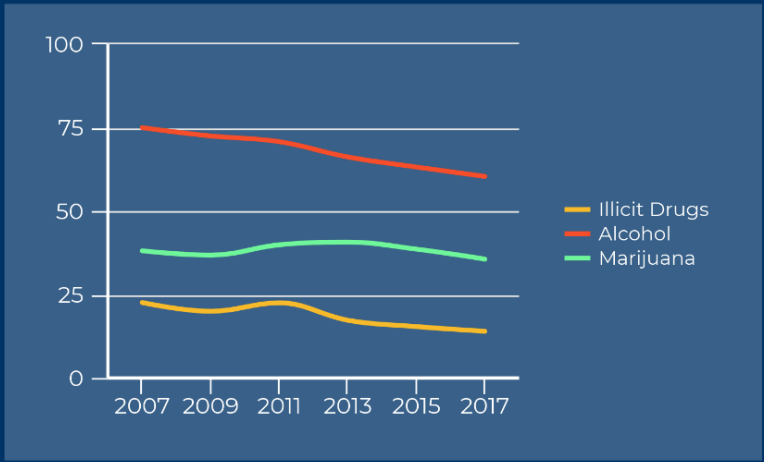
Approximately **30.4%** of NC high school students report having their first drink of alcohol before age 15

Treatment Admissions for Marijuana (% of overall admissions)



The majority of treatment admissions for individuals under the age of 18 cite marijuana as the primary drug of choice.

National Trends in Substance Use (% of respondents)



The percentage of student respondents who report *ever* **drinking** or using other **illicit drugs*** has been steadily declining over the past decade, while lifetime **marijuana** use has remained relatively constant

*Illicit drugs include cocaine, inhalants, methamphetamines, hallucinogens, or ecstasy

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chcs.uncg.edu

Data used in the creation of his graphic was obtained from the 2015-2016 National Survey on Drug Use and Health, the 2017 Youth Risk Behavior Survey, and the 2016 Treatment Episode Data Set

SOCIO-DEMOGRAPHICS PARTNERS BEHAVIORAL HEALTH MANAGEMENT REGION

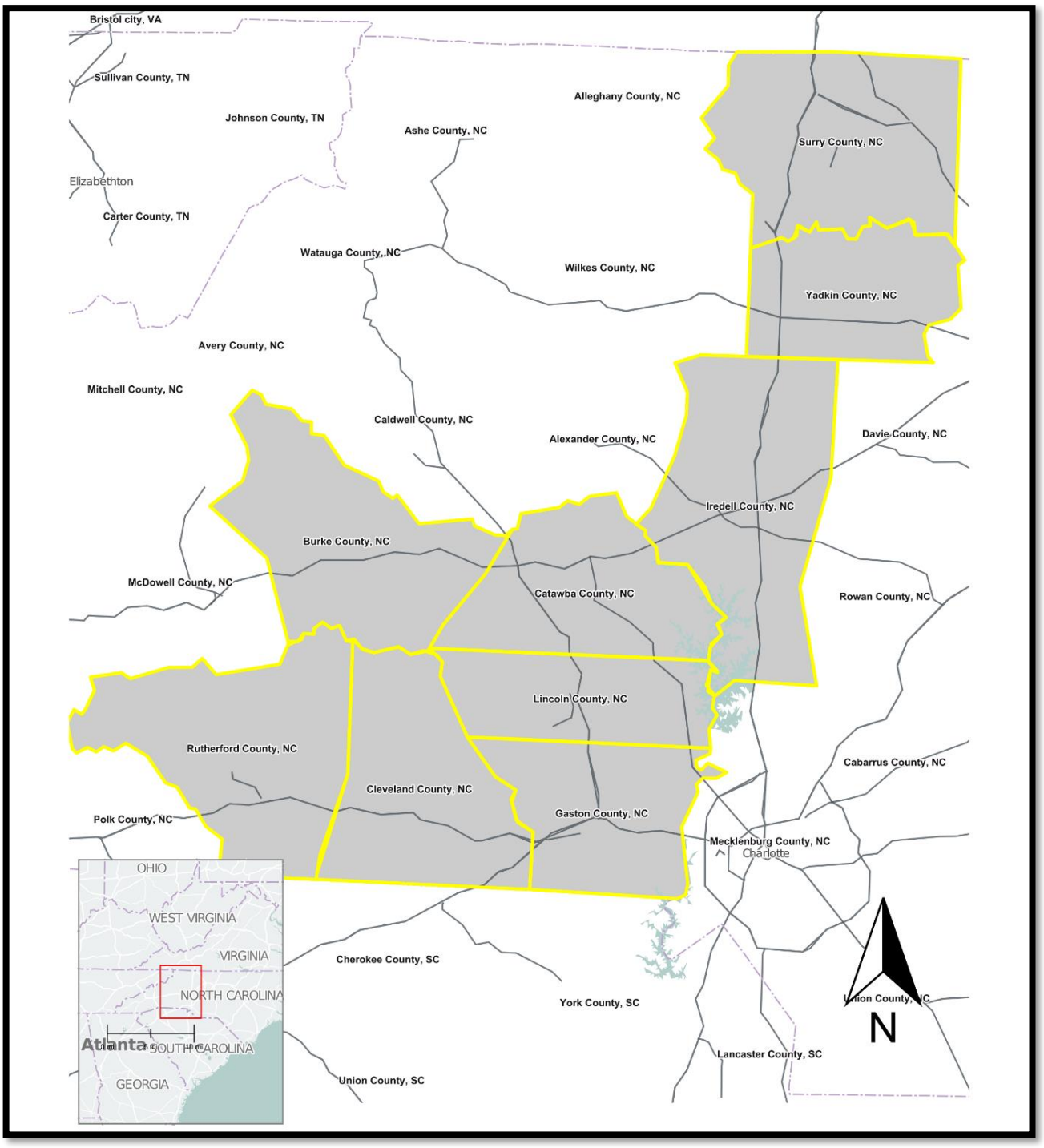


FIGURE 4 - COUNTIES IN THE PARTNERS REGION

TABLE 1 - COUNTY COMPARISON OF KEY SOCIO-DEMOGRAPHICS FOR REGION

Indicator	Burke	Catawba	Cleveland	Gaston	Iredell	Lincoln	Rutherford	Surry	Yadkin
# Population	89,765	158,615	97,782	221,923	177,233	83,099	66,881	72,534	37,847
Pop Density (per sq. mi)	177	398	211	623	309	279	119	136	113
% White Population	81.6%	78.3%	73.2%	75.1%	78.6%	87.6%	83.4%	86.5%	87.7%
% Black Population	6.9%	9.2%	22.1%	16.6%	13.0%	6.2%	11.5%	4.1%	3.4%
% Hispanic Population	5.8%	9.1%	3.2%	6.5%	7.3%	6.8%	4.1%	10.2%	11.0%
% Less than HS	20.8%	16.3%	16.6%	17.0%	12.6%	15.0%	18.6%	21.8%	22.1%
% BA/ MA/ PhD	16.3%	21.3%	15.3%	18.1%	23.4%	17.9%	16.4%	14.0%	13.4%
Median HH Income	$50,460	$58,426	$51,756	$58,718	$68,253	$66,552	$48,135	$48,744	$52,710
% Pop. Aged 0 to 5	6.5%	7.2%	6.8%	7.3%	7.2%	6.8%	6.5%	6.8%	6.8%
% Pop. Aged 6 to 11	7.0%	7.8%	7.5%	7.7%	8.3%	7.7%	7.1%	7.4%	7.4%
% Pop. Aged 12 to 17	7.8%	7.8%	7.8%	7.8%	8.6%	7.9%	7.5%	7.8%	7.8%

The Partners Behavioral Health Management Region includes Burke, Catawba, Cleveland, Gaston, Iredell, Lincoln, Surry, and Yadkin Counties in the central to western Piedmont of North Carolina. The total population of this region is just over 1 million and counties range from as low as 37,847 in Yadkin County and as high as 221,923 in Gaston County. Yadkin is the least densely populated, while Gaston (on the outskirts of Charlotte, NC) is the most densely populated. Cleveland County, with a population just under 100,000, has the greatest diversity, with 26.8% non-white. The highest proportion of the total population that is Hispanic was found in Yadkin County (11.0%), while the largest proportion of Black is in Cleavland County (22.1%). Median household income is lowest in Rutherford County, 24.3% lower than the median for the state of North Carolina. Meanwhile, the median household income in Iredell County, where the educational attainment is the highest, is 7.3% greater than the median for the state. The percentage of children 0-17 years is consistent throughout most counties, with Iredell having the highest overall proportion under 18 years old by only a few percentage points.

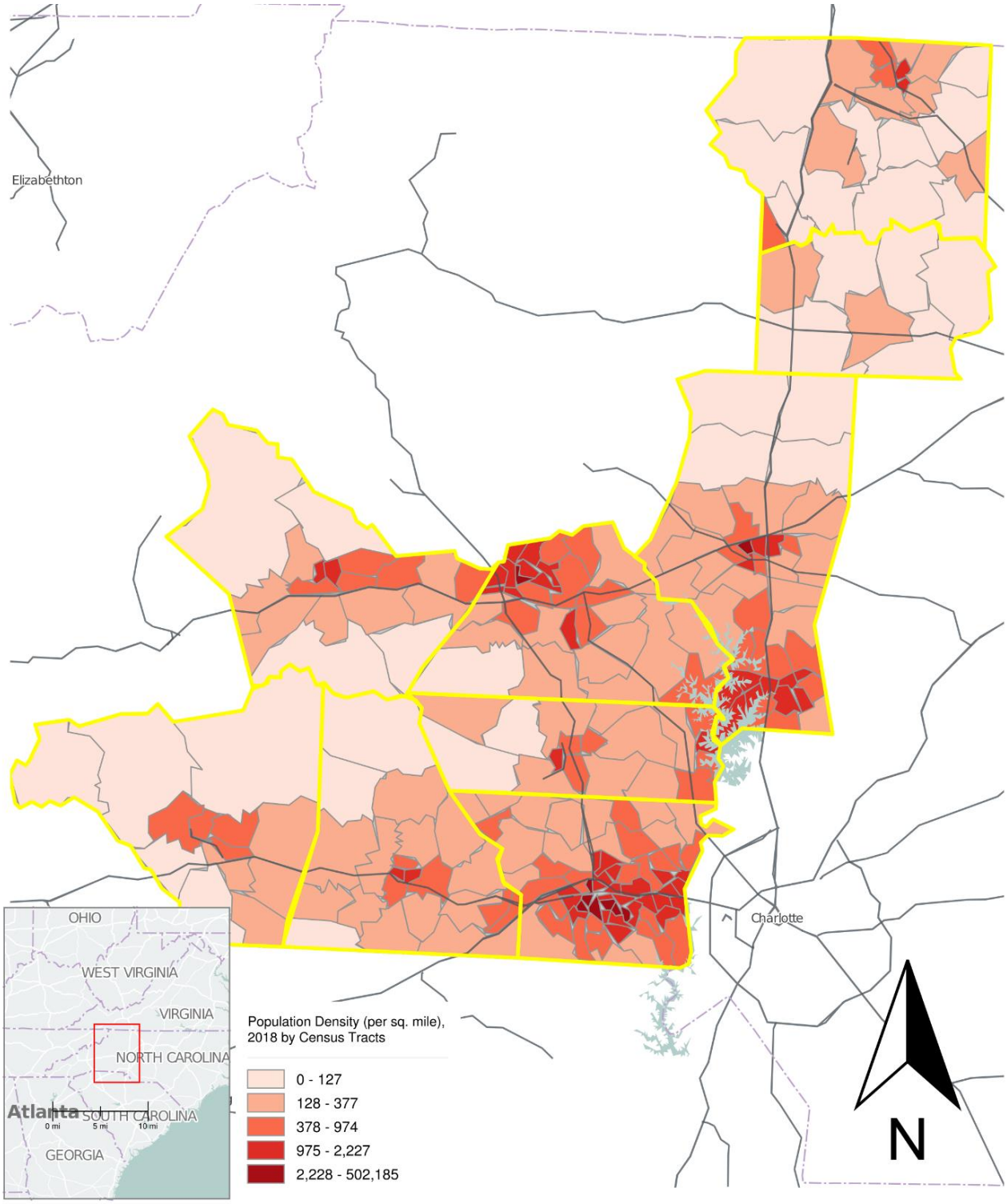


FIGURE 5 - POPULATION DENSITY BY CENSUS TRACT (2018)

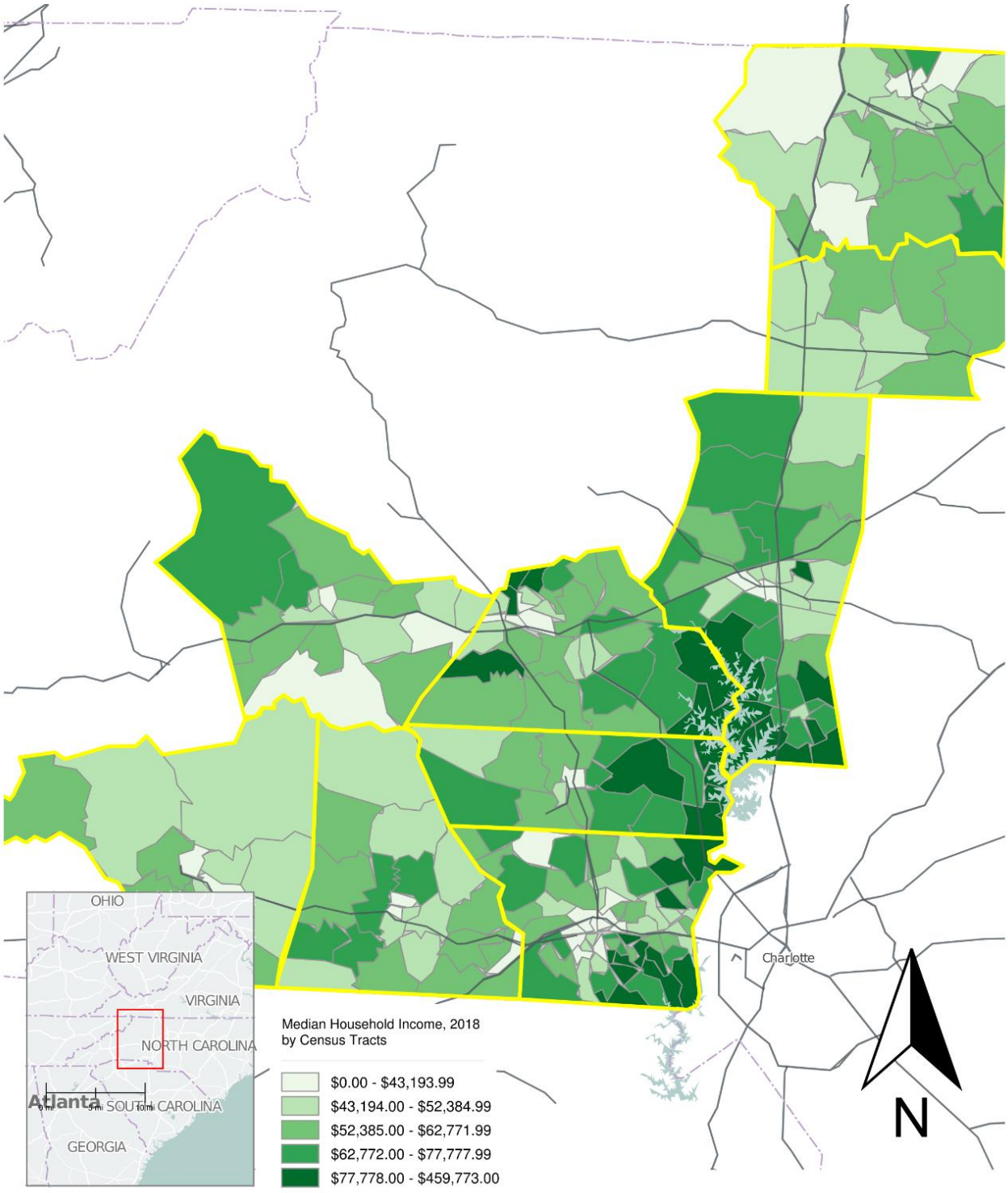


FIGURE 6 – MEDIAN HOUSEHOLD INCOME BY CENSUS TRACT (2018)

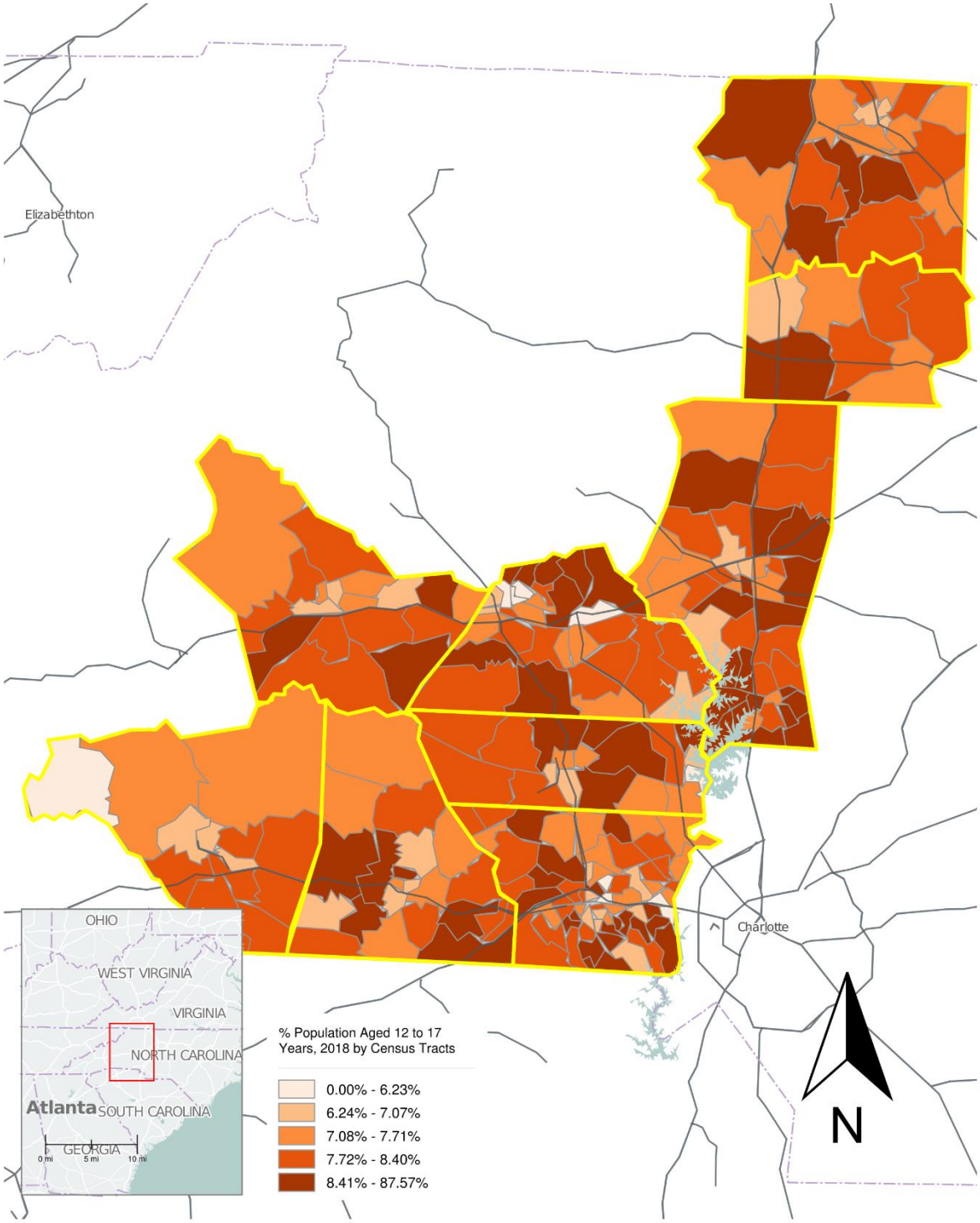
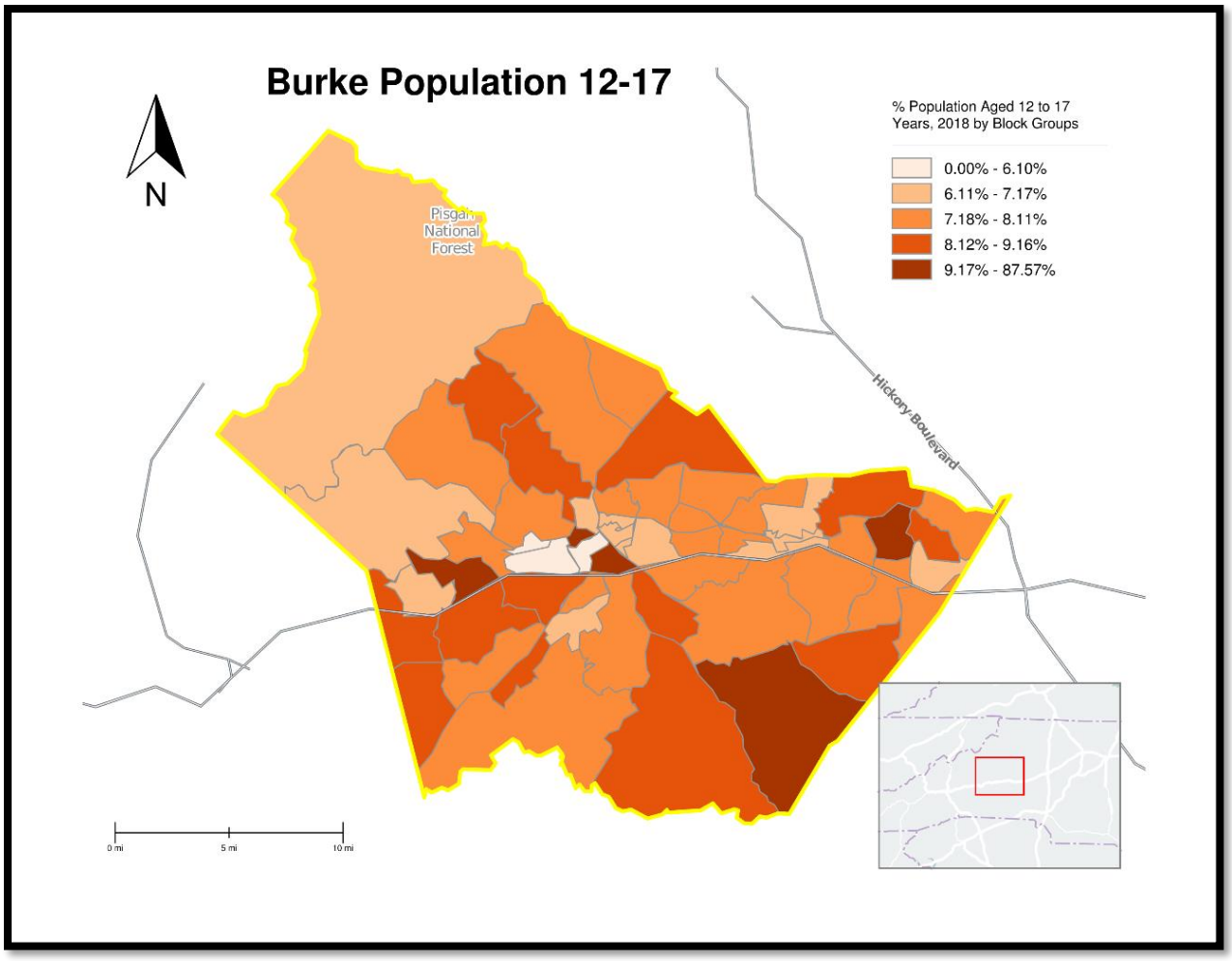


FIGURE 7 – POPULATION 12-17 YEARS OLD (2018)

BURKE COUNTY, NC



Veterans:
8.4%

Disabled
20.7%

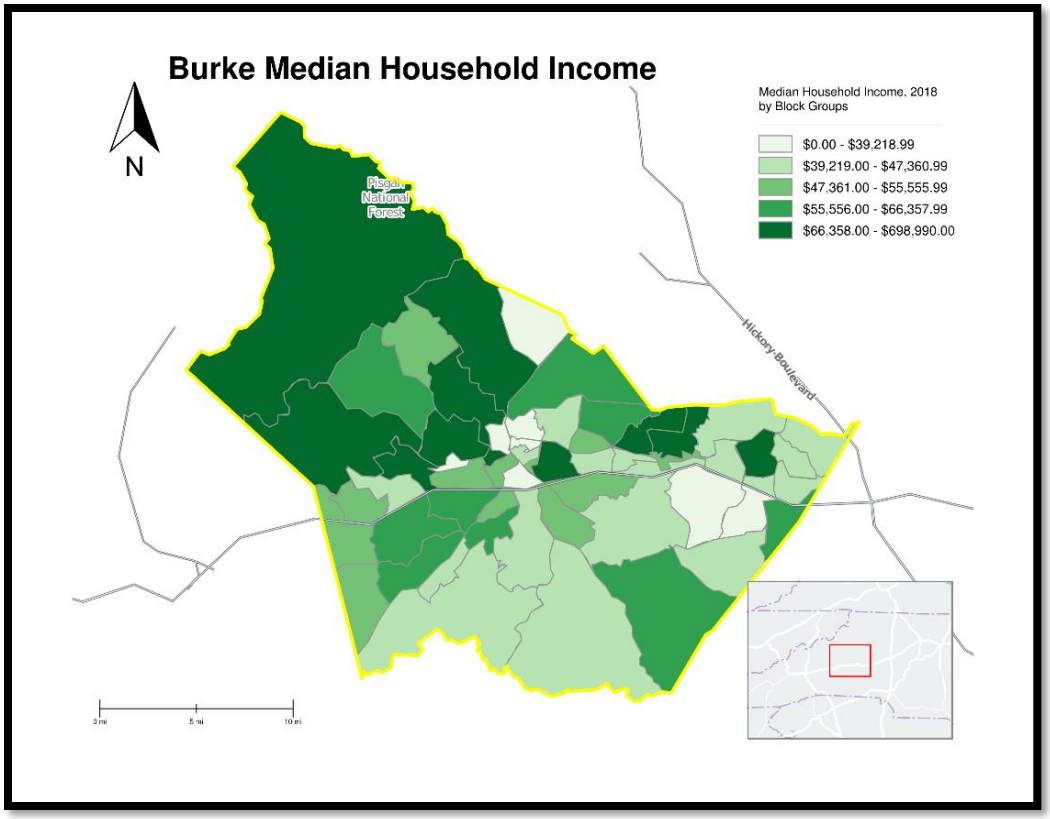
Native American:
0.5%

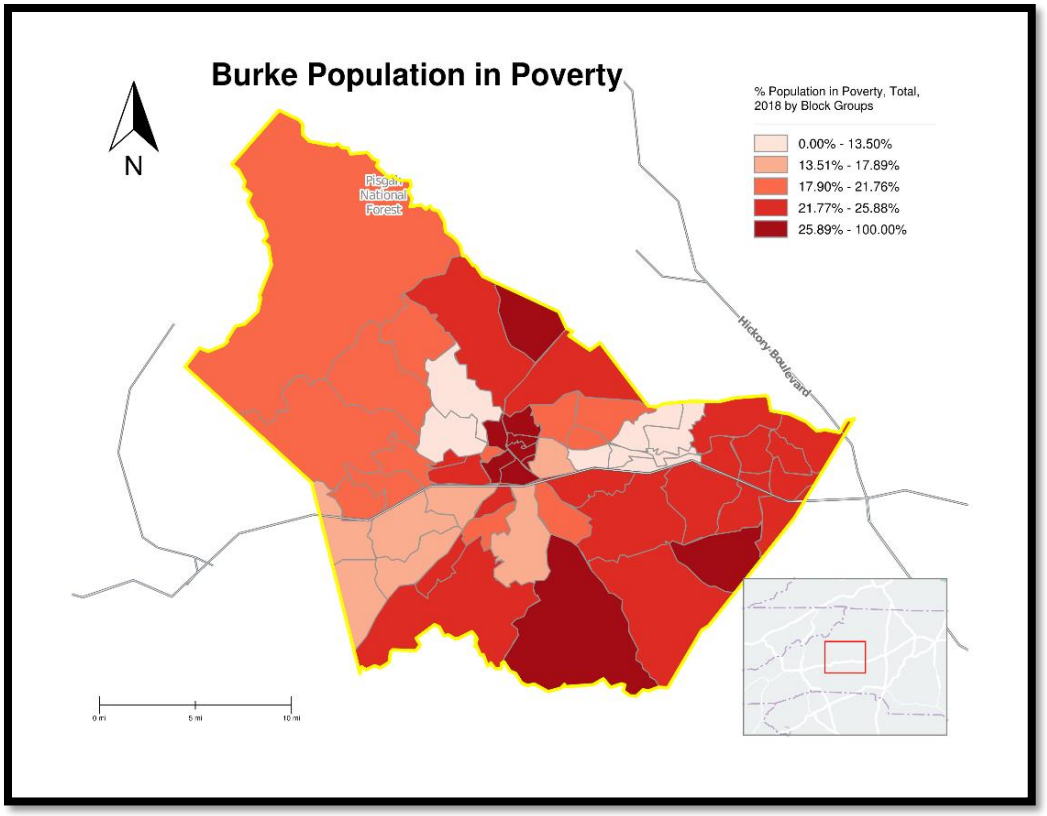
Hispanic:
5.8%

Uninsured:
13.0%

Community Overview

Burke County, NC had a population of 89,765, decreasing slightly since 2010 (-1.8%). The median age is 42.2 years old with 19.1% of the population 65 years or older and 21.3% being children under 18. Burke has an estimated 18.4% of the population identifying as non-white. Approximately 79.2% of the residents hold a high school diploma/ GED or higher education. Only 16.3% have at a bachelor's degree or beyond. Approximately 13% of the population is uninsured.


Burke Median Household Income
N
Median Household Income, 2018
by Block Groups
$0.00 - $39,218.99
$39,219.00 - $47,360.99
$47,361.00 - $55,555.99
$55,556.00 - $66,357.99
$66,358.00 - $698,990.00
Pisgah National Forest
Hickory Boulevard
0 mi
5 mi
10 mi


Burke Population in Poverty
N
% Population in Poverty, Total,
2018 by Block Groups
0.00% - 13.50%
13.51% - 17.89%
17.90% - 21.76%
21.77% - 25.88%
25.89% - 100.00%
Pisgah National Forest
Hickory Boulevard
0 mi
5 mi
10 mi

Economy

Burke County, which most recently reported an unemployment rate of 3.3% (April 2019). Based on the ACS 2013-2017, the per capita personal income was reported at $21,885. The poverty rate in Burke is 19.3%. One in five (19.1%) of homeowners and two in five (39.9%) of renters are cost burdened, spending more than 30% of income on housing-related cost.

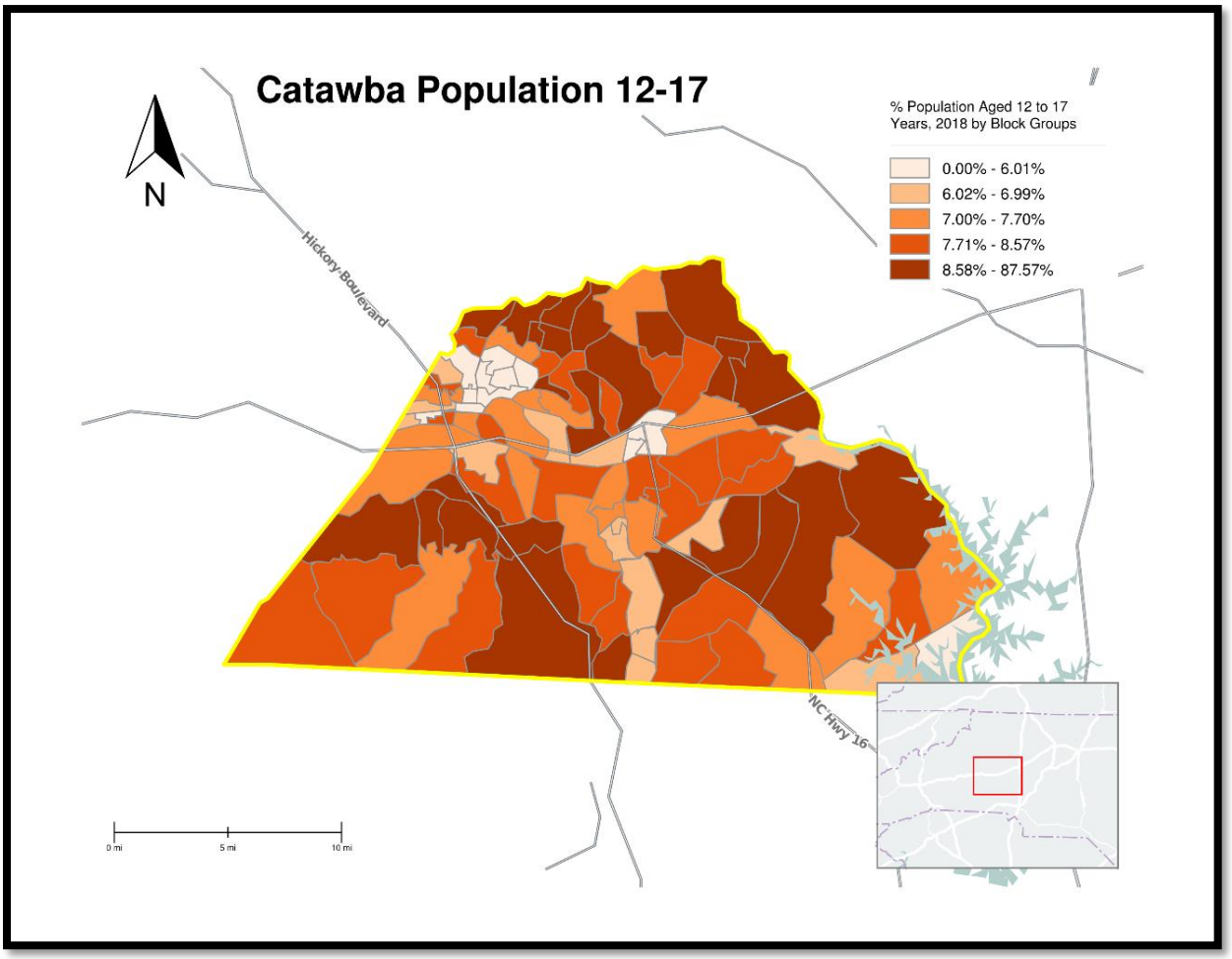
Substance Abuse

About 22% of the adult population smokes cigarettes regularly, while 4.7% of adults engage in heavy drinking. One in five (20.8%) of adults report seven or more poor mental health days in the last 30 days. There were 120.9 outpatient opioid pills dispensed per person in 2016. In Burke there were 28 unintentional overdose deaths per 100,000 residents per year (2012-2016). There are 4 substance abuse treatment facilities in Burke County.

TABLE 2 - METRIC SUMMARY TABLE: BURKE (NC DEPARTMENT OF HEALTH & HUMAN SERVICES)

Metrics	Most Current Provisional Data		
	Time	Quarter	Year-To-Date
Reduce Death/ED Outcomes			
Number of unintentional opioid-related deaths to NC Residents (ICD-10)	2018 - Q3	3	9
Number of ED visits that received an opioid overdose diagnosis (all intents)	2019 - Q1	26	26
Reduce Oversupply of Prescription Opioids			
Average rate of multiple provider episodes for prescription opioids, per 100,000 residents	2018 - Q4	4	6
Number of opioid pills dispensed	2018 - Q4	1,629,000	6,567,000
Percent of patients with an opioid prescription receiving more than an average daily dose of 90+ MME of opioid analgesics	2018 - Q4	7	7
Percent of prescription days any patient had at least one opioid AND at least one benzodiazepine prescription on the same day	2018 - Q4	17	20
Reduce Diversion/Flow of Illicit Drugs			
Percent of opioid deaths involving heroin or fentanyl/fentanyl analogues	2018 - Q4	58	58
Number of acute hepatitis C cases	2018 - Q4	1	3
Increase Access to Naloxone			
Number of EMS naloxone administrations	2018 - Q4	20	96
Number of community naloxone reversals	2019 - Q1	0	0
Treatment and Recovery			
Number of buprenorphine prescriptions dispensed	2018 - Q4	2,758	10,432
Number of uninsured individuals and Medicaid beneficiaries with an opioid use disorder served by treatment programs	2018 - Q4	384	1,500
Number of certified peer support specialists (CPSS)	2019 - Q1	58	58

CATAWBA COUNTY, NC



Veterans:
8.1%

Disabled
14.4%

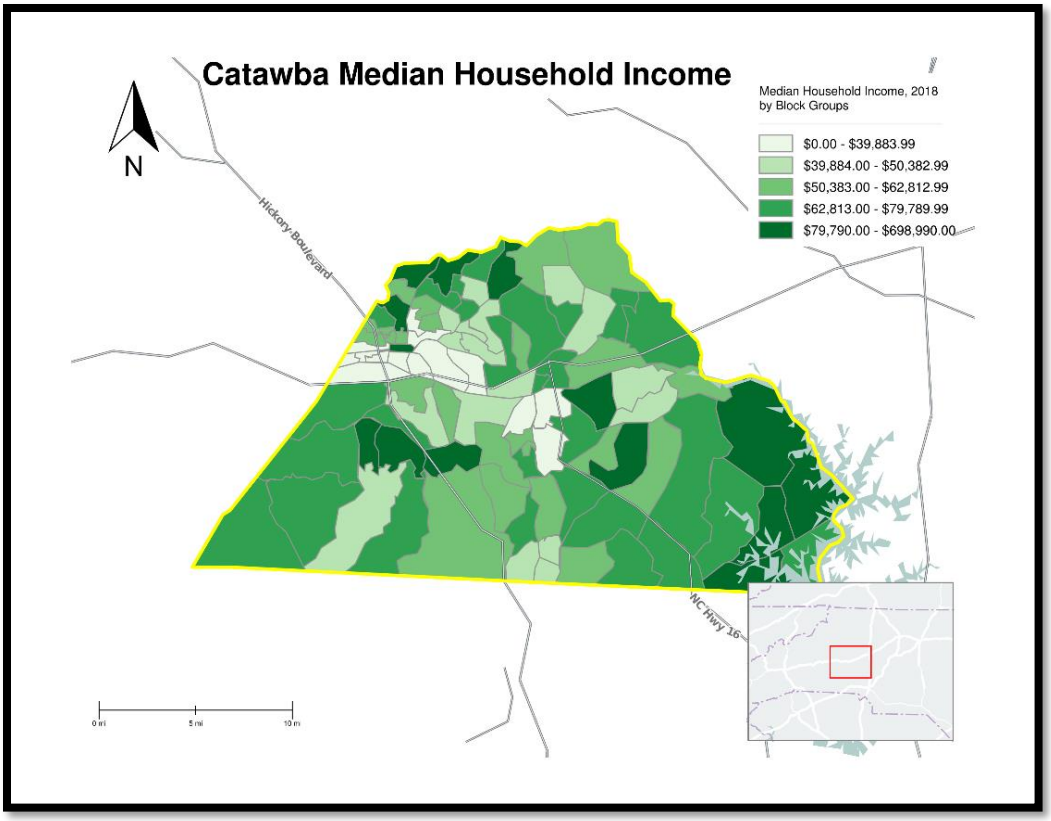
Native American:
0.4%

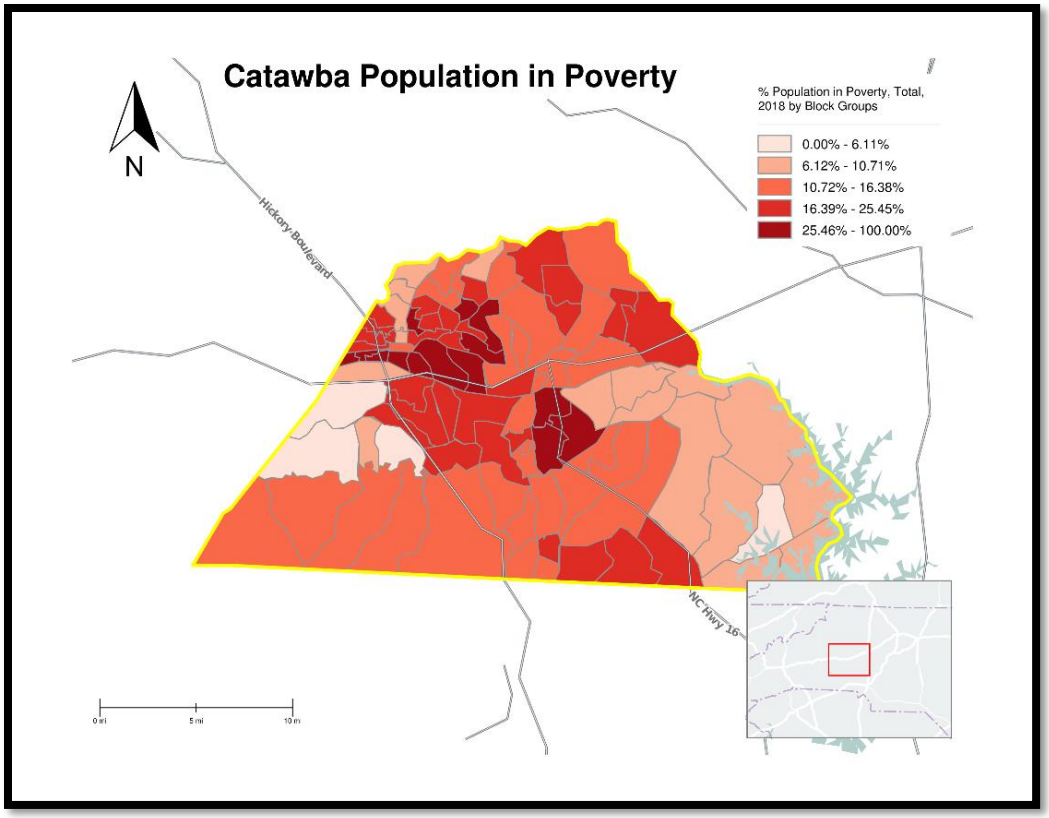
Hispanic:
9.1%

Uninsured:
11.3%

Community Overview

Catawba County, NC had a population of 158,615, increasing 1.5% since 2010. The median age is 40.4 years old with 16.7% of the population 65 years or older and 22.8% being children under 18. Catawba has an estimated 25.9% of the population identifying as non-white. Approximately 83.7% of the residents hold a high school diploma/ GED or higher education. Only 21.3% have at a bachelor's degree or beyond. Approximately 11.3% of the population is uninsured.


Catawba Median Household Income
N
Median Household Income, 2018
by Block Groups
$0.00 - $39,883.99
$39,884.00 - $50,382.99
$50,383.00 - $62,812.99
$62,813.00 - $79,789.99
$79,790.00 - $698,990.00
Hickory Boulevard
NC Hwy 16
0 mi
5 mi
10 mi


Catawba Population in Poverty
N
% Population in Poverty, Total,
2018 by Block Groups
0.00% - 6.11%
6.12% - 10.71%
10.72% - 16.38%
16.39% - 25.45%
25.46% - 100.00%
Hickory Boulevard
NC Hwy 16
0 mi
5 mi
10 mi

Economy

Catawba County, which most recently reported an unemployment rate of 3.6% (April 2019). Based on the ACS 2013-2017, the per capita personal income was reported at $21,664. The poverty rate in Catawba is 14.2%. 16.4% of homeowners and 39.3% of renters are cost burdened, spending more than 30% of income on housing-related cost.

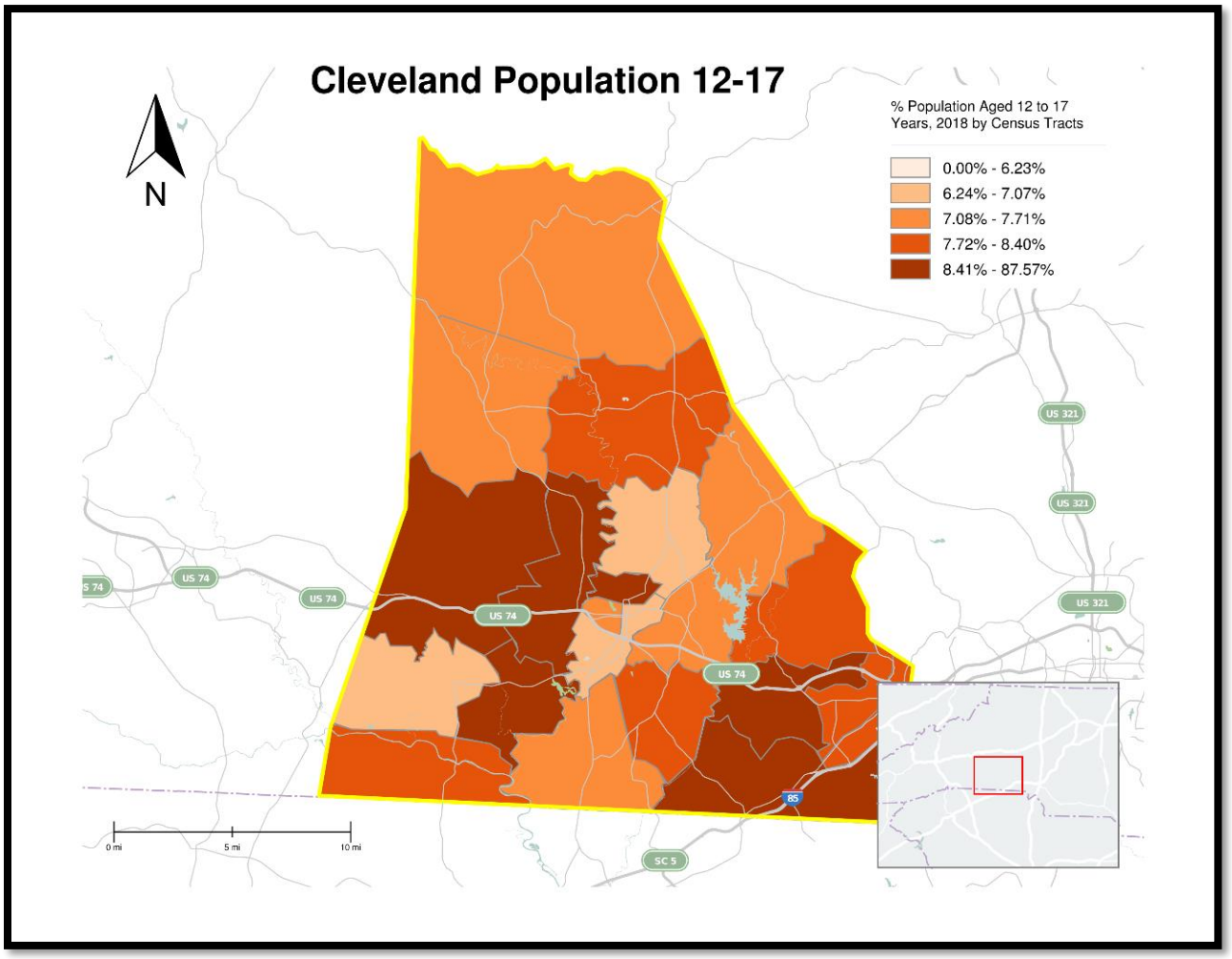
Substance Abuse

About 21% of the adult population smokes cigarettes regularly, while 4.7% of adults engage in heavy drinking. One in five (19.9%) of adults report seven or more poor mental health days in the last 30 days. There were 96.5 outpatient opioid pills dispensed per person in 2016. In Catawba there were 15.7 unintentional overdose deaths per 100,000 residents per year (2012-2016). There are 6 substance abuse treatment facilities in Catawba County.

TABLE 3 - METRIC SUMMARY TABLE: CATAWBA (NC DEPARTMENT OF HEALTH & HUMAN SERVICES)

Metrics	Most Current Provisional Data		
	Time	**Quarter**	**Year-To-Date**
Reduce Death/ED Outcomes			
Number of unintentional opioid-related deaths to NC Residents (ICD-10)	2018 - Q3	2	9
Number of ED visits that received an opioid overdose diagnosis (all intents)	2019 - Q1	26	26
Reduce Oversupply of Prescription Opioids			
Average rate of multiple provider episodes for prescription opioids, per 100,000 residents	2018 - Q4	29	18
Number of opioid pills dispensed	2018 - Q4	2,348,000	9,442,000
Percent of patients with an opioid prescription receiving more than an average daily dose of 90+ MME of opioid analgesics	2018 - Q4	6	6
Percent of prescription days any patient had at least one opioid AND at least one benzodiazepine prescription on the same day	2018 - Q4	16	20
Reduce Diversion/Flow of Illicit Drugs			
Percent of opioid deaths involving heroin or fentanyl/fentanyl analogues	2018 - Q4	85	85
Number of acute hepatitis C cases	2018 - Q4	0	1
Increase Access to Naloxone			
Number of EMS naloxone administrations	2018 - Q4	37	184
Number of community naloxone reversals	2019 - Q1	0	0
Treatment and Recovery			
Number of buprenorphine prescriptions dispensed	2018 - Q4	3,421	13,328
Number of uninsured individuals and Medicaid beneficiaries with an opioid use disorder served by treatment programs	2018 - Q4	500	1,888
Number of certified peer support specialists (CPSS)	2019 - Q1	53	53

CLEVELAND COUNTY, NC



Veterans:
8.1%

Disabled
16.6%

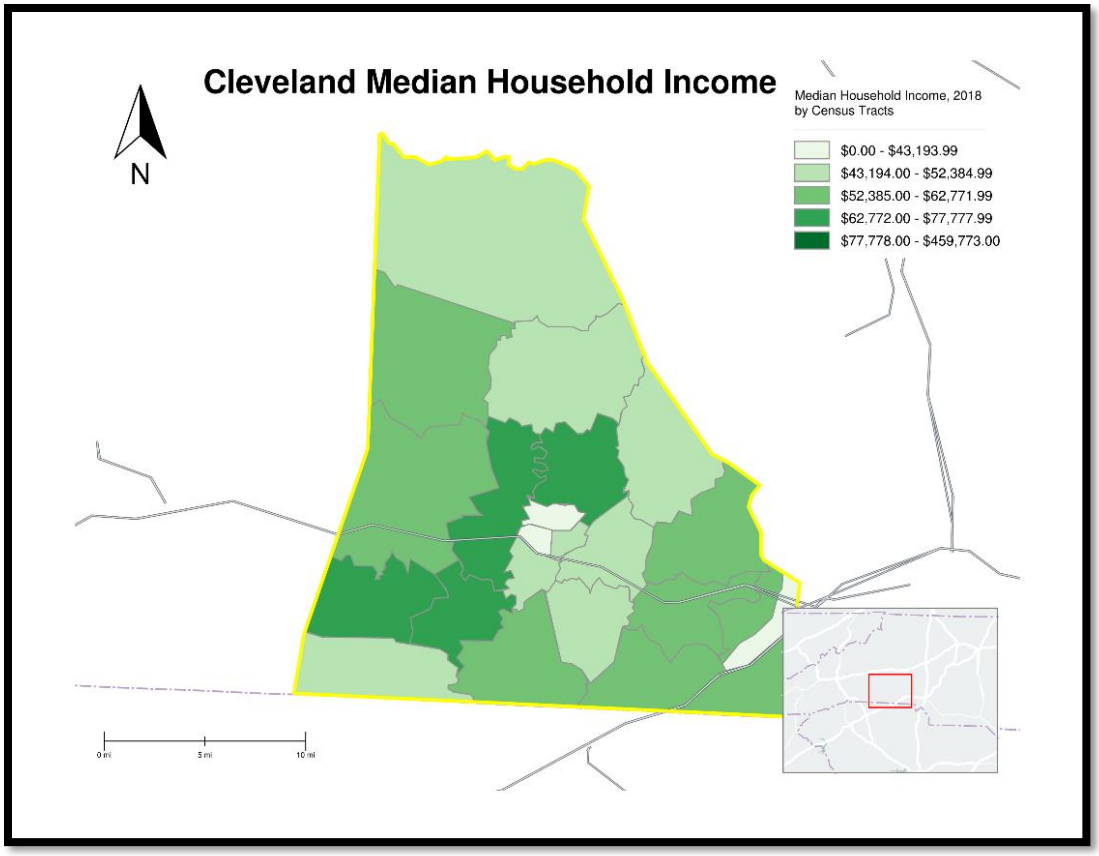
Native American:
0.3%

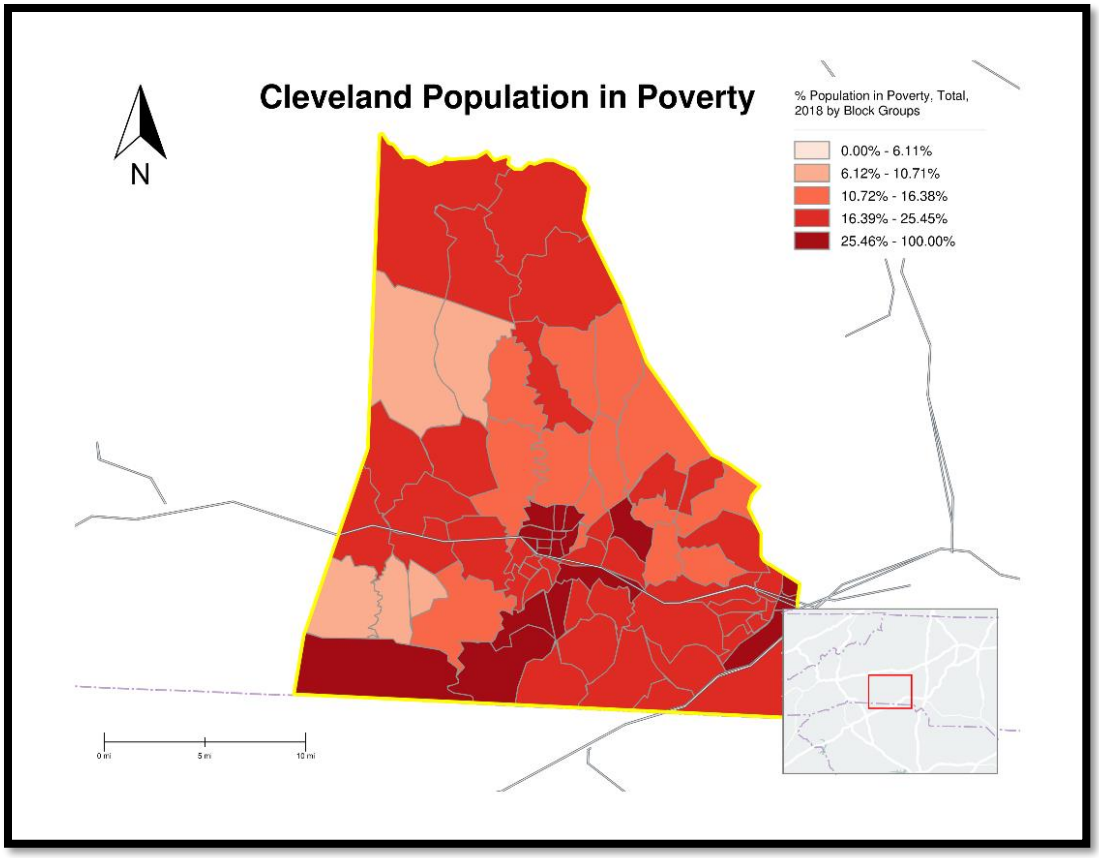
Hispanic:
3.2%

Uninsured:
13.0%

Community Overview

Cleveland County, NC had a population of 97,782, decreasing slightly (-.7%) since 2010. The median age is 41.6 years old with 17.9% of the population 65 years or older and 22.1% being children under 18. Cleveland has an estimated 28.4% of the population identifying as non-white. Approximately 83.4% of the residents hold a high school diploma/ GED or higher education. Only 15.3% have at a bachelor's degree or beyond. Approximately 13% of the population is uninsured.


Cleveland Median Household Income
N
Median Household Income, 2018
by Census Tracts
$0.00 - $43,193.99
$43,194.00 - $52,384.99
$52,385.00 - $62,771.99
$62,772.00 - $77,777.99
$77,778.00 - $459,773.00
0 mi
5 mi
10 mi


Cleveland Population in Poverty
N
% Population in Poverty, Total,
2018 by Block Groups
0.00% - 6.11%
6.12% - 10.71%
10.72% - 16.38%
16.39% - 25.45%
25.46% - 100.00%
0 mi
5 mi
10 mi

Economy

Cleveland County, which most recently reported an unemployment rate of 3.6%. Based on the ACS 2013-2017, the per capita personal income was reported at $21,664. The poverty rate in Cleveland is 19.9%. One in five (19.8%) of homeowners and nearly half (46.2%) of renters are cost burdened, spending more than 30% of income on housing-related cost.

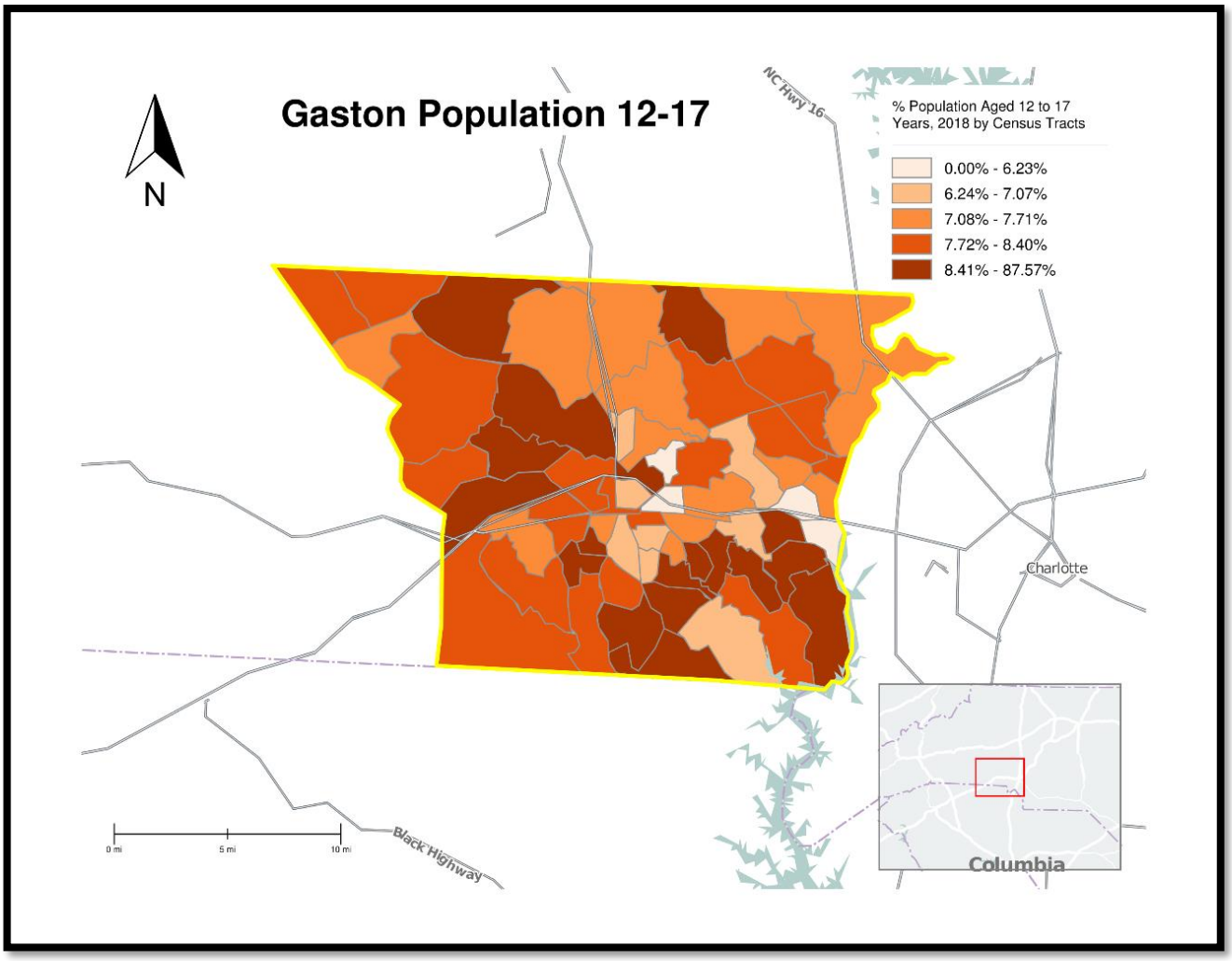
Substance Abuse

About 22% of the adult population smokes cigarettes regularly, while 4.5% of adults engage in heavy drinking. One in five (21.1%) of adults report seven or more poor mental health days in the last 30 days. There were 100.1 outpatient opioid pills dispensed per person in 2016. In Cleveland there were 15.4 unintentional overdose deaths per 100,000 residents per year (2012-2016). There are 2 substance abuse treatment facilities in Cleveland County.

TABLE 4 - METRIC SUMMARY TABLE: CLEVELAND (NC DEPARTMENT OF HEALTH & HUMAN SERVICES)

Metrics	Most Current Provisional Data		
	Time	Quarter	Year-To-Date
Reduce Death/ED Outcomes			
Number of unintentional opioid-related deaths to NC Residents (ICD-10)	2018 - Q3	1	4
Number of ED visits that received an opioid overdose diagnosis (all intents)	2019 - Q1	12	12
Reduce Oversupply of Prescription Opioids			
Average rate of multiple provider episodes for prescription opioids, per 100,000 residents	2018 - Q4	18	16
Number of opioid pills dispensed	2018 - Q4	1,685,000	6,599,000
Percent of patients with an opioid prescription receiving more than an average daily dose of 90+ MME of opioid analgesics	2018 - Q4	5	5
Percent of prescription days any patient had at least one opioid AND at least one benzodiazepine prescription on the same day	2018 - Q4	18	21
Reduce Diversion/Flow of Illicit Drugs			
Percent of opioid deaths involving heroin or fentanyl/fentanyl analogues	2018 - Q4	83	83
Number of acute hepatitis C cases	2018 - Q4	0	3
Increase Access to Naloxone			
Number of EMS naloxone administrations	2018 - Q4	27	115
Number of community naloxone reversals	2019 - Q1	1	1
Treatment and Recovery			
Number of buprenorphine prescriptions dispensed	2018 - Q4	1,509	6,104
Number of uninsured individuals and Medicaid beneficiaries with an opioid use disorder served by treatment programs	2018 - Q4	189	779
Number of certified peer support specialists (CPSS)	2019 - Q1	24	24

GASTON COUNTY, NC



Veterans:
7.7%

Disabled
16.0%

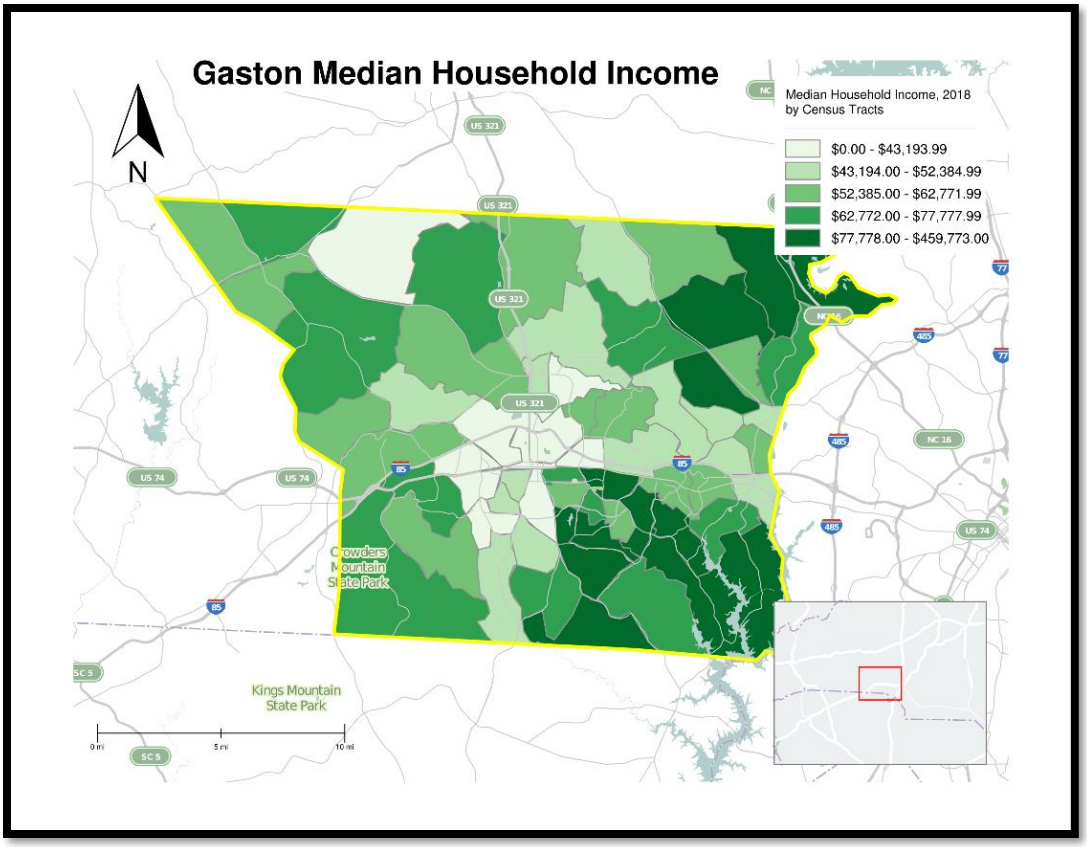
Native American:
0.4%

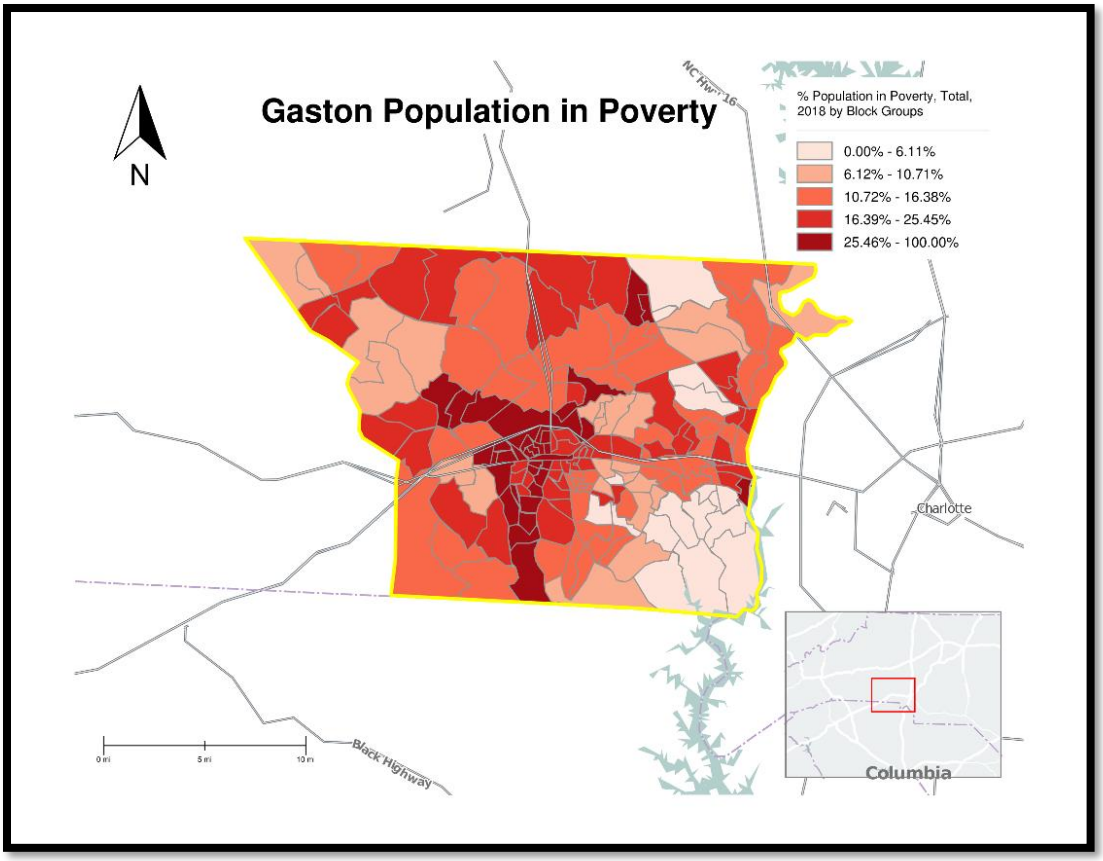
Hispanic:
6.5%

Uninsured:
12.3%

Community Overview

Gaston County, NC had a population of 221,923, increasing 5.9% since 2010. The median age is 39.7 years old with 15.7% of the population 65 years or older and 22.8% being children under 18. Gaston has an estimated 27.3% of the population identifying as non-white. Approximately 83.0% of the residents hold a high school diploma/ GED or higher education. Only 18.1% have at a bachelor's degree or beyond. Approximately 12.3% of the population is uninsured.


Gaston Median Household Income
N
Median Household Income, 2018 by Census Tracts
$0.00 - $43,193.99
$43,194.00 - $52,384.99
$52,385.00 - $62,771.99
$62,772.00 - $77,777.99
$77,778.00 - $459,773.00
US 321
US 74
NC 16
Crowders Mountain State Park
Kings Mountain State Park
SC 5
0 mi
5 mi
10 mi


Gaston Population in Poverty
N
% Population in Poverty, Total, 2018 by Block Groups
0.00% - 6.11%
6.12% - 10.71%
10.72% - 16.38%
16.39% - 25.45%
25.46% - 100.00%
NC Hwy 16
Charlotte
Columbia
Black Highway
0 mi
5 mi
10 mi

Economy

Gaston County, which most recently reported an unemployment rate of 3.5%. Based on the ACS 2013-2017, the per capita personal income was reported at $24,937. The poverty rate in Gaston is 16.5%. One in five (20.9%) of homeowners and two in five (44.7%) of renters are cost burdened, spending more than 30% of income on housing-related cost.

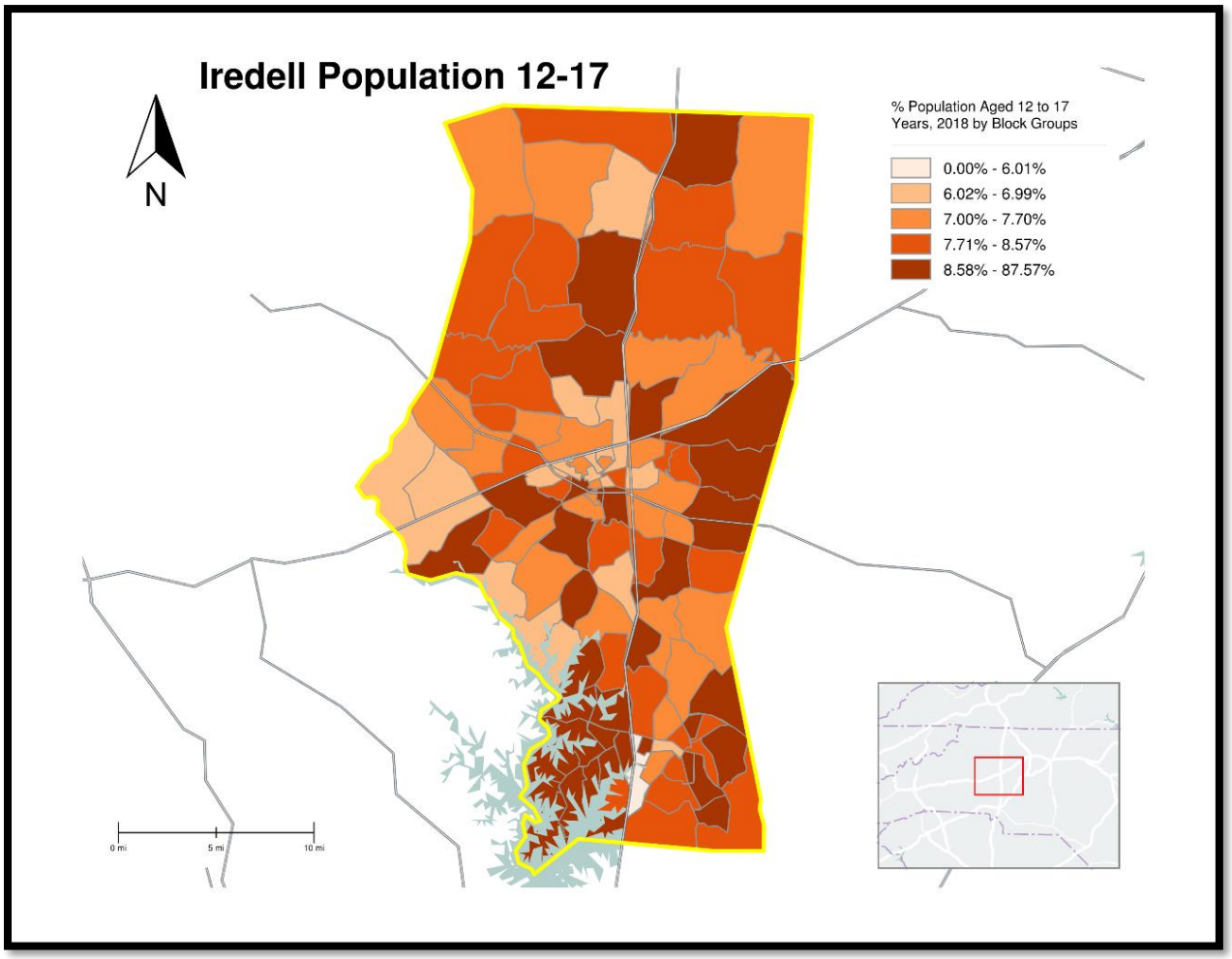
Substance Abuse

About 20% of the adult population smokes cigarettes regularly, while 4.6% of adults engage in heavy drinking. One in five (20.9%) of adults report seven or more poor mental health days in the last 30 days. There were 94.5 outpatient opioid pills dispensed per person in 2016. In Gaston there were 20.1 unintentional overdose deaths per 100,000 residents per year (2012-2016). There are 11 substance abuse treatment facilities in Gaston County.

TABLE 5 - METRIC SUMMARY TABLE: GASTON (NC DEPARTMENT OF HEALTH & HUMAN SERVICES)

Metrics	Most Current Provisional Data		
	Time	Quarter	Year-To-Date
Reduce Death/ED Outcomes			
Number of unintentional opioid-related deaths to NC Residents (ICD-10)	2018 - Q3	4	17
Number of ED visits that received an opioid overdose diagnosis (all intents)	2019 - Q1	22	22
Reduce Oversupply of Prescription Opioids			
Average rate of multiple provider episodes for prescription opioids, per 100,000 residents	2018 - Q4	27	22
Number of opioid pills dispensed	2018 - Q4	3,297,000	13,275,000
Percent of patients with an opioid prescription receiving more than an average daily dose of 90+ MME of opioid analgesics	2018 - Q4	5	5
Percent of prescription days any patient had at least one opioid AND at least one benzodiazepine prescription on the same day	2018 - Q4	21	25
Reduce Diversion/Flow of Illicit Drugs			
Percent of opioid deaths involving heroin or fentanyl/fentanyl analogues	2018 - Q4	62	62
Number of acute hepatitis C cases	2018 - Q4	1	13
Increase Access to Naloxone			
Number of EMS naloxone administrations	2018 - Q4	52	266
Number of community naloxone reversals	2019 - Q1	0	0
Treatment and Recovery			
Number of buprenorphine prescriptions dispensed	2018 - Q4	5,778	22,898
Number of uninsured individuals and Medicaid beneficiaries with an opioid use disorder served by treatment programs	2018 - Q4	647	2,469
Number of certified peer support specialists (CPSS)	2019 - Q1	54	54

IREDELL COUNTY, NC



Veterans:
7.2%

Disabled
13.0%

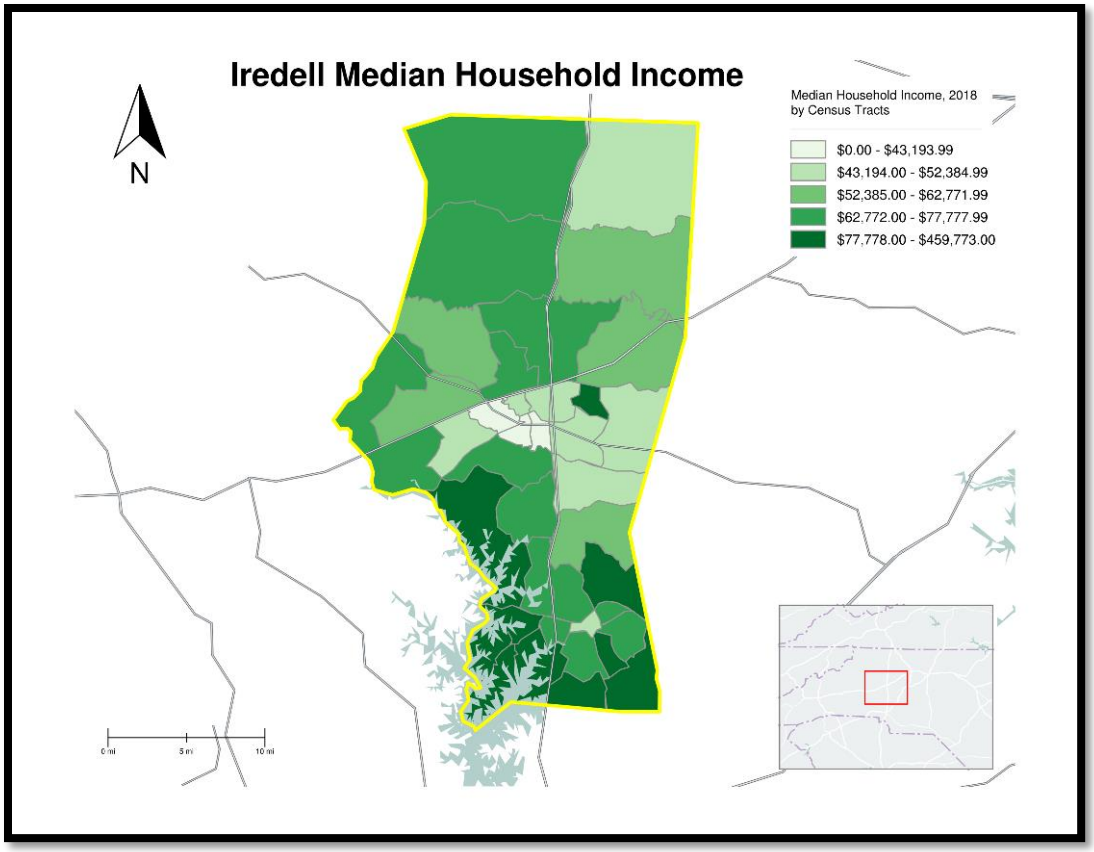
Native American:
0.5%

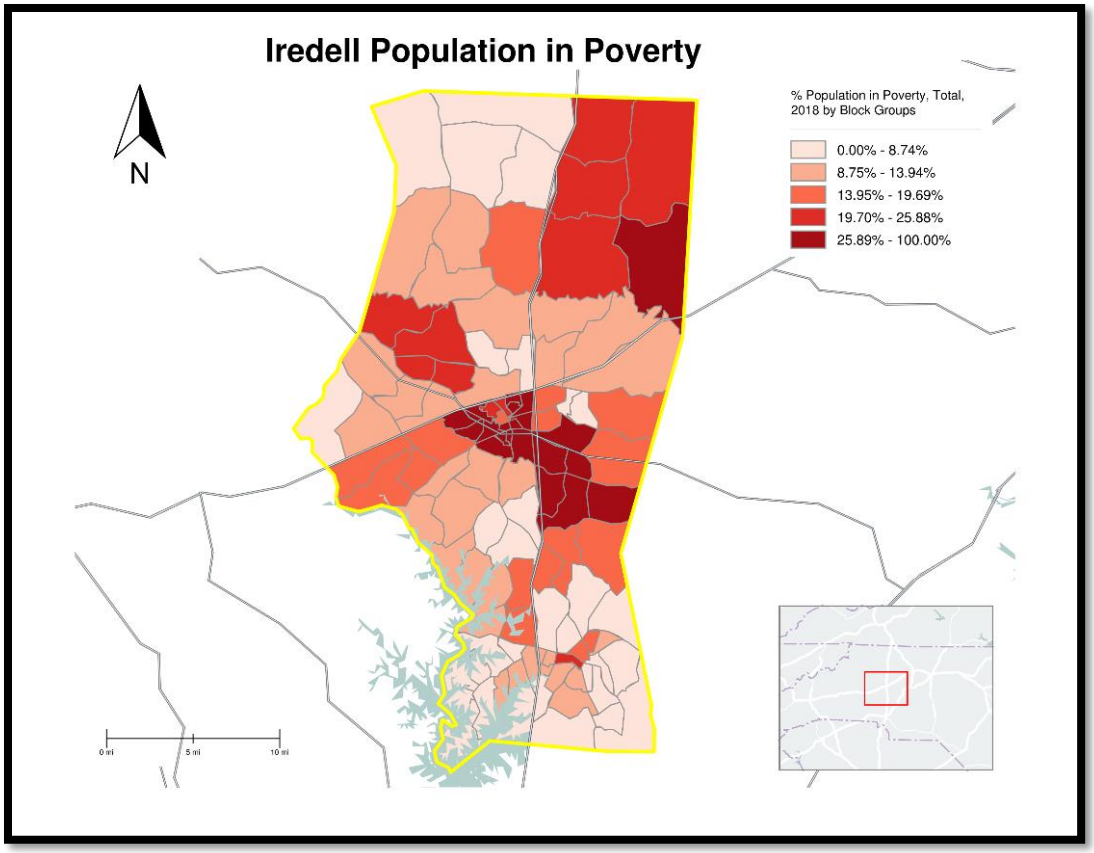
Hispanic:
7.3%

Uninsured:
10.7%

Community Overview

Iredell County, NC had a population of 177,233, increasing 9.1% since 2010. The median age is 39.7 years old with 15.6% of the population 65 years or older and 21.1% being children under 18. Iredell has an estimated 24.8% of the population identifying as non-white. Approximately 87.4% of the residents hold a high school diploma/ GED or higher education. Only 23.4% have at a bachelor's degree or beyond. Approximately 10.7% of the population is uninsured.


Iredell Median Household Income
N
Median Household Income, 2018
by Census Tracts
$0.00 - $43,193.99
$43,194.00 - $52,384.99
$52,385.00 - $62,771.99
$62,772.00 - $77,777.99
$77,778.00 - $459,773.00
0 mi
5 mi
10 mi


Iredell Population in Poverty
N
% Population in Poverty, Total,
2018 by Block Groups
0.00% - 8.74%
8.75% - 13.94%
13.95% - 19.69%
19.70% - 25.88%
25.89% - 100.00%
0 mi
5 mi
10 mi

Economy

Iredell County, which most recently reported an unemployment rate of 3.2%. Based on the ACS 2013-2017, the per capita personal income was reported at $30,393. The poverty rate in Iredell is 12.7%. One in five (20.0%) of homeowners and two in five (38.6%) of renters are cost burdened, spending more than 30% of income on housing-related cost.

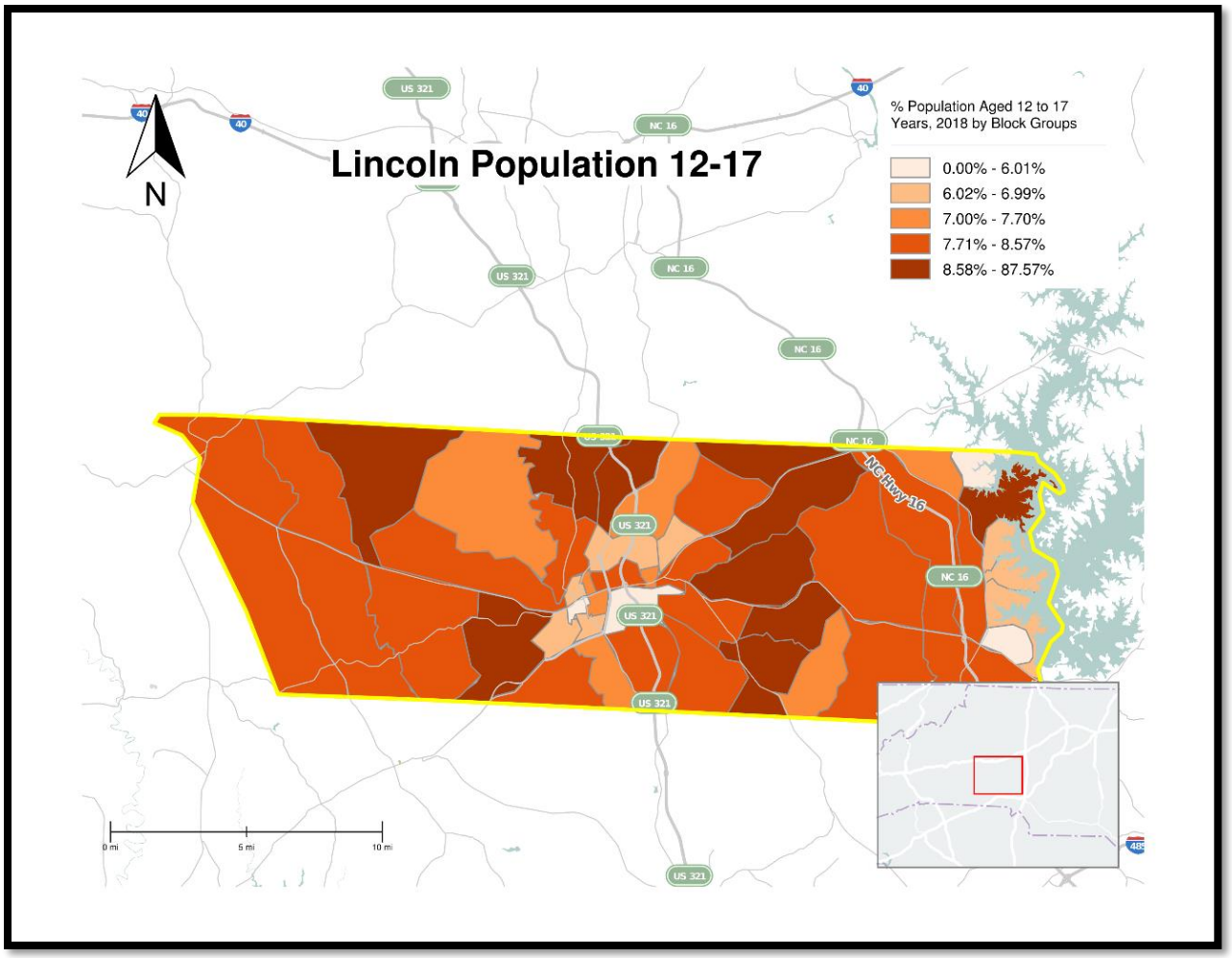
Substance Abuse

About 21% of the adult population smokes cigarettes regularly, while 5.0% of adults engage in heavy drinking. One in five (19.5%) of adults report seven or more poor mental health days in the last 30 days. There were 70.3 outpatient opioid pills dispensed per person in 2016. In Iredell there were 14.6 unintentional overdose deaths per 100,000 residents per year (2012-2016). There are 9 substance abuse treatment facilities in Iredell County.

TABLE 6 - METRIC SUMMARY TABLE: IREDELL (NC DEPARTMENT OF HEALTH & HUMAN SERVICES)

Metrics	Most Current Provisional Data		
	Time	Quarter	Year-To-Date
Reduce Death/ED Outcomes			
Number of unintentional opioid-related deaths to NC Residents (ICD-10)	2018 - Q3	3	15
Number of ED visits that received an opioid overdose diagnosis (all intents)	2019 - Q1	33	33
Reduce Oversupply of Prescription Opioids			
Average rate of multiple provider episodes for prescription opioids, per 100,000 residents	2018 - Q4	18	15
Number of opioid pills dispensed	2018 - Q4	1,974,000	7,761,000
Percent of patients with an opioid prescription receiving more than an average daily dose of 90+ MME of opioid analgesics	2018 - Q4	6	6
Percent of prescription days any patient had at least one opioid AND at least one benzodiazepine prescription on the same day	2018 - Q4	19	24
Reduce Diversion/Flow of Illicit Drugs			
Percent of opioid deaths involving heroin or fentanyl/fentanyl analogues	2018 - Q4	59	59
Number of acute hepatitis C cases	2018 - Q4	0	5
Increase Access to Naloxone			
Number of EMS naloxone administrations	2018 - Q4	32	157
Number of community naloxone reversals	2019 - Q1	2	2
Treatment and Recovery			
Number of buprenorphine prescriptions dispensed	2018 - Q4	3,488	14,788
Number of uninsured individuals and Medicaid beneficiaries with an opioid use disorder served by treatment programs	2018 - Q4	426	1,626
Number of certified peer support specialists (CPSS)	2019 - Q1	23	23

LINCOLN COUNTY, NC



Veterans:
8.3%

Disabled
15.0%

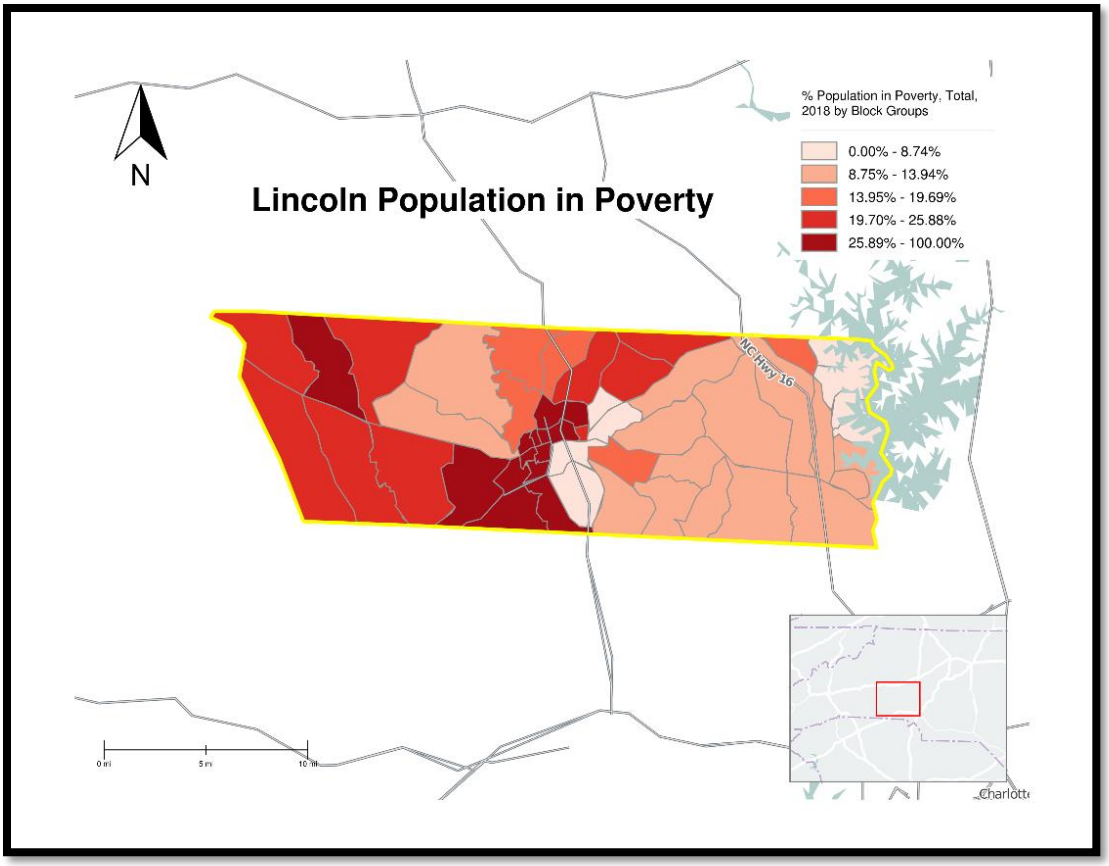
Native American:
0.3%

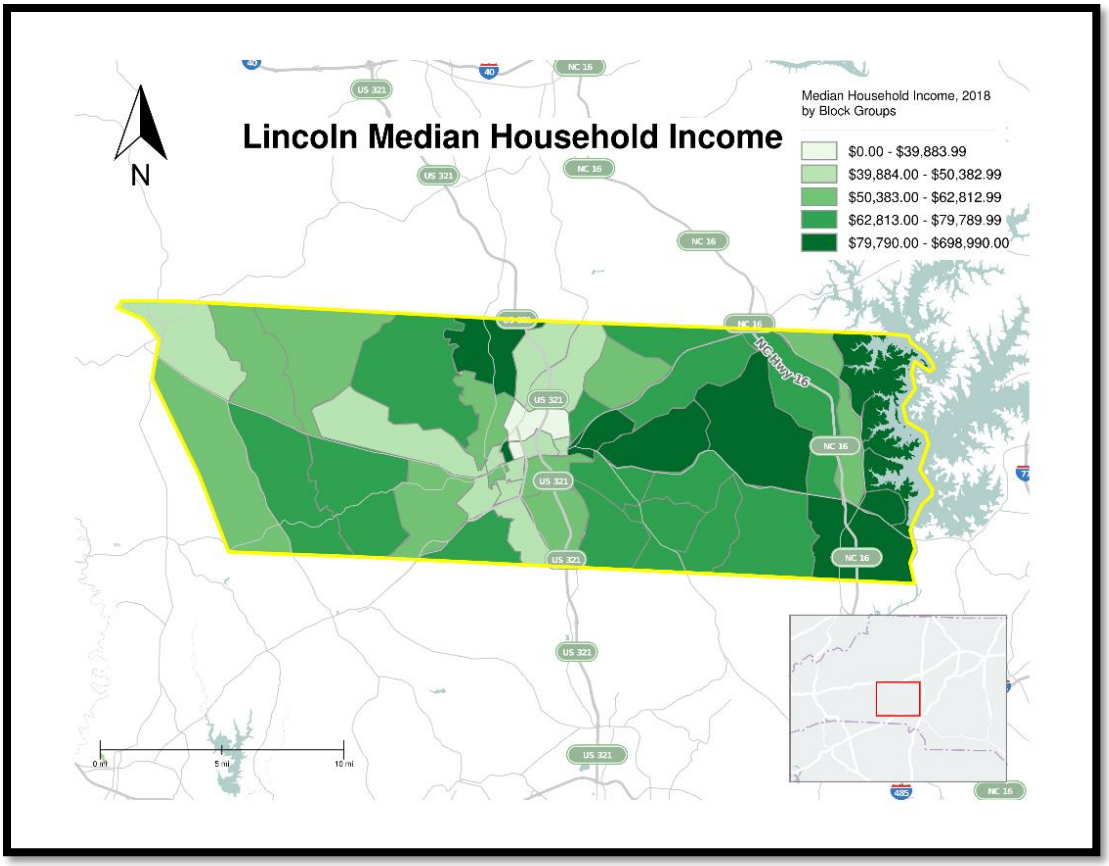
Hispanic:
6.8%

Uninsured:
11.8%

Community Overview

Lincoln County, NC had a population of 83,099, increasing 4.5% since 2010. The median age is 41.5 years old with 16.1% of the population 65 years or older and 22.4% being children under 18. Lincoln has an estimated 16.1% of the population identifying as non-white. Approximately 85.0% of the residents hold a high school diploma/ GED or higher education. Only 17.9% have at a bachelor's degree or beyond. Approximately 11.8% of the population is uninsured.


Lincoln Population in Poverty
N
% Population in Poverty, Total, 2018 by Block Groups
0.00% - 8.74%
8.75% - 13.94%
13.95% - 19.69%
19.70% - 25.88%
25.89% - 100.00%
NC Hwy 16
0 mi
5 mi
10 mi
Charlotte


Lincoln Median Household Income
N
Median Household Income, 2018 by Block Groups
$0.00 - $39,883.99
$39,884.00 - $50,382.99
$50,383.00 - $62,812.99
$62,813.00 - $79,789.99
$79,790.00 - $698,990.00
NC Hwy 16
US 321
NC 16
0 mi
5 mi
10 mi

Economy

Lincoln County, which most recently reported an unemployment rate of 3.2%. Based on the ACS 2013-2017, the per capita personal income was reported at $27,359. The poverty rate in Lincoln is 15.2%. One in five (20.1%) of homeowners and two in five (37.8%) of renters are cost burdened, spending more than 30% of income on housing-related cost.

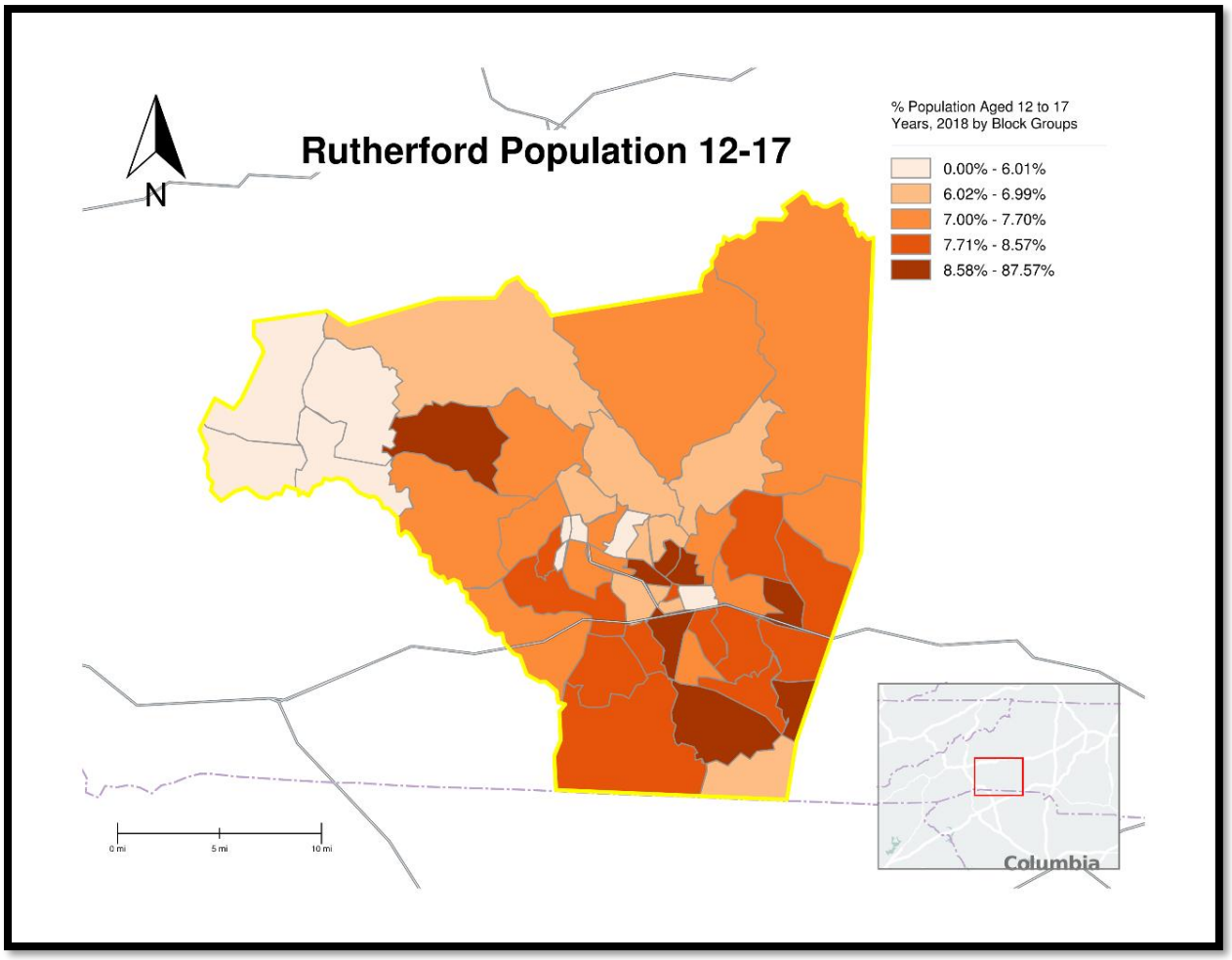
Substance Abuse

About 22.6% of the adult population smokes cigarettes regularly, while 4.9% of adults engage in heavy drinking. One in five (19.4%) of adults report seven or more poor mental health days in the last 30 days. There were 89.2 outpatient opioid pills dispensed per person in 2016. In Lincoln there were 14.7 unintentional overdose deaths per 100,000 residents per year (2012-2016). There is one substance abuse treatment facilities in Lincoln County.

TABLE 7 - METRIC SUMMARY TABLE: LINCOLN (NC DEPARTMENT OF HEALTH & HUMAN SERVICES)

Metrics	Most Current Provisional Data		
	Time	Quarter	Year-To-Date
Reduce Death/ED Outcomes			
Number of unintentional opioid-related deaths to NC Residents (ICD-10)	2018 - Q3	4	11
Number of ED visits that received an opioid overdose diagnosis (all intents)	2019 - Q1	12	12
Reduce Oversupply of Prescription Opioids			
Average rate of multiple provider episodes for prescription opioids, per 100,000 residents	2018 - Q4	27	21
Number of opioid pills dispensed	2018 - Q4	1,113,000	4,534,000
Percent of patients with an opioid prescription receiving more than an average daily dose of 90+ MME of opioid analgesics	2018 - Q4	4	5
Percent of prescription days any patient had at least one opioid AND at least one benzodiazepine prescription on the same day	2018 - Q4	18	21
Reduce Diversion/Flow of Illicit Drugs			
Percent of opioid deaths involving heroin or fentanyl/fentanyl analogues	2018 - Q4	75	75
Number of acute hepatitis C cases	2018 - Q4	0	3
Increase Access to Naloxone			
Number of EMS naloxone administrations	2018 - Q4	26	129
Number of community naloxone reversals	2019 - Q1	0	0
Treatment and Recovery			
Number of buprenorphine prescriptions dispensed	2018 - Q4	1,669	6,765
Number of uninsured individuals and Medicaid beneficiaries with an opioid use disorder served by treatment programs	2018 - Q4	179	730
Number of certified peer support specialists (CPSS)	2019 - Q1	10	10

RUTHERFORD COUNTY, NC



Veterans:
7.4%

Disabled
20.8%

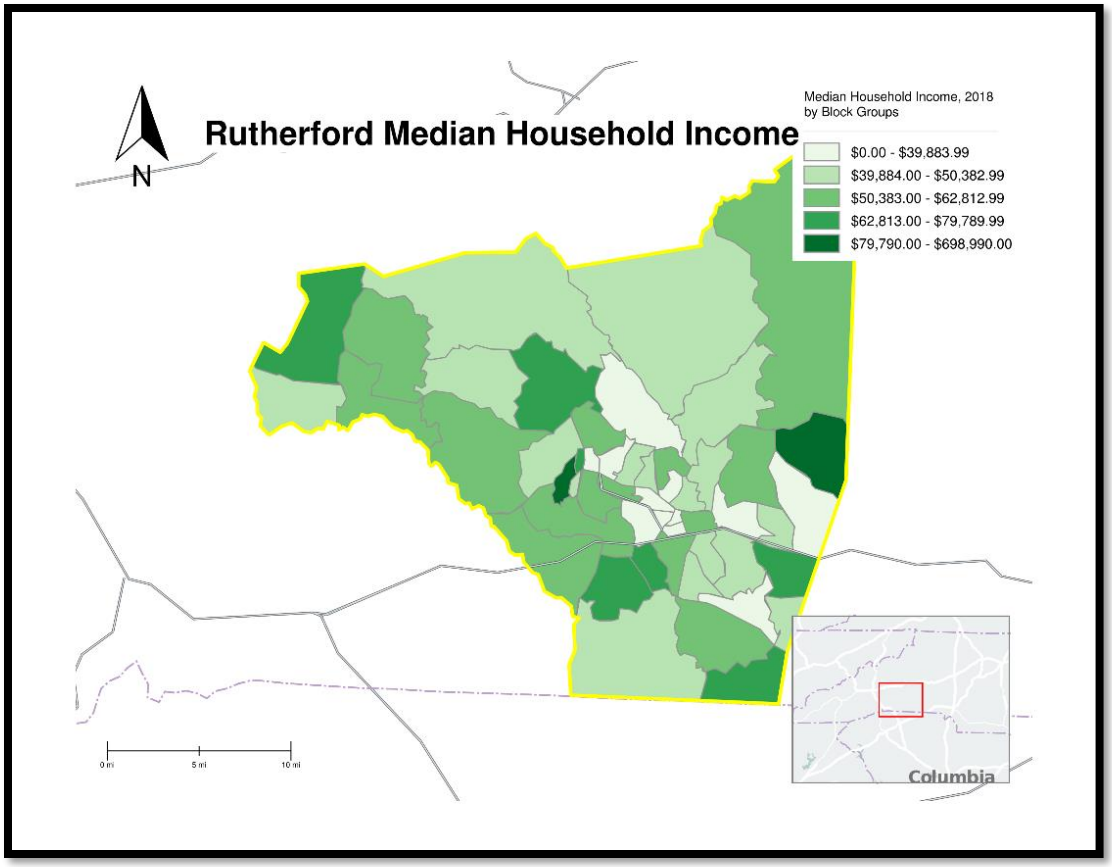
Native American:
0.3%

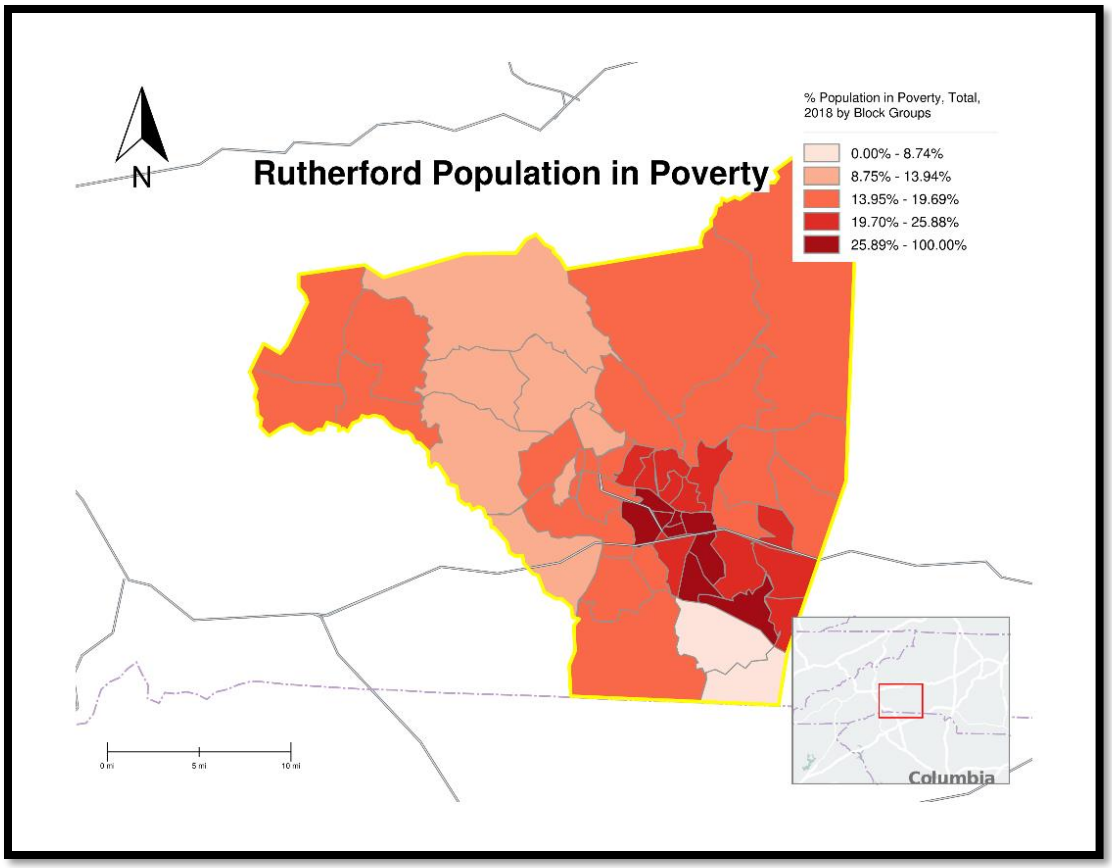
Hispanic:
4.1%

Uninsured:
12.3%

Community Overview

Rutherford County, NC had a population of 66,881, decreasing -1.8% since 2010. The median age is 44.2 years old with 20.6% of the population 65 years or older and 21.0% being children under 18. Rutherford has an estimated 18.3% of the population identifying as non-white. Approximately 81.4% of the residents hold a high school diploma/ GED or higher education. Only 16.5% have at a bachelor's degree or beyond. Approximately 12.3% of the population is uninsured.


Rutherford Median Household Income
N
Median Household Income, 2018
by Block Groups
$0.00 - $39,883.99
$39,884.00 - $50,382.99
$50,383.00 - $62,812.99
$62,813.00 - $79,789.99
$79,790.00 - $698,990.00
0 mi
5 mi
10 mi
Columbia


Rutherford Population in Poverty
N
% Population in Poverty, Total,
2018 by Block Groups
0.00% - 8.74%
8.75% - 13.94%
13.95% - 19.69%
19.70% - 25.88%
25.89% - 100.00%
0 mi
5 mi
10 mi
Columbia

Economy

Rutherford County, which most recently reported an unemployment rate of 4.6%. Based on the ACS 2013-2017, the per capita personal income was reported at $21,092. The poverty rate in Rutherford is 19.6%. One in five (19.2%) of homeowners and two in five (40.5%) of renters are cost burdened, spending more than 30% of income on housing-related cost.

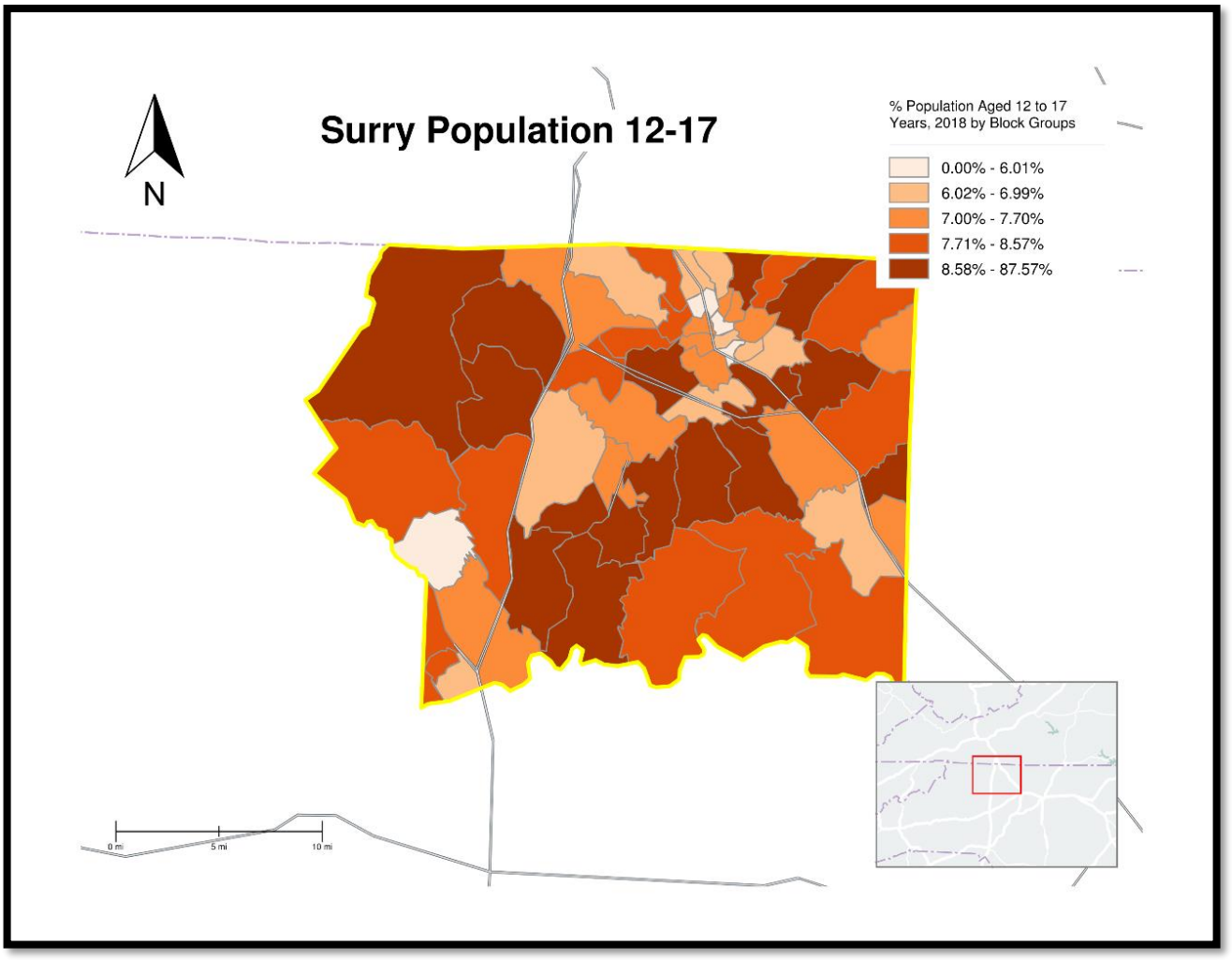
Substance Abuse

About 22.6% of the adult population smokes cigarettes regularly, while 4.7% of adults engage in heavy drinking. One in five (21.3%) of adults report seven or more poor mental health days in the last 30 days. There were 111.1 outpatient opioid pills dispensed per person in 2016. In Rutherford there were 17.7 unintentional overdose deaths per 100,000 residents per year (2012-2016). There are 2 substance abuse treatment facilities in Rutherford County.

TABLE 8 - METRIC SUMMARY TABLE: RUTHERFORD (NC DEPARTMENT OF HEALTH & HUMAN SERVICES)

Metrics	Most Current Provisional Data		
	Time	**Quarter**	**Year-To-Date**
Reduce Death/ED Outcomes			
Number of unintentional opioid-related deaths to NC Residents (ICD-10)	2018 - Q3	3	9
Number of ED visits that received an opioid overdose diagnosis (all intents)	2019 - Q1	9	9
Reduce Oversupply of Prescription Opioids			
Average rate of multiple provider episodes for prescription opioids, per 100,000 residents	2018 - Q4	9	9
Number of opioid pills dispensed	2018 - Q4	1,188,000	5,121,000
Percent of patients with an opioid prescription receiving more than an average daily dose of 90+ MME of opioid analgesics	2018 - Q4	4	5
Percent of prescription days any patient had at least one opioid AND at least one benzodiazepine prescription on the same day	2018 - Q4	22	27
Reduce Diversion/Flow of Illicit Drugs			
Percent of opioid deaths involving heroin or fentanyl/fentanyl analogues	2018 - Q4	71	71
Number of acute hepatitis C cases	2018 - Q4	0	1
Increase Access to Naloxone			
Number of EMS naloxone administrations	2018 - Q4	13	77
Number of community naloxone reversals	2019 - Q1	0	0
Treatment and Recovery			
Number of buprenorphine prescriptions dispensed	2018 - Q4	1,088	4,290
Number of uninsured individuals and Medicaid beneficiaries with an opioid use disorder served by treatment programs	2018 - Q4	103	453
Number of certified peer support specialists (CPSS)	2019 - Q1	17	17

SURRY COUNTY, NC



Veterans:
7.7%

Disabled
20.3%

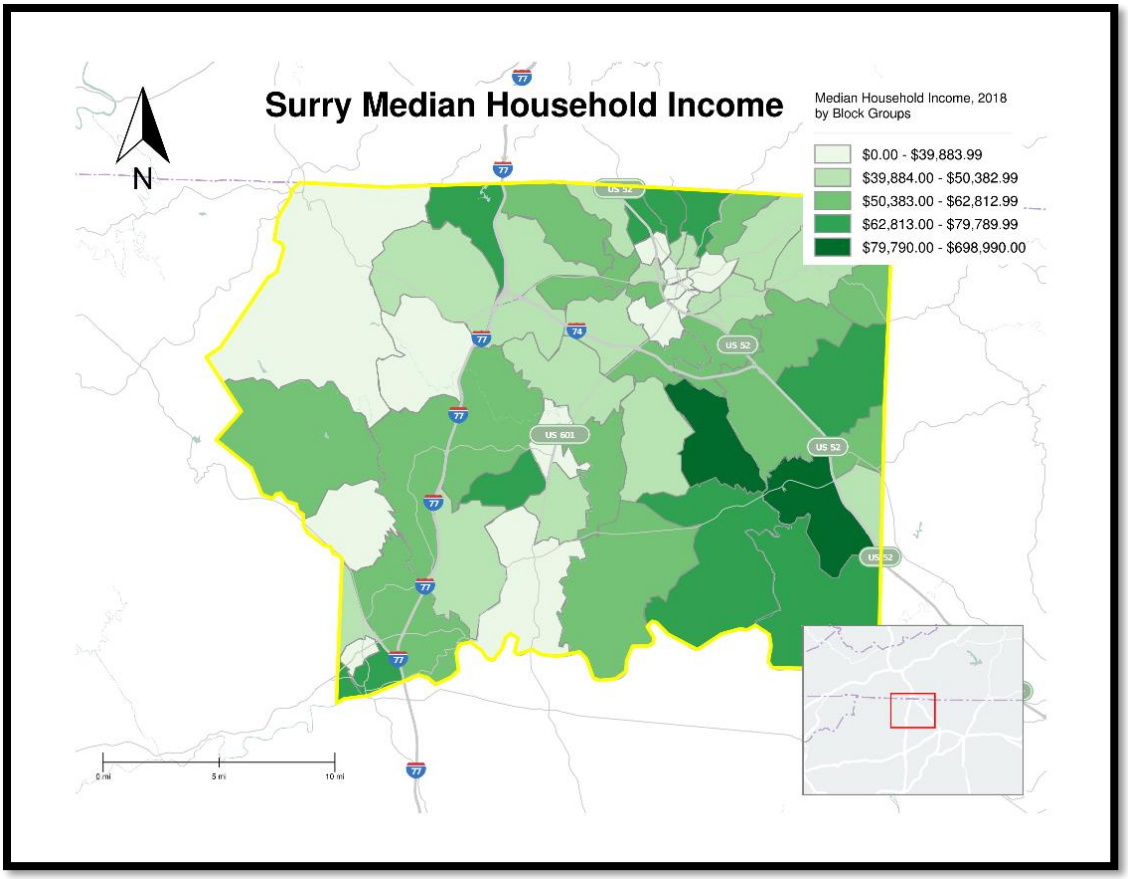
Native American:
0.4%

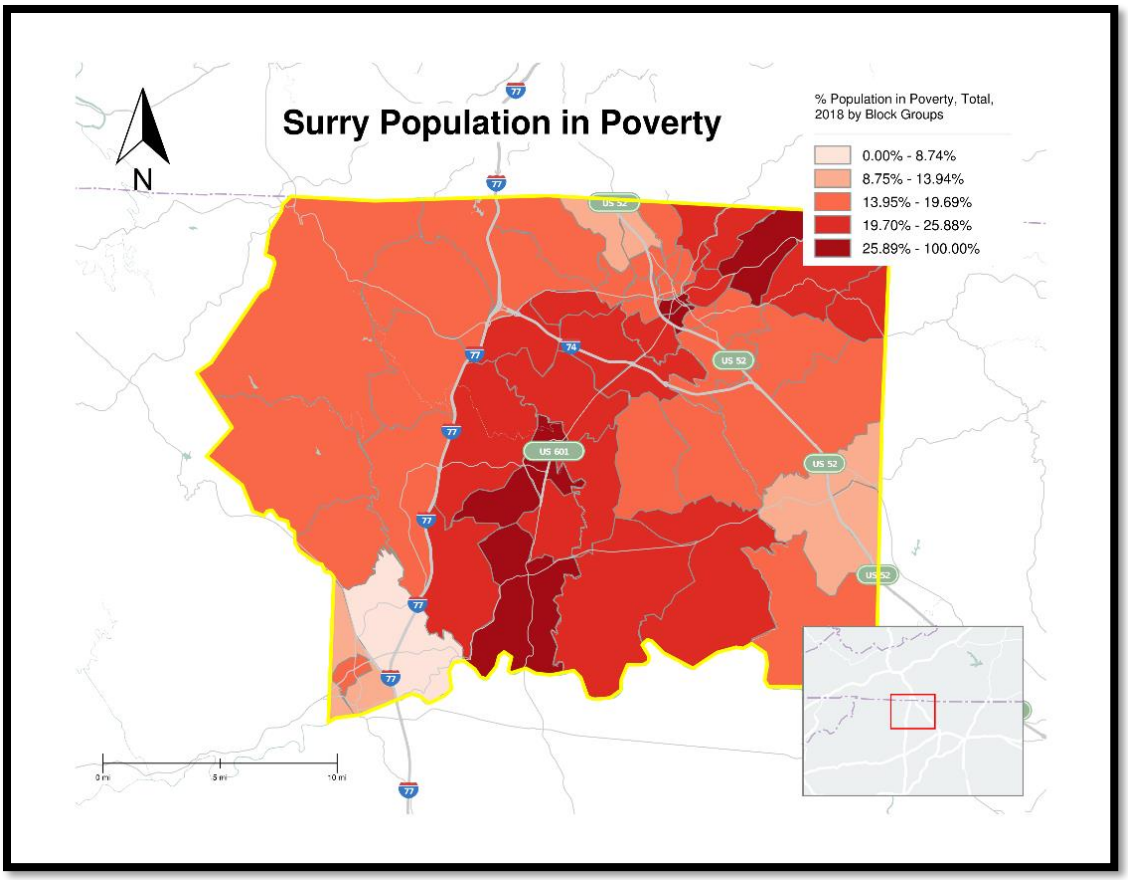
Hispanic:
10.2%

Uninsured:
13.3%

Community Overview

Surry County, NC had a population of 72,534, decreasing-1.9% since 2010. The median age is 42.6 years old with 19.8% of the population 65 years or older and 22.1% being children under 18. Surry has an estimated 16.9% of the population identifying as non-white. Approximately 78.2% of the residents hold a high school diploma/ GED or higher education. Only 14.0% have at a bachelor's degree or beyond. Approximately 13.3% of the population is uninsured.


Surry Median Household Income
Median Household Income, 2018 by Block Groups
$0.00 - $39,883.99
$39,884.00 - $50,382.99
$50,383.00 - $62,812.99
$62,813.00 - $79,789.99
$79,790.00 - $698,990.00
N
US 52
US 601
74
77


Surry Population in Poverty
% Population in Poverty, Total, 2018 by Block Groups
0.00% - 8.74%
8.75% - 13.94%
13.95% - 19.69%
19.70% - 25.88%
25.89% - 100.00%
N
US 52
US 601
74
77

Economy

Surry County, which most recently reported an unemployment rate of 3.4%. Based on the ACS 2013-2017, the per capita personal income was reported at $22,533. The poverty rate in Surry is 17.6%. One in five (19.4%) of homeowners and nearly two in five (36.6%) of renters are cost burdened, spending more than 30% of income on housing-related cost.

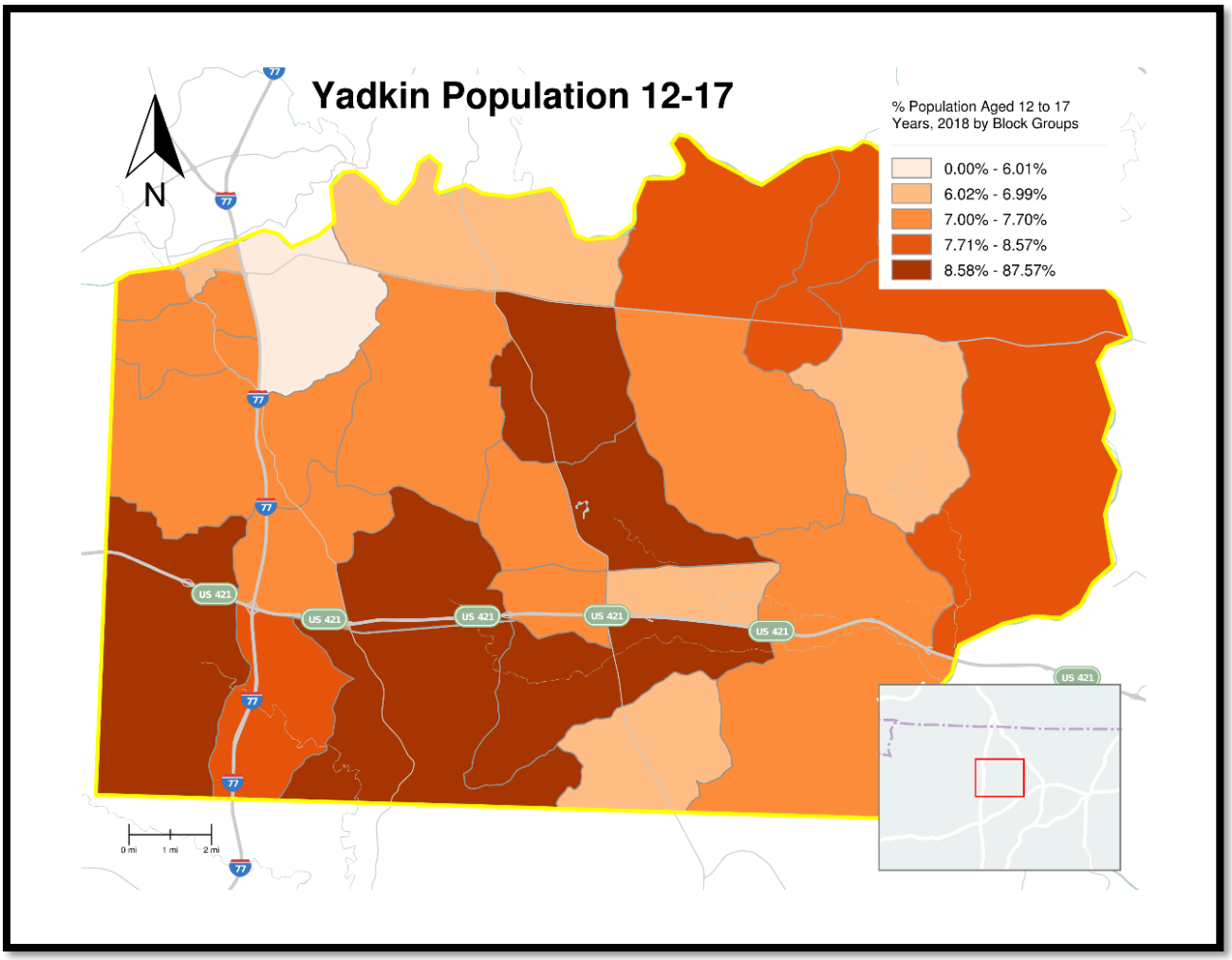
Substance Abuse

About 22.2% of the adult population smokes cigarettes regularly, while 4.8% of adults engage in heavy drinking. One in five (21.1%) of adults report seven or more poor mental health days in the last 30 days. There were 103.2 outpatient opioid pills dispensed per person in 2016. In Surry there were 14.8 unintentional overdose deaths per 100,000 residents per year (2012-2016). There are 3 substance abuse treatment facilities in Surry County.

TABLE 9 - METRIC SUMMARY TABLE: SURRY (NC DEPARTMENT OF HEALTH & HUMAN SERVICES)

Metrics	Most Current Provisional Data		
	Time	**Quarter**	**Year-To-Date**
Reduce Death/ED Outcomes			
Number of unintentional opioid-related deaths to NC Residents (ICD-10)	2018 - Q3	2	10
Number of ED visits that received an opioid overdose diagnosis (all intents)	2019 - Q1	28	28
Reduce Oversupply of Prescription Opioids			
Average rate of multiple provider episodes for prescription opioids, per 100,000 residents	2018 - Q4	28	19
Number of opioid pills dispensed	2018 - Q4	1,214,000	4,756,000
Percent of patients with an opioid prescription receiving more than an average daily dose of 90+ MME of opioid analgesics	2018 - Q4	7	8
Percent of prescription days any patient had at least one opioid AND at least one benzodiazepine prescription on the same day	2018 - Q4	18	22
Reduce Diversion/Flow of Illicit Drugs			
Percent of opioid deaths involving heroin or fentanyl/fentanyl analogues	2018 - Q4	60	60
Number of acute hepatitis C cases	2018 - Q4	1	5
Increase Access to Naloxone			
Number of EMS naloxone administrations	2018 - Q4	32	132
Number of community naloxone reversals	2019 - Q1	0	0
Treatment and Recovery			
Number of buprenorphine prescriptions dispensed	2018 - Q4	1,785	6,376
Number of uninsured individuals and Medicaid beneficiaries with an opioid use disorder served by treatment programs	2018 - Q4	162	703
Number of certified peer support specialists (CPSS)	2019 - Q1	9	9

YADKIN COUNTY, NC



Veterans:
6.9%

Disabled
16.8%

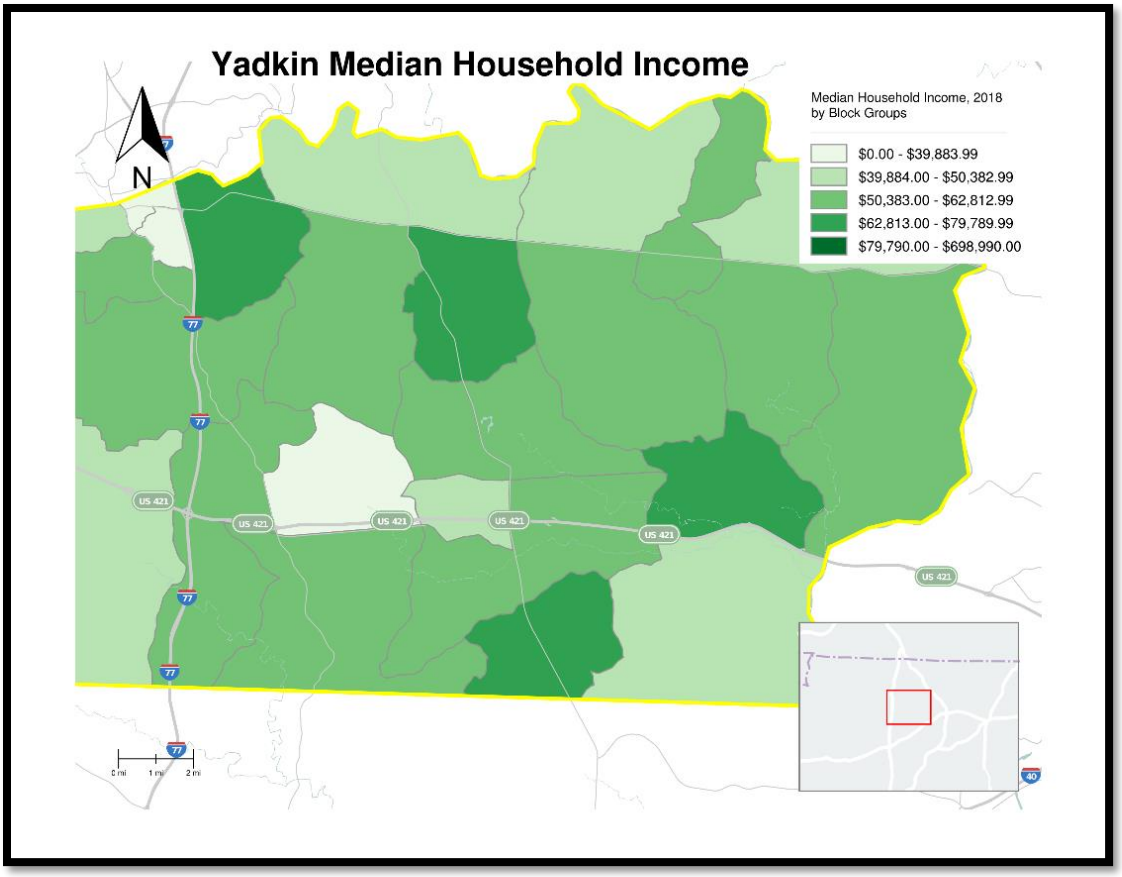
Native American:
0.3%

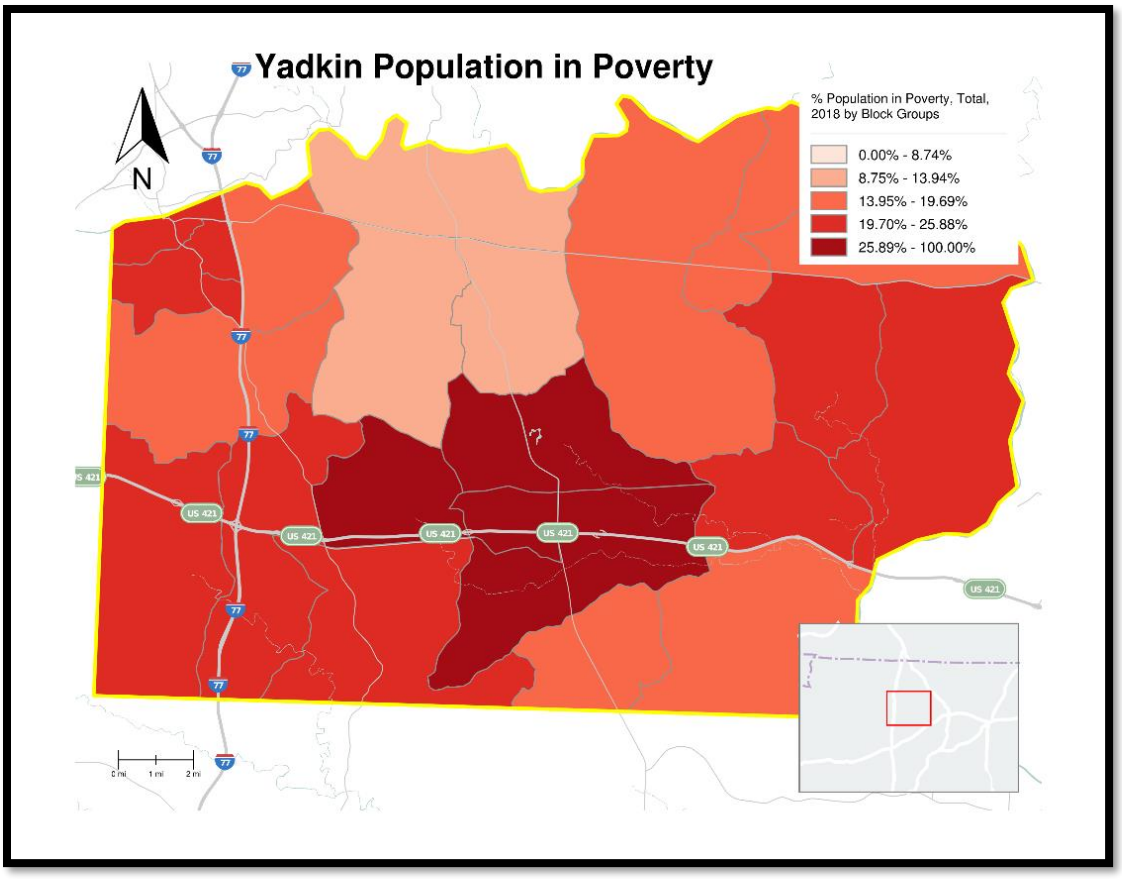
Hispanic:
11.0%

Uninsured:
13.2%

Community Overview

Yadkin County, NC had a population of 37,847, decreasing 2.1% since 2010. The median age is 42.9 years old with 19.5% of the population 65 years or older and 21.9% being children under 18. Yadkin has an estimated 15.8% of the population identifying as non-white. Approximately 77.9% of the residents hold a high school diploma/ GED or higher education. Only 13.4% have at a bachelor's degree or beyond. Approximately 13.4% of the population is uninsured.


Yadkin Median Household Income
Median Household Income, 2018 by Block Groups
$0.00 - $39,883.99
$39,884.00 - $50,382.99
$50,383.00 - $62,812.99
$62,813.00 - $79,789.99
$79,790.00 - $698,990.00
N
US 421
77
0 mi
1 mi
2 mi


Yadkin Population in Poverty
% Population in Poverty, Total, 2018 by Block Groups
0.00% - 8.74%
8.75% - 13.94%
13.95% - 19.69%
19.70% - 25.88%
25.89% - 100.00%
N
US 421
77
0 mi
1 mi
2 mi

Economy

Yadkin County, which most recently reported an unemployment rate of 3.1%. Based on the ACS 2013-2017, the per capita personal income was reported at $23,038. The poverty rate in Yadkin is 17.3%. One in five (20.9%) of homeowners and nearly two in five (37.7%) of renters are cost burdened, spending more than 30% of income on housing-related cost.

Substance Abuse

About 19.4% of the adult population smokes cigarettes regularly, while 4.7% of adults engage in heavy drinking. One in five (20.2%) of adults report seven or more poor mental health days in the last 30 days. There were 106.6 outpatient opioid pills dispensed per person in 2016. In Yadkin there were 19.6 unintentional overdose deaths per 100,000 residents per year (2012-2016). There is one substance abuse treatment facilities in Yadkin County.

TABLE 10 - METRIC SUMMARY TABLE: YADKIN (NC DEPARTMENT OF HEALTH & HUMAN SERVICES)

Metrics	Most Current Provisional Data		
	Time	**Quarter**	**Year-To-Date**
Reduce Death/ED Outcomes			
Number of unintentional opioid-related deaths to NC Residents (ICD-10)	2018 - Q3	3	11
Number of ED visits that received an opioid overdose diagnosis (all intents)	2019 - Q1	8	8
Reduce Oversupply of Prescription Opioids			
Average rate of multiple provider episodes for prescription opioids, per 100,000 residents	2018 - Q4	53	32
Number of opioid pills dispensed	2018 - Q4	594,000	2,397,000
Percent of patients with an opioid prescription receiving more than an average daily dose of 90+ MME of opioid analgesics	2018 - Q4	8	9
Percent of prescription days any patient had at least one opioid AND at least one benzodiazepine prescription on the same day	2018 - Q4	17	22
Reduce Diversion/Flow of Illicit Drugs			
Percent of opioid deaths involving heroin or fentanyl/fentanyl analogues	2018 - Q4	33	33
Number of acute hepatitis C cases	2018 - Q4	0	0
Increase Access to Naloxone			
Number of EMS naloxone administrations	2018 - Q4	20	83
Number of community naloxone reversals	2019 - Q1	0	0
Treatment and Recovery			
Number of buprenorphine prescriptions dispensed	2018 - Q4	1,100	3,454
Number of uninsured individuals and Medicaid beneficiaries with an opioid use disorder served by treatment programs	2018 - Q4	118	484
Number of certified peer support specialists (CPSS)	2019 - Q1	6	6

PRESENTERS

Dr. Stephen J. Sills (PhD, Arizona State University, 2004) is Professor of Sociology and Director of The Center for Housing and Community Studies. For the last thirteen years, Dr. Stephen Sills, has conducted housing and community research in North Carolina. Before coming to UNCG he worked in Seattle, Phoenix, Detroit, and abroad in Taiwan and the Philippines. Dr. Sills has published research on immigration, poverty, immigrant access to health and social services, and social support networks for marginalized people including peer-reviewed articles on: Predictors of Drug Norms and Drug Use Among Preadolescents, Ecological Perspective on Latino/a Drug Use, Innovations in Survey Research, Methodological Issues of Mixed-Sex Focus Groups, and Culturally-specific Intervention Methods. Dr. Sills has also worked at the municipal, county, and regional level to address fair housing issues, gentrification, affordable housing, and community planning with the Piedmont Triad Regional Council, the Rocky Mount Revitalization Initiative, the City of Asheville, the City of Greensboro, the City of High Point, the City of Winston-Salem, and others. He often speaks on the use of data analytics and visualization in addressing contemporary social issues.

Rachel Ryding is a Doctoral student in Sociology at the University of Delaware, and graduated summa cum laude from the University of North Carolina at Greensboro (UNCG) in 2016 with a Bachelor's degree in Sociology and a concentration in Criminology. While focusing her studies in the areas of research methodologies and health, her primary research interests specialize on stigma and health disparities pertaining to mental health and substance use disorders. Rachel has been a graduate researcher with the Center for Drug and Health Studies at the University of Delaware since 2017, where she works as an analyst with the Delaware School Surveys and the CDC Youth Risk Behavior Surveys. She has been affiliated with the Center for Housing and Community Studies at UNCG since 2015, where she has worked with projects across the state of North Carolina

on topics including from housing, quality of life, substance use, and community health. Rachel has co-authored journal articles and reports, as well as facilitated presentations to community-based and professional audiences, on the following subjects: stigma reduction in collegiate recovery and the implementation of ally-training programs; the relationship between economic decline, housing, and substance use in southern Appalachia; Asset-Based Community Development and asset mapping as tools for community empowerment; the social construction and medicalization of drug epidemics; rurality and behavioral health disparities; and the relationship between childhood trauma and substance use among high school students.

THE CENTER FOR HOUSING & COMMUNITY STUDIES

The Carnegie Foundation classifies UNC Greensboro as a Research University with High Research Activity, Community Engagement, and Curricular Engagement and Outreach and Partnerships. UNC Greensboro is well equipped and well suited to bring together the proposed participatory research project. It is a comprehensive doctoral research institution with approximately $36,000,000 in annual sponsored research funding support. UNCG has also been identified as a Minority Serving Institution, with a student body in Fall 2018 consisting of 16,238 undergraduates, among which approximately 34.7% identify as African American and 10.5% identify as Hispanic or Latinx. UNCG also serves a significant proportion of students with financial need, with approximately 52.2% of UNCG students eligible for need-based Pell Grants, leading the U.S. Department of Education to officially recognize UNCG as a Title III Part A institution.

The Center for Housing and Community Studies (CHCS) is housed within the Office of Research and Engagement (ORE) under the direction of Dr. Terri Shelton, Vice Chancellor for Research and Engagement. CHCS was incorporated on 2015 as a university-based research, evaluation, and technical assistance center. As part of its mission, the University of North Carolina at Greensboro's Center for Housing and Community Studies is committed to investigating and understanding how the social, economic, environmental and spatial aspects of home and neighborhood affect people's health, well-being, and the life course. The CHCS staff has been working to identify substandard homes, weak housing markets, vacant and abandoned lots and buildings, systemic inequality, and other community conditions that impact the quality of life of residents. Recent projects also include the use of advanced data visualization and mapping. We have conducted HUD Fair Housing Assessments and Analysis of Impediments to Fair Housing Choice, as well as paired-testing studies.

CHCS has amassed a number of datasets specific to North Carolina, including primary data collected on housing conditions, community health indicators, substance use, and economic development. The Center is equipped in many forms of in-person and remote quantitative and qualitative data collection: one-on-one interviews, focus groups, telephone interviews, postal mail surveys, electronic/web-based surveys, and computer-assisted in-person or telephone surveys. We are also able to assist with sample design, questionnaire development, qualitative and quantitative data analysis and reporting, as well as data mapping. Our team can conduct geospatial modeling and analysis, programming (Python, SQL, JavaScript, SAS, HTML, and CSS), web services and API configuration, as well as database development and management. We are experienced in the design and implementation of formative and summative program evaluation, Asset-Based Community Development, Success Case Method (SCM) evaluation, needs assessment and asset mapping, and housing policy analysis.

CHCS is well supported by ORE staff who assist in grant and contract management, federal reporting, payroll and accounting, website development, information technology management, public relations, etc. leaving CHCS to focus on applied, community-engaged housing research. UNCG's facilities and resources are robust and fully capable of supporting all grant activities and sustaining programming following the end of the grant. The Information Technology computing environment centrally-managed software including statistical and mathematical analysis programs, such as SAS, SPSS, AMOS, Stata, Matlab, Maple and Mathematica; and qualitative research packages including Atlas.ti and QSR Nvivo. The technology infrastructure at UNCG maintained by a highly qualified team of certified systems, networks, database and infrastructure engineers, monitored centrally by a Service Operations Center that is fully staffed 24x7x365. Additionally, the UNCG Library contains over 2.4 million volumes of books, government documents, recordings and scores. It also has extensive virtual resources through its web site including over 40,000 electronic journals, over 300 databases and over 300,000 electronic books, electronic resources accessible from the 16 other UNC libraries and several academic libraries in the Piedmont.

CHCS has demonstrated capacity to conduct research at the county and regional level in past projects. Between 2011 and 2013, Dr. Sills assisted the Piedmont Authority for Regional Transportation/ Piedmont Triad Council of Governments in the development of a Fair Housing Equity Assessment (FHEA) under the Piedmont Triad Sustainable Communities Regional Planning Project.

The data analysis used as its starting point the 'data tools' developed by HUD in 2010 (and updated in 2012). From this starting point, additional data was collected and compiled including real-estate market information, additional demographic and economic variables from state and federal sources, as well as complete Housing and Mortgage Disclosure Act data (HMDA) from the Federal Financial Institutions Examination Council's (FFIEC). Planning directors, community services personnel, economic development personnel, fair housing directors, housing rights advocates, Habitat for Humanity personnel, housing authority directors, Section 8 housing directors, senior services directors, real-estate agents, and landlords in the Piedmont region of NC were interviewed. The resulting findings from these interviews provided local experts' views on fair housing issues, policy, governance, enforcement, and infrastructure. To supplements these data sources, a survey was deployed to area residents to assess awareness of fair housing laws and policies as well as gauge the incidence of discrimination in housing. The final FHEA report was used extensively to inform the 2014 Housing Plan & Recommendations for North Carolina's Piedmont Triad Region. Dr. Sills also assisted the City of Greensboro in their 2008 Analysis of Impediments and is currently finalizing a contract for the Surry County Housing Consortium (SCHC) Analysis of Impediments.

CHCS was the lead organizer of the Invest Health Greensboro Collective Impact initiative, funded by the Robert Wood Johnson Foundation and Reinvestment Fund. This cross-sector collaboration model aligning Cone Health, the City of Greensboro, East Market Now, the Greensboro Housing Coalition, and UNCG CHCS focused on assisting residents in remediating substandard housing to create improved health outcomes in identified "Health Impact Communities," identified through Cone Health System data. The Invest Health project combined services (outreach, health education, resource navigation) with repair and rehabilitation work to empower residents and landlords to make their properties healthier and safer. The project has led to over $4.5 million in neighborhood revitalization efforts (RWJF/Reinvestment Fund Invest Health Grant).Other recent projects by CHCS include a "market segmentation" study for the City of High Point and another for the *Rocky Mount Revitalization Initiative*. In these studies, we compiled over 70 social, demographic, economic, and community variables at the block group level including factors such as crime, transience, zoning, percent single-family vs. multi-family, supermarket access, social vulnerability, school proficiency, poverty, labor market engagement, job accessibility, health hazards exposure, and transit access. Our reports include over 300 pages of data and analysis and online, public-facing GIS systems.