

## **Cape Fear Plant: Environmental Justice Snapshot**

### **1 Introduction**

The EJ Snapshot is an initial look at the demographics and socioeconomics of a facility's surrounding community area. This includes information within a radius determined by the North Carolina Department of Environmental Quality (Department or DEQ), race and poverty (decennial census year), per capita income and Ability to speak English (most current American Community Survey (ACS) census range), the current North Carolina Department of Commerce county tier, and yes/no – native American territory. The EJ Snapshot does not include a reconnaissance of the community.

A Snapshot will be conducted at the beginning of the application process when a full EJ Report is already requested. The Snapshot will be distributed to interested community members (if known) and posted to the DEQ website with the relevant permit application before the close of the public comment period. The goal is to encourage EJ Report comments and suggestions from the surrounding community, industry, and environmental groups throughout the comment period.

Among other things, the snapshot could be conducted based on community, public or national interest; involvement of a new technology or new facility and/or the presence of coal ash. An EJ Snapshot may also be conducted in lieu of an EJ Report in some circumstances.

It is important to keep in mind, that based on the data available, the following limitations of this study: census data is from 2010 and may be outdated; the more recent census data through 2017 are estimates; EJSCREEN does not provide all of the data categories that were used in this analysis so the census tract and county data cannot be compared to the radius used surrounding the facility boundary; census tracts can still be large areas and do not allow for exact locations of each population; some of the census tracts slightly overlap with the one-and-one-half mile radius; and the Department cannot determine which populations are in that small amount of overlap.

The Department has conducted this snapshot of the demographic and socioeconomic data of the community surrounding the Duke Energy Cape Fear Power Plant to foster communication prior to the Division of Air Quality's discussion on the permit application for enhanced emission controls. This in turn will result in a completed EJ Report prepared by the Department once community comments received during the public comment period are considered.

### **2 Environmental Justice Assessment**

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (US EPA). The final EJ Report will examine the demographic and environmental conditions in Chatham and Lee counties, as well as census tracts, and the 1.5 miles radius around the property boundary of the Cape Fear Plant. Finally, the demographics of the entire state of North Carolina are also considered as they relate to both the county and local census tract and radius settings.

The Department has assessed the permit application and the potential impact on communities surrounding the potential facility operation by reduced emission sources and implementation of control technology. The Environmental Justice Report will include:

- Review of permit application – beneficiation facility, onsite
- Point source emission units
- Potential emissions from the coal ash beneficiation process
- Regulatory evaluation of application
- Compliance assurance monitoring
- Facility-wide air toxics overview
- Modeled emissions rates
- Study of area demographics [determined by utilizing the USEPA Environmental Justice tool (EJSCREEN) <https://ejscreen.epa.gov/mapper/> and current, available census data, <http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml> ]
- Comparison of area demographics to project county census data

The following actions will be completed prior to the Division of Air Quality’s public hearing on April 23, 2019:

- A confirmation site visit to ensure the currently available census data was accurate.
- Communication of permit application with the public and public officials in neighboring communities.

### 3 Proposed Project

In 1923, Duke Energy began commercially operating the coal-fired Cape Fear Plant just outside Moncure, North Carolina. The plant was retired in 2012, and was demolished in 2017. Located in Chatham County on the border of Lee County, the old plant site contains five ash ponds. Duke Energy submitted a permit application to DEQ to build a Staged Turbulent Air Reactor (STAR®) facility coal ash beneficiation plant. The purpose of this plant (pursuant to G.S. 130A-309.216, enacted in 2015) is to reduce the carbon content of fly ash to an acceptable level to prepare for use in the concrete market.

In its application, Duke Energy is proposing to install and operate a fly ash processing facility consisting of a STAR® plant and related activities. To support this project, Duke Energy is applying for the first part of a two-step Title V permit. The proposed facility is designed to annually process up to 400,000 tons of coal combustion fly ash with other ingredient materials to produce a high-quality class F fly ash for use in ready mix concrete or other commercial products. It uses a proprietary technology from the SEFA Group Inc. called STAR® - to chemically and physically convert fly ash into a low-carbon material that meets the American Society for Testing and Materials (ASTM) Standard C618-08, “Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete” of no more than 6 percent by weight loss-on-ignition (LOI) content to be suitable for use in concrete. Fly ash is commonly used as a cementitious product, which is the binding that holds together concrete.

