

# Pembroke Socioeconomic and Environmental Justice (E.J.) Report Christian County, Kentucky

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Final Report October 4, 2016

Prepared for  
Kentucky Transportation Cabinet (KYTC) – Division of Planning



Prepared by  
Pennyriple Area Development District



This document was prepared in cooperation with the Kentucky Transportation Cabinet.

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## Introduction

This report presents an overview of the findings for selected socioeconomic characteristics in the Study Area of US 41 and KY 115 near the City of Pembroke in Christian County. The objective of the study is to analyze access, primarily for freight from the newly expanded Commerce Industrial Park to I-24. This could possibly include a new route around the southwest side of the City of Pembroke and possible improvements along the existing KY 115 corridor between the City of Pembroke and I-24 in Christian County, Kentucky. The information in this report outlines 2010-2014 American Community Survey (ACS) statistics in and near the project area using tables, charts, and maps. The data presented in this document is intended to highlight areas of concern that will require additional analysis should any project be advanced to future phases. Statistics are provided for minority, elderly, poverty status, limited English proficiency (LEP), and disabled populations for the nation, state, county, city, and block groups located within the project area.

This information is intended to aid the Kentucky Transportation Cabinet (KYTC) in making informed and prudent transportation decisions in the project area, especially with regard to the requirements of *Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Poverty status, Populations* (signed February 11, 1994). Executive Order 12898 states:

“...each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its policies, and activities on minority populations and poverty status, populations...”

The project study area is located in Christian County on the US 41 corridor starting approximately 3 miles west of the City of Pembroke, Kentucky, and going eastward to include the entire City Limits of Pembroke, Kentucky and the KY 115 corridor south of the City to the I-24 Interchange in Christian County, Kentucky. *The Study Area is shown in Exhibit 1, Pembroke Scoping Study.*








Christian County, Kentucky is composed of 15 Census Tracts. The planning study area is composed of the following Census Tract Block Groups (BG):

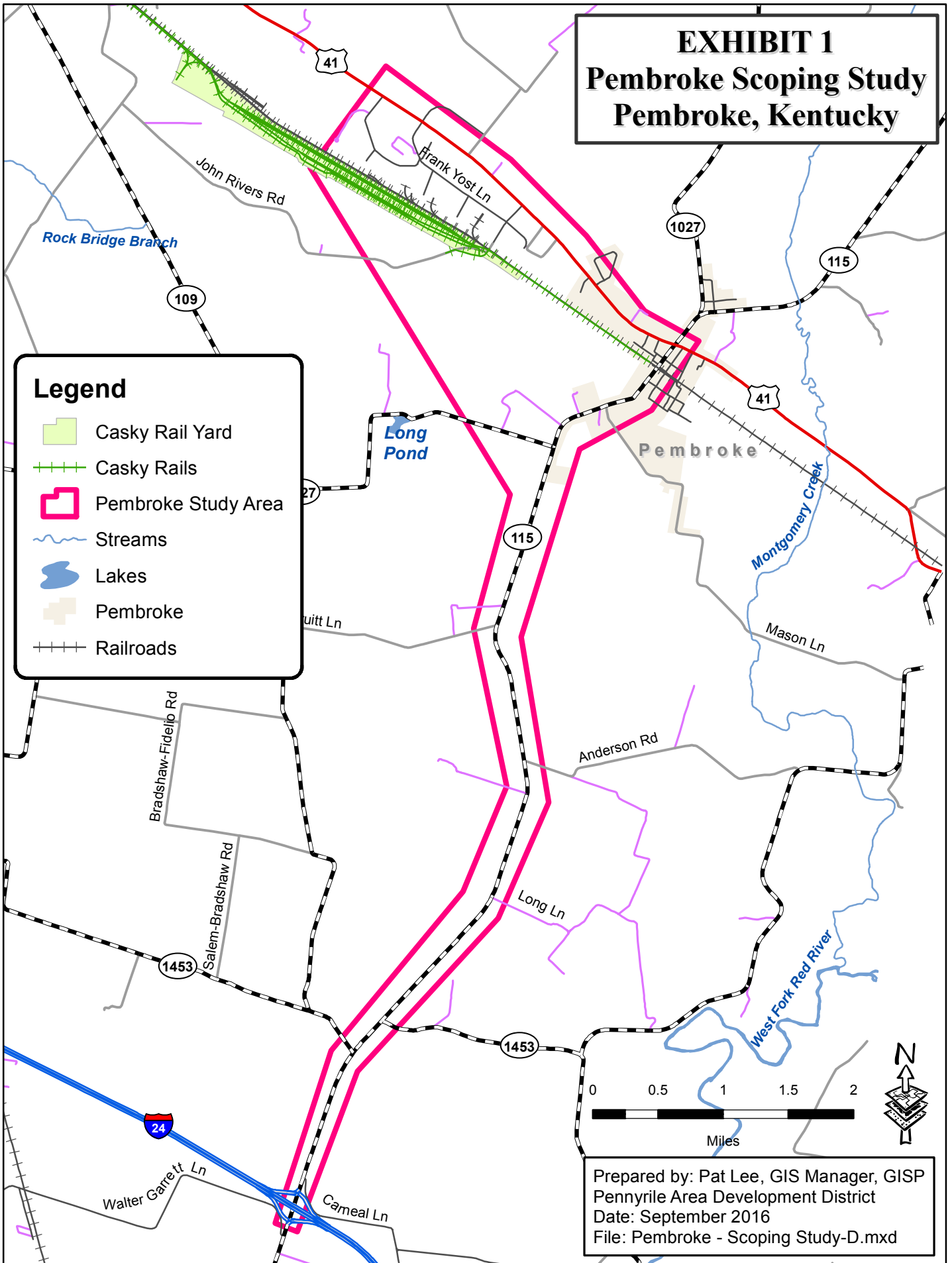
- Census Tract 201301, BG 1
- Census Tract 201301, BG 2

The Census Tract boundaries are shown in *Exhibit 2, Pembroke Scoping Study Census Tract and Block Group Map.*

# EXHIBIT 1 Pembroke Scoping Study Pembroke, Kentucky

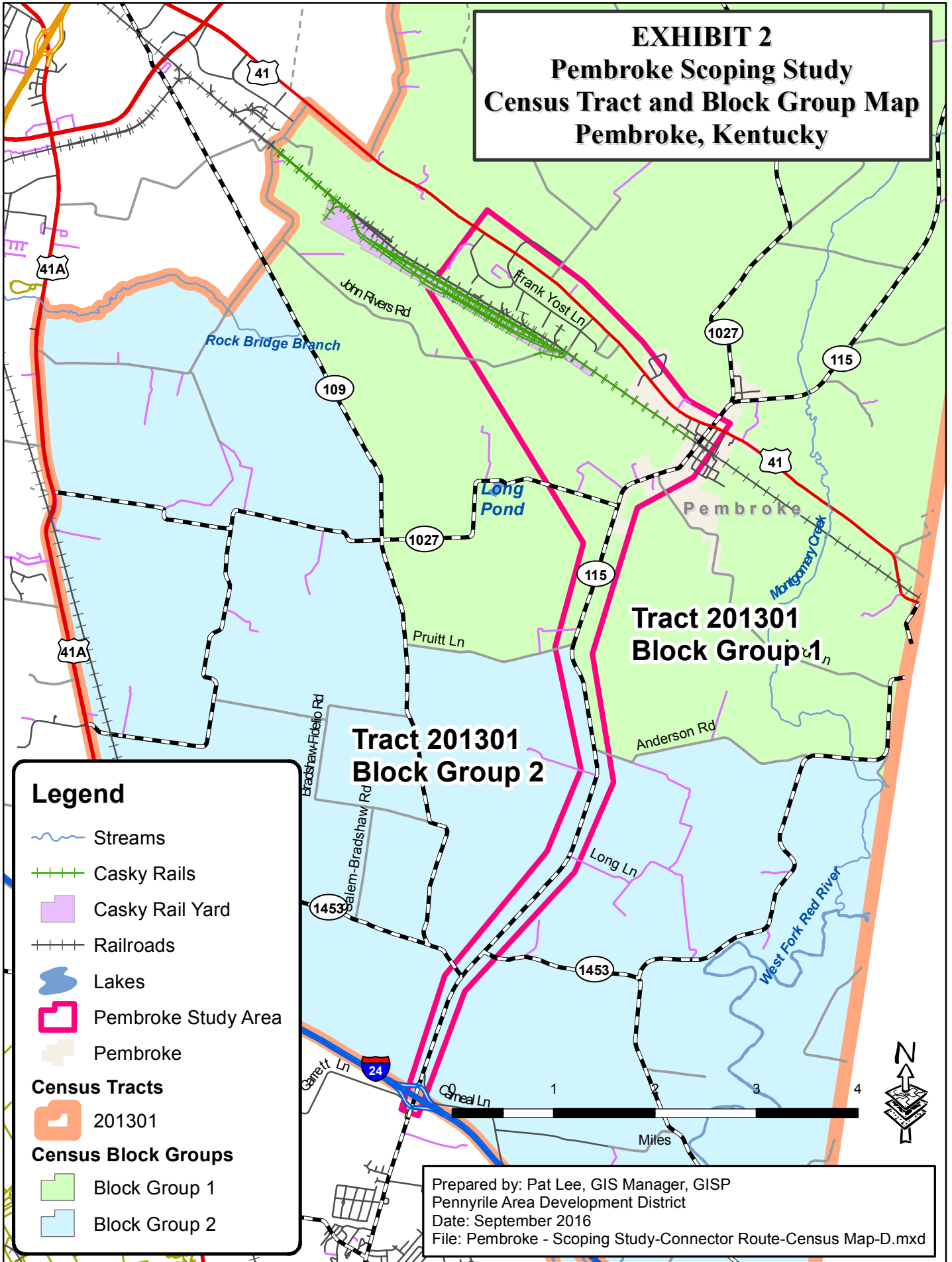
## Legend

-  Casky Rail Yard
-  Casky Rails
-  Pembroke Study Area
-  Streams
-  Lakes
-  Pembroke
-  Railroads



Prepared by: Pat Lee, GIS Manager, GISP  
 Pennyriple Area Development District  
 Date: September 2016  
 File: Pembroke - Scoping Study-D.mxd

**EXHIBIT 2**  
**Pembroke Scoping Study**  
**Census Tract and Block Group Map**  
**Pembroke, Kentucky**



**Legend**

- Streams
- Casky Rails
- Casky Rail Yard
- Railroads
- Lakes
- Pembroke Study Area
- Pembroke

**Census Tracts**

- 201301

**Census Block Groups**

- Block Group 1
- Block Group 2

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 Date: September 2016  
 File: Pembroke - Scoping Study-Connector Route-Census Map-D.mxd

## What is Environmental Justice?

The U.S. Department of Transportation (DOT) outlines three primary Environmental Justice Concepts as:

1. To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and poverty status, populations.
2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
3. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority population and poverty status, populations.

The U.S. DOT order defines minority as:

1. Black (a person having origins in any of the black racial groups of Africa);
2. Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
3. Asian American (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or
4. American Indian and Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).

A minority population is “any readily identifiable groups of minority persons who live in geographic proximity, and if circumstances warrant geographically dispersed/transient persons...”

Low-income, is defined in U.S. DOT Order (5610.2) as “a person whose median household income is at or below the Department of Health and Human Services (HHS) poverty guidelines.” A low-income, population is “any readily identifiable group of low-income, persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons...”

A disproportionately high and adverse effect on a minority or low-income population means an adverse effect that:

1. Is predominately borne by a minority population and/or low-income population or
2. Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

Elderly and disabled populations (also used in this analysis) are not specifically recognized under the definition of an Environmental Justice community. However, the U.S. DOT specifically encourages the early examination of potential population of the elderly, children, disabled, and other populations protected by the Title VI of the Civil Rights Act of 1964 and related nondiscrimination statuses.

Limited English proficiency (LEP) is a term used in the United States that refers to a person who is not fluent in the English language, often because it is not their native language. Both LEP and English-language learner (ELL) are terms used by the Office for Civil Rights, a sub-agency of the U.S. Department of Education.

## Methodology

The data was collected using the method outlined by the KYTC document “Methodology for Assessing Potential Environmental Justice Concerns for KYTC Planning Studies”. The demographics of the affected area should be defined using U.S. Census Bureau data and the percentages for minorities, poverty status, elderly, LEP, and disabled populations should be compared to the Census tracts and block groups, the county as a whole, the entire state and the United States.

The primary source of data for this report is the 2010-2014 US Census Bureau American Community Survey including tables:

- B01001 - Sex by Age
- B03002 - Hispanic or Latino Origin by Race
- B16004 - Age by Language Spoken at Home by Ability to Speak English for the Population 5 Years and Over
- B17021 - Poverty Status of Individuals in the Past 12 Months by Living Arrangement
- C23023 - Sex by Disability Status by Full-time work status in the past 12 months for the population 16 to 64 Years

The Census tables in this report include the total number and percentages for minorities, elderly, low-income, LEP, and disabled population levels for the census tract, city, county, state, and nation. This report uses the population percentages for Christian County as the reference threshold for identifying target populations. The county numbers were selected as the reference threshold because the project is completely within the county limits. The county numbers most likely provide a better snapshot of the overall population characteristics of the two (2) Census Tract Block Groups in the study area as opposed to the United States or State percentages.

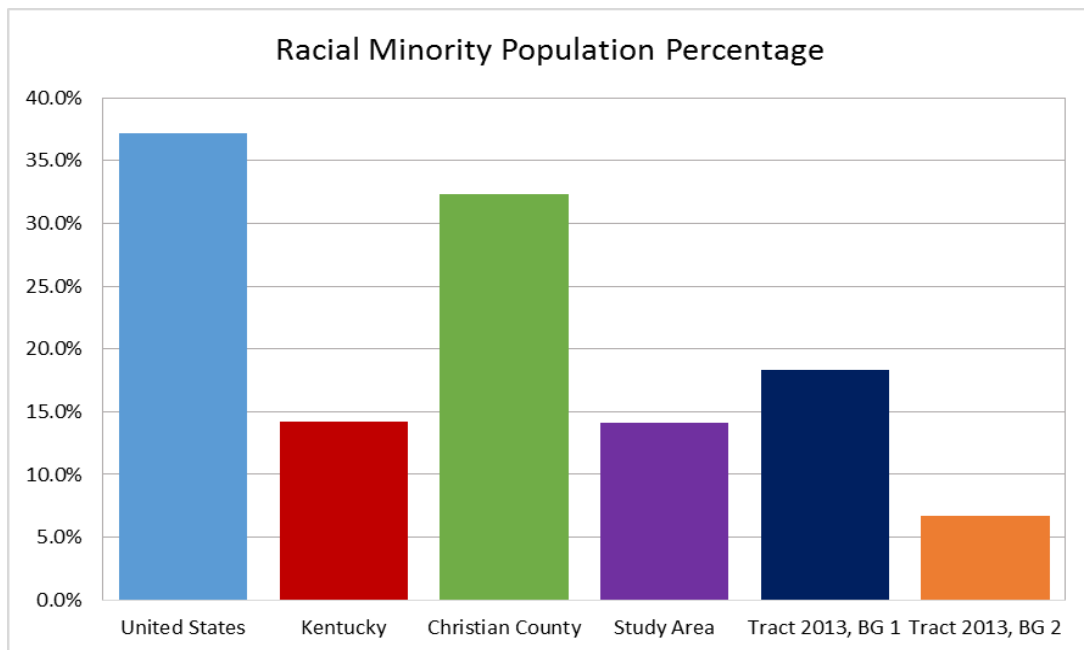
The data presented in this document is intended to highlight areas of concern that will require additional analysis should any project be advanced to future phases. The maps in this study that show the percentage of minority populations are “heat maps” which show Block Groups populations with higher population percentages than Christian County’s population in hotter colors and those with lower percentages of the county’s are shown in cooler colors.

The methodologies used in this planning document are appropriate for identifying areas of concern in small urban areas and potential project corridors. However, during future phases of project development a more detailed and robust analysis would be required for the NEPA documentation when assessing the potential for adverse and disproportionate impacts to poverty status, and minority populations.

## Study Findings

### Population by Persons of Racial Minority Origin

Racial minorities in the United States make up 37.2 percent of the population, but in Kentucky that percentage drops significantly to just 14.2 percent. Christian County has a higher percentage of racial minorities than that of the State with 32.3 percent being reported as racial minorities by the *2010-2014 American Community Survey*. Block Group (BG) 1 of Census Tract (CT) 201301 has a minority population accounting for 18.3 percent of the Block Groups' population which is below the percentage for Christian County but slightly higher than the State. Block Group 2 of CT 201301 has a minority population of 6.7 percent which is below the percentage for the County and State.



**Table 1**  
**Population by Persons of Racial Minority Origin**

	Total Population	Minority Population	Minority (%)
<b>United States</b>	314,107,084	116,947,592	37.2%
<b>Kentucky</b>	4,383,272	622,404	14.2%
<b>Christian County</b>	74,459	24,022	32.3%
<b>Study Area</b>	2,970	419	14.1%
<b>Tract 2013, BG 1</b>	1,898	347	18.3%
<b>Tract 2013, BG 2</b>	1,072	72	6.7%

Source: US Census Bureau, 2010-2014 American Community Survey - Table: B03002

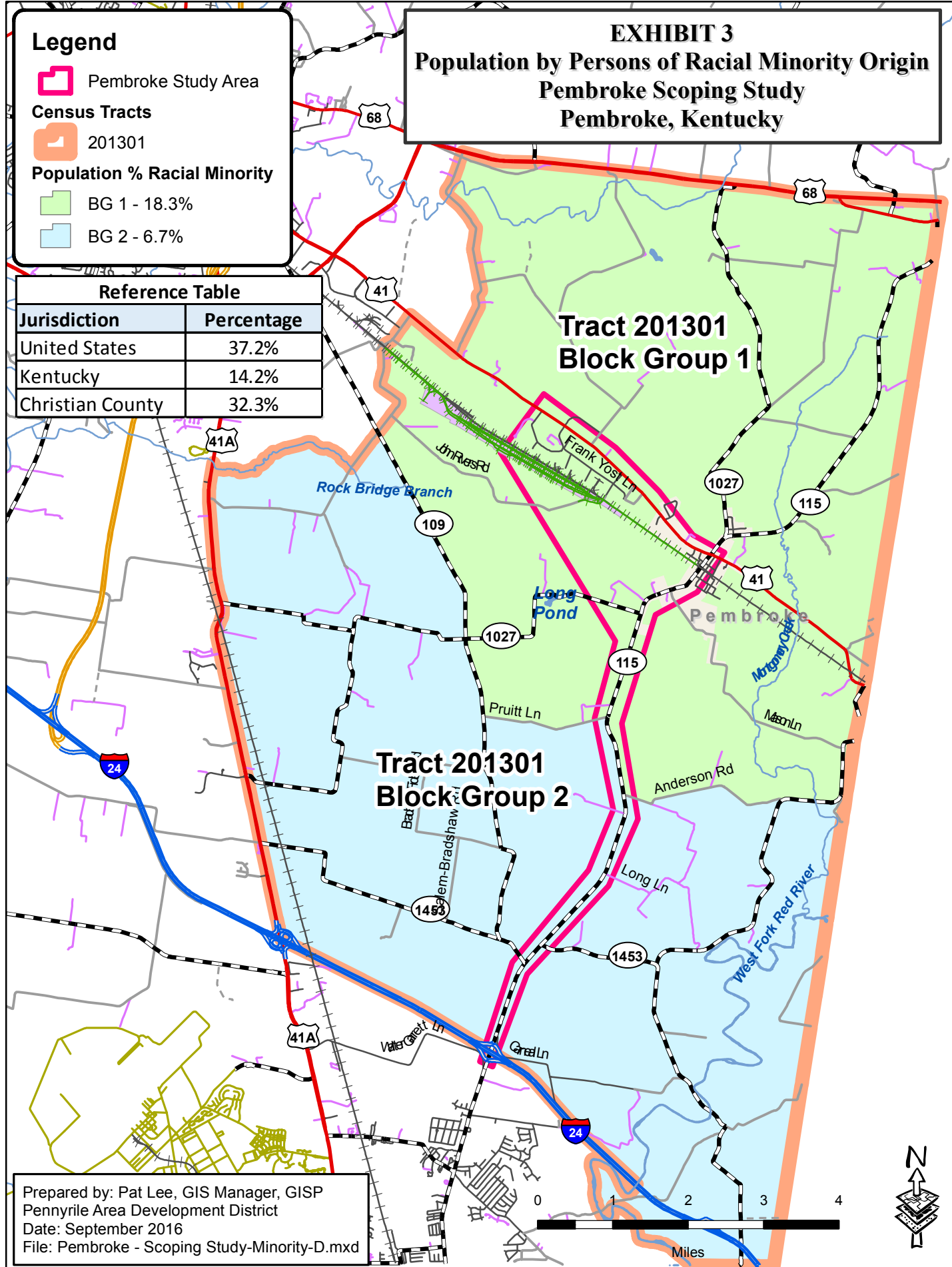


# EXHIBIT 3 Population by Persons of Racial Minority Origin Pembroke Scoping Study Pembroke, Kentucky

**Legend**

- Pembroke Study Area
- Census Tracts**
- 201301
- Population % Racial Minority**
- BG 1 - 18.3%
- BG 2 - 6.7%

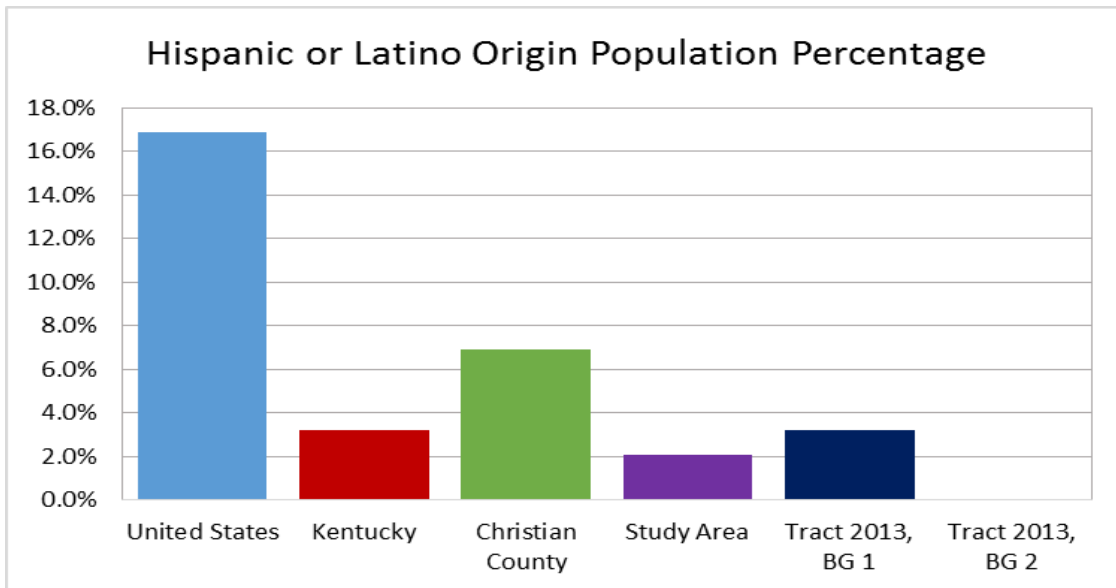
Reference Table	
Jurisdiction	Percentage
United States	37.2%
Kentucky	14.2%
Christian County	32.3%



Prepared by: Pat Lee, GIS Manager, GISP  
 Pennyrile Area Development District  
 Date: September 2016  
 File: Pembroke - Scoping Study-Minority-D.mxd

## Population by Persons