G.S. 130A-309.216, sets out requirements for the construction of beneficiation sites to process coal ash for use in cementitious products:

On or before January 1, 2017, an impoundment owner shall (i) identify, at a minimum, impoundments at two sites located within the State with ash stored in the impoundments on that date that is suitable for processing for cementitious purposes and (ii) enter into a binding agreement for the installation and operation of an ash beneficiation project at each site capable of annually processing 300,000 tons of ash to specifications appropriate for cementitious products, with all ash processed to be removed from the impoundment(s) located at the sites.

Additionally, the preparation of fly ash for beneficial use in the manner proposed by Duke Energy is encouraged by the U.S. Environmental Protection Agency (EPA). EPA finds “this practice can produce positive environmental, economic, and product benefits such as reduced use of virgin resources, lower greenhouse gas emissions, reduced cost of coal ash disposal, and improved strength and durability of materials.”

Some communities have raised concerns regarding the transportation and fugitive dust potential for the facility. Figure 1 depicts an example of the type of truck that will be used (completely enclosed) and the enclosed structure type for the facility.



*Figure 1. Picture of the proposed facility and truck type (provided by Duke Energy)*

#### 4 Geographic Area

The Cape Fear Plant is a former 316-megawatt electric power generating facility located at 500 CP and L Road, Moncure, North Carolina. It is located on the Cape Fear River in Chatham County, N.C (Figure 2). The one-and-one-half-mile radius used in this analysis crosses into Lee County, and spans over a total of two census tracts (Figure 3). Census tracts are small, relatively permanent statistical subdivisions of a county with a unique numeric code (U.S. Census Bureau). The plant itself is located in Census Tract 207.02 of Chatham County and the one-and-one-half-mile analysis radius crosses into Census Tract 307.01 of Lee County. Both tracts are included in this report.

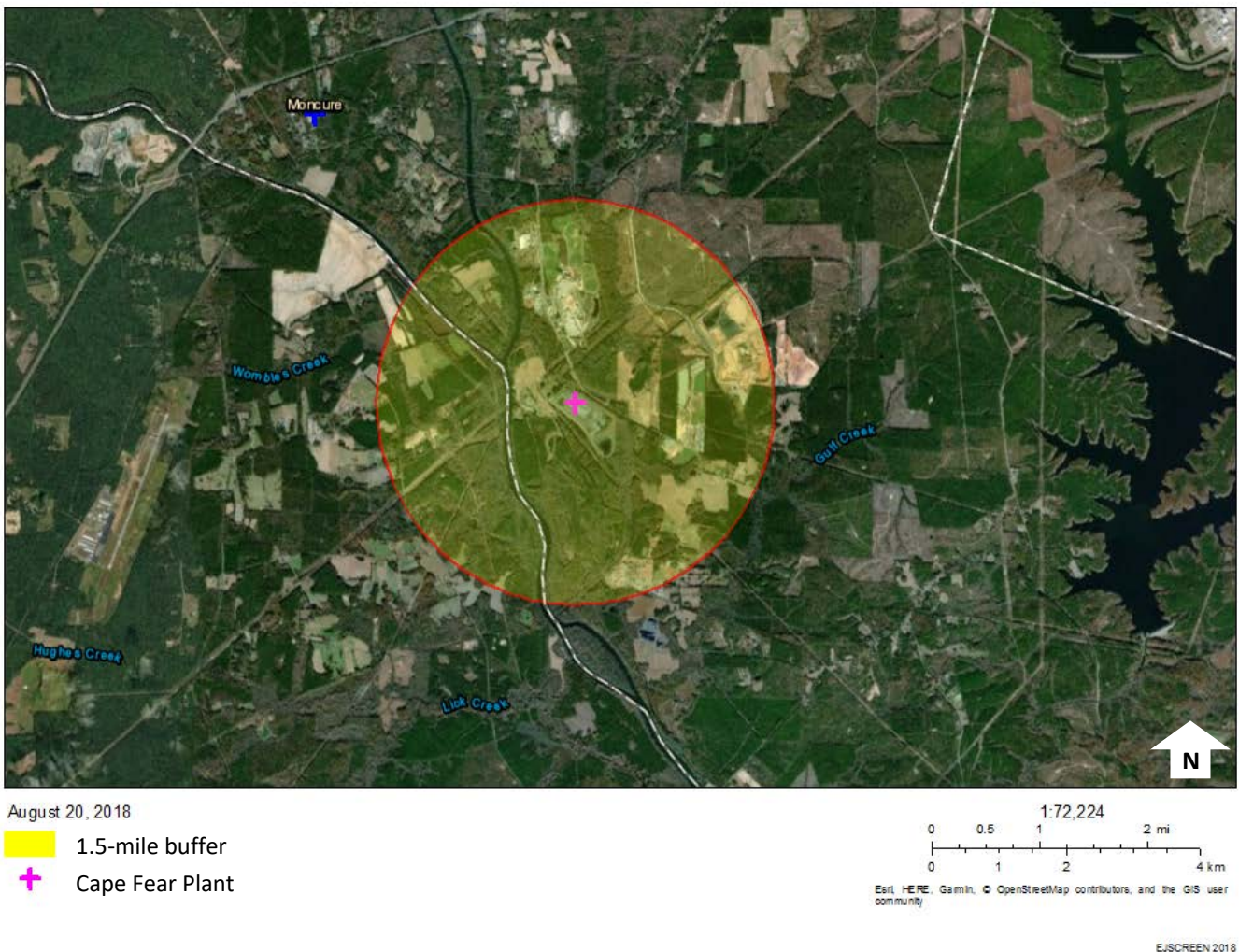


Figure 2. Cape Fear plant and the one-and-one-half-mile radius.

### 4.1 Regional and Local Settings

Lee County is designated as a Tier 2 county by the North Carolina Department of Commerce, and Chatham County is designated as a Tier 3 county. The 40 most distressed counties are designated as Tier 1, the next 40 as Tier 2, and the 20 least distressed as Tier 3. County Tiers are calculated based on average unemployment rate, median household income, percentage growth in population, and adjusted property tax base per capita (<https://www.nccommerce.com/grants-incentives/county-distress-rankings-tiers>). The two census tracts do not encompass any Federal or State American Indian Reservation, Off-Reservation Trust Land, Statistical Area, Designated Tribal Area, or Native Regional Corporation. However, this does not mean there are no Native American or Alaska Native persons living within Census Tracts 207.02 and 307.01.

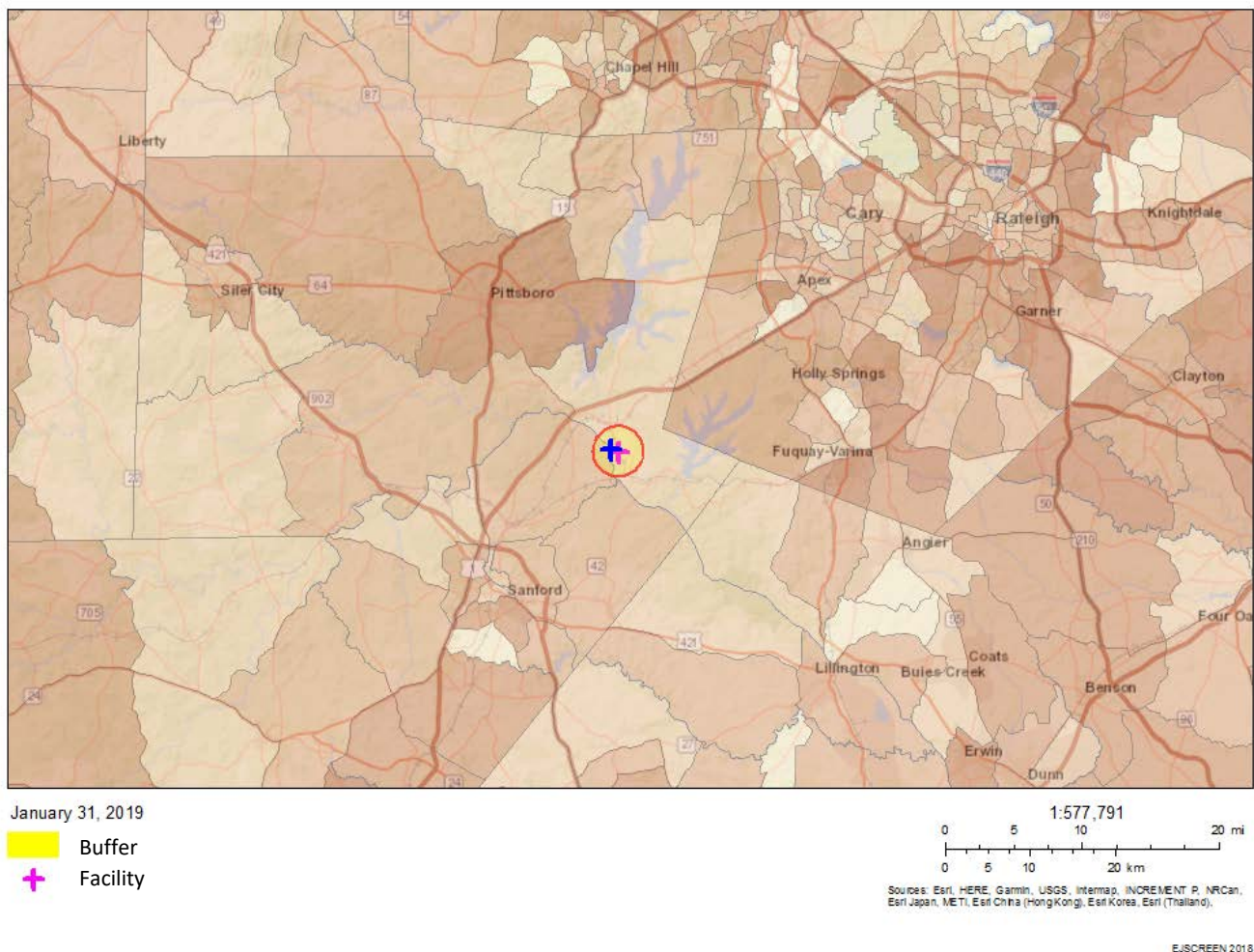


Figure 3. Census tracts and counties around facility location.

Demographics (including race and ethnicity, poverty status, and per capita incomes (Tables 1 through 6)) for Chatham and Lee counties will be compared to the local (census tracts and project radius) level data to identify any disparities surrounding the project area. Using standard environmental justice guidelines from the EPA and National Environmental Policy Act (NEPA) documentation, the following conditions will be flagged as potential communities of concern:

1. 10% or more in comparison to the county average
2. 50% or more minority
3. 5% or more in comparison to the county average for poverty

*Table 1. Race and Ethnicity-Regional Setting*

Race and Ethnicity	North Carolina		Chatham County		Lee County	
	Number	Percent	Number	Percent	Number	Percent
Total Population	9,535,483	100.0	63,505	100.0	57,866	100.0
White	6,528,950	68.5	48,237	<b>76.0</b>	38,688	66.9
Black or African American	2,048,628	21.5	8,392	13.2	11,565	20.0
American Indian or Alaska Native	122,110	1.3	344	0.5	407	0.7
Asian	208,962	2.2	703	1.1	489	0.8
Native Hawaiian and Other Pacific Islander	6,604	0.1	24	0.0	20	0.0
Some other Race	414,030	4.3	4,169	<b>7.3</b>	5,286	<b>9.1</b>
Two or More Races	206,199	2.2	1,186	1.9	1,411	2.4
HISPANIC OR LATINO (of any race)	800,120	8.4	8,228	<b>13.0</b>	10,576	<b>18.3</b>
Mexican	486,960	5.1	5,842	<b>9.2</b>	6,898	<b>11.9</b>
Puerto Rican	71,800	0.8	210	0.3	594	1.0
Cuban	18,079	2.3	70	0.1	43	0.1
Other Hispanic or Latino	223,281	2.3	2,106	<b>3.3</b>	3,041	<b>5.3</b>
Source: U.S. Census, 2010 Census						
All <b>bold and highlighted</b> cells indicate a difference that is greater than 10% when compared to the Statewide average						

*Table 2. Race and Ethnicity-Local Setting*

Race and Ethnicity	Project Area - 1.5 Miles		Census Tract 207.02		Census Tract 307.01	
	Number	Percent	Number	Percent	Number	Percent
Total Population	113	100.0	3,887	100.0	4,751	100
White	92	<b>81.4</b>	3,164	<b>81.7</b>	3,547	<b>74.7</b>
Black or African American	15	13.3	497	12.8	770	16.2
American Indian or Alaska Native	1	0.9	21	0.5	16	0.3
Asian	1	0.9	36	0.9	34	0.7
Native Hawaiian and Other Pacific Islander	0	0.0	0	0.00	1	0.0
Some other Race	4	3.5	109	2.8	297	<b>6.3</b>
Two or More Races	1	0.9	50	1.3	86	1.8
HISPANIC OR LATINO (of any race)	7	6	191	4.9	510	<b>10.7</b>
Mexican			153	3.9	368	<b>7.7</b>
Puerto Rican			12	0.3	40	0.8
Cuban			3	0.1	0	0.0
Other Hispanic or Latino			23	0.6	102	2.1

Source: U.S. Census, 2010 Census  
**Bolded and yellow highlighted cells** indicate a difference greater than 10% compared to the Statewide average.  
**Bolded and green highlighted cells** indicate a difference greater than 10% compared to both State and respective County

Table 3. Poverty Status-North Carolina

Subject	Total		Below poverty level		Percent below poverty level	
	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-
Population for whom poverty status is determined	9,685,511	1,782	1,631,704	17,281	16.8	0.2
<b>AGE</b>						
Under 18	2,254,721	2,050	539,417	8,484	23.9	0.4
18 to 64	6,012,888	1,258	955,430	9,789	15.9	0.2
65 years and over	1,417,902	1,068	136,857	2,562	9.7	0.2
<b>SEX</b>						
Male	4,684,761	2,068	719,985	8,902	15.4	0.2
Female	5,000,750	1,846	911,719	9,880	18.2	0.2
<b>RACE AND HISPANIC OR LATINO ORIGIN</b>						
White	6,220,770	2,615	718,254	11,602	11.5	0.2
Black or African American	2,056,688	4,872	537,538	7,834	26.1	0.4
American Indian and Alaska Native	114,277	1,759	32,101	1,831	28.1	1.5
Asian	248,665	1,763	32,044	1,973	12.9	0.8
Native Hawaiian and Other Pacific Islander	6,227	910	1,229	363	19.7	5.3
Some other Race	293,512	8,038	98,899	5,189	33.7	1.5
Two or more races	233,951	5,773	57,525	2,970	24.6	1.1
Hispanic or Latino	867,229	835	273,081	2,970	24.6	0.8
<b>All individuals below:</b>						
50 percent of poverty level	709,029	10,824				
125 percent of poverty level	2,156,665	18,666				
150 percent of poverty level	2,675,626	22,058				
185 percent of poverty level	3,374,865	23,762				
200 percent of poverty level	3,649,420	24,199				
Source: U.S. Census, 2012-2016 ACS 5-Year Estimates						



Table 4. Poverty Status -Regional Setting (Counties)

Subject	Chatham County						Lee County					
	Total		Below poverty level		Percent below poverty level		Total		Below poverty level		Percent below poverty level	
	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-
Population for whom poverty status is determined	67,758	+/-216	9,185	+/-912	13.6	+/-1.3	58,358	+/-304	10,673	+/-1,197	18.3	+/-2.1
AGE												
Under 18	13,628	+/-165	2,858	+/-481	21.0	+/-3.5	14,736	+/-212	3,855	+/-596	26.2	+/-4.0
18 to 64	38,222	+/-236	5,058	+/-548	13.2	+/-1.4	34,962	+/-255	5,720	+/-684	16.4	+/-2.0
65 years and over	15,908	+/-252	1,269	+/-250	8.0	+/-1.5	8,660	+/-164	1,098	+/-242	<b>12.7</b>	+/-2.8
SEX												
Male	32,770	+/-244	4,484	+/-502	13.7	+/-1.5	28,372	+/-260	4,462	+/-649	15.7	+/-2.3
Female	34,988	+/-256	4,701	+/-624	13.4	+/-1.8	29,986	+/-259	6,211	+/-712	20.7	+/-2.4
RACE AND HISPANIC OR LATINO ORIGIN												
White	54,674	+/-689	6,341	+/-870	11.6	+/-1.6	41,084	+/-827	6,148	+/-1,043	15.0	+/-2.5
Black or African American	7,922	+/-373	1,791	+/-376	22.6	+/-4.7	10,786	+/-341	2,719	+/-519	25.2	+/-4.8
American Indian and Alaska Native	185	+/-111	125	+/-114	<b>67.6</b>	+/-31.4	400	+/-71	72	+/-76	18.0	+/-19.5
Asian	975	+/-128	26	+/-40	2.7	+/-4.2	626	+/-75	95	+/-86	15.2	+/-13.7
Native Hawaiian and Other Pacific Islander	43	+/-46	0	+/-28	0.0	+/-45.2	52	+/-57	32	+/-49	61.5	+/-61.5
Some other Race	2,290	+/-682	552	+/-409	24.1	+/-15.4	3,975	+/-800	1,097	+/-525	26.7	+/-12.0
Two or more races	1,669	+/-323	350	+/-169	21.0	+/-9.6	1,435	+/-346	510	+/-255	<b>35.5</b>	+/-14.3
Hispanic or Latino	8,487	+/-21	2,736	+/-551	<b>32.2</b>	+/-6.5	11,356	+/-56	32	+/-49	<b>33.0</b>	+/-7.9
All individuals below:												
50 percent of poverty level	3,669	+/-737					3,691	+/-689				
125 percent of poverty level	11,952	+/-1,033					14,575	+/-1,139				
150 percent of poverty level	15,041	+/-1,044					17,743	+/-1,185				
185 percent of poverty level	19,808	+/-1,207					21,071	+/-1,210				
200 percent of poverty level	21,052	+/-1,288					22,901	+/-1,234				

Source: U.S. Census, 2012-2016 ACS 5-Year Estimates

All **bold and highlighted** cells indicate a difference that is greater than 10% when compared to the Statewide average

Table 5. Poverty Status – Local Setting

Subject	Census Tract 307.01						Census Tract 207.02					
	Total		Below poverty level		Percent below poverty level		Total		Below poverty level		Percent below poverty level	
	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-	Estimate	Margin of Error +/-
Population for whom poverty status is determined	5,403	+/-427	757	+/-299	14.0	+/-5.3	3,976	+/-305	376	+/-188	9.5	+/-4.5
AGE												
Under 18	1,407	+/-177	248	+/-136	17.6	+/-8.8	814	+/-129	39	+/-52	4.8	+/-6.3
18 to 64	3,318	+/-390	398	+/-171	12.0	+/-4.9	2,395	+/-281	240	+/-135	10.0	+/-5.2
65 years and over	678	+/-143	111	+/-90	<b>16.4</b>	+/-12.2	767	+/-115	97	+/-70	<b>12.6</b>	+/-9.4
SEX												
Male	2,761	+/-262	316	+/-190	11.4	+/-6.6	2,084	+/-210	215	+/-134	10.3	+/-5.9
Female	2,642	+/-283	441	+/-173	16.7	+/-6.2	1,892	+/-216	161	+/-82	8.5	+/-4.3
RACE AND HISPANIC OR LATINO ORIGIN												
White	3,692	+/-330	471	+/-270	12.8	+/-6.9	3,758	+/-292	322	+/-180	8.6	+/-4.6
Black or African American	1,038	+/-339	176	+/-140	17.0	+/-13.0	126	+/-87	54	+/-49	<b>42.9</b>	+/-29.5
American Indian and Alaska Native	12	+/-19	0	+/-17	0.0	+/-85.6	19	+/-33	0	+/-12	0.0	+/-68.0
Asian	75	+/-57	0	+/-17	0.0	+/-33.5	8	+/-13	0	+/-12	0.0	+/-100.0
Native Hawaiian and Other Pacific Islander	0	+/-17	0	+/-17	-	**	0	+/-12	0.00%	+/-12	-	**
Some other Race	356	+/-75	26	+/-38	7.3	+/-9.9	36	+/-46	0	+/-12	0.0	+/-49.4
Two or more races	230	+/-105	84	+/-90	<b>36.5</b>	+/-34.8	29	+/-34	0	+/-12	0.0	+/-55.1
Hispanic or Latino	584	+/-162	139	+/-119	23.8	+/-16.3	82	+/-73	27	+/-45	<b>32.9</b>	+/-45.8
All individuals below:												
50 percent of poverty level	407	+/-235					118	+/-104				
125 percent of poverty level	940	+/-313					400	+/-192				
150 percent of poverty level	1,156	+/-382					526	+/-232				
185 percent of poverty level	1,390	+/-384					692	+/-224				
200 percent of poverty level	1,557	+/-404					715	+/-223				

Source: U.S. Census, 2012-2016 ACS 5-Year Estimates

**Bolded and yellow highlighted cells** indicate a difference greater than 10% compared to the Statewide average.

**Bolded and green highlighted cells** indicate a difference greater than 10% compared to both State and respective County

Table 6. Per Capita Income

Location	Subject		Per Capita Income in Last 12 Months (Dollars)
North Carolina	Per Capita Income	Estimate	26,779
		Margin of Error +/-	127
Chatham County	Per Capita Income	Estimate	36,933
		Margin of Error +/-	1,364
Lee County	Per Capita Income	Estimate	23,613
		Margin of Error +/-	900
Census Tract 307.01	Per Capita Income	Estimate	26,569
		Margin of Error +/-	3,775
Census Tract 207.02	Per Capita Income	Estimate	37,550
		Margin of Error +/-	4,434
One-and-one-half Miles	Per Capita Income	Estimate	26,324
		Margin of Error +/-	-

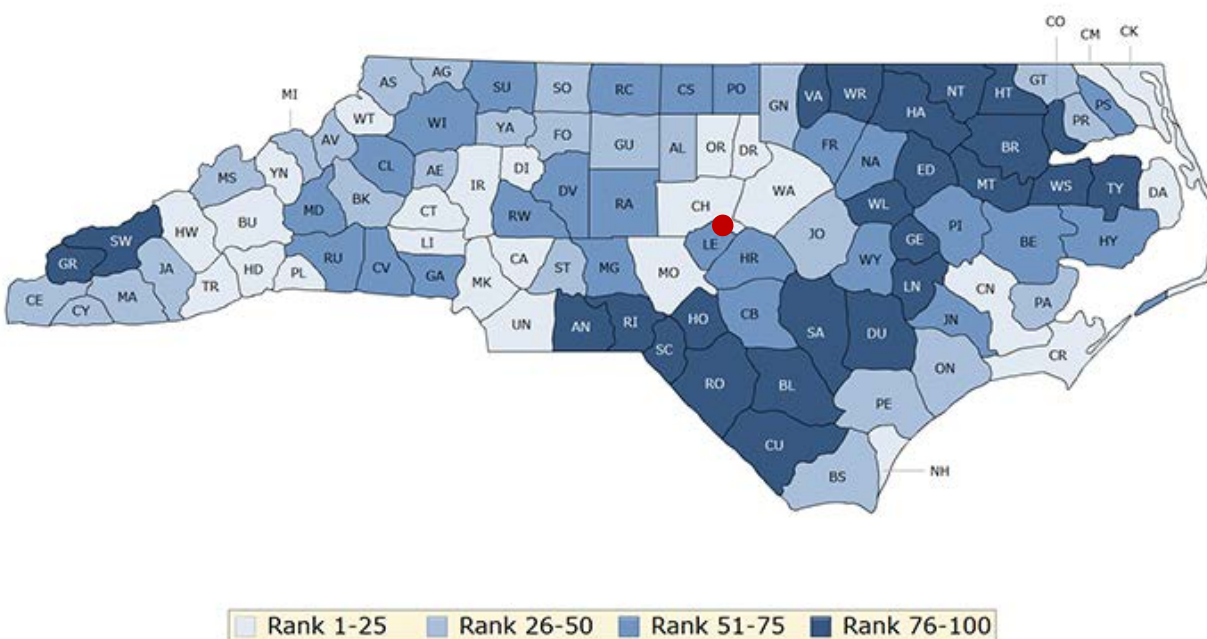
Source: U.S. Census, ACS 2013-2017

## 5 Limited English Proficiency (LEP)

In accordance with the Safe Harbor Guidelines, when an LEP Group is identified during the pre-permit issuance process, written translations of vital documents will be prepared and made available for each eligible LEP language group that constitutes five percent or includes 1,000 members (whichever is less) of the population of persons eligible to be served or likely to be affected or encountered. If fewer than 50 persons in a language group reaches the five percent trigger, then DEQ will not translate vital written materials, but will provide written notice in the primary language of the LEP language group of the right to receive competent oral interpretation of those written materials, free of cost. The safe harbor provisions apply to the translation of written documents only. Safe harbor guidelines are per the EPA guidance for LEP persons and followed by DEQ when deemed appropriate. No LEP Groups were identified during the initial screening of demographic data for this assessment. However, if LEP Groups are identified during the site visit, DEQ will revisit Safe Harbor Guidelines.

## 6 County Health

The University of Wisconsin Population Health Institute in collaboration with the Robert Wood Johnson Foundation calculated a County Health Rankings system for all States in the United States (<http://www.countyhealthrankings.org/app/north-carolina/2019/overview>). This ranking is based on both health outcomes (such as lifespan and self-reported health status) and health factors (such as environmental, social and economic conditions). According to the 2019 report, of North Carolina's 100 counties (with 1 indicating the healthiest), Chatham County ranks 8<sup>th</sup> for health outcomes and 7<sup>th</sup> for health factors, and its neighbor, Lee County, ranks 77<sup>th</sup> for health outcomes and 54<sup>th</sup> for health factors (Figure 4).

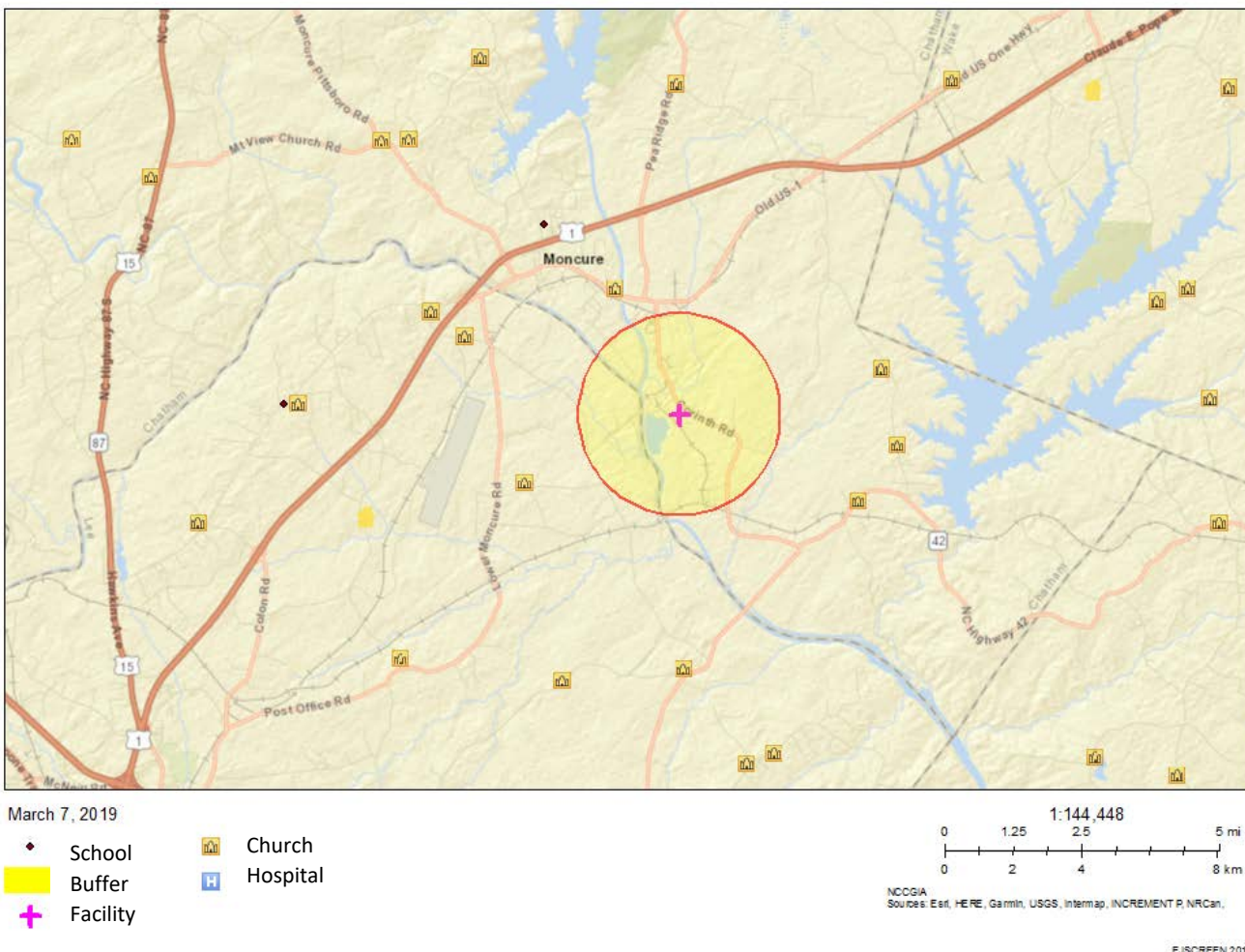


**Figure 4. County Health Outcomes Rankings for North Carolina provided by University of Wisconsin Public Health Institute.**

## 7 Local Sensitive Receptors

The EPA suggests that sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants. Extra care must be taken when dealing with contaminants and pollutants close to areas recognized as sensitive receptors. For instance, children and the elderly may have a higher risk of developing asthma from elevated levels of certain air pollutants than a healthy individual aged between 18 and 64.

Within the one-and-one-half-mile project radius, there are no sensitive receptors identified (Figure 5).



**Figure 5. Sensitive Receptors around facility location.**

## 8 Conclusion

The EJ Snapshot is an initial look at the demographics and socioeconomic of the surrounding community area. This includes information within a radius determined by the Department (one-and-one-half miles for this project) on race and poverty (decennial census year), per capita income and Ability to speak English (most current ACS census range), current North Carolina Department of Commerce-designated county tier, and yes/no – native American territory. The EJ Snapshot does not include a reconnaissance of the community. After community reconnaissance has been completed, a recommendation will be given by the DEQ EJ staff for next steps.

After the public comment period closes, comments will be considered before the final environmental justice report is completed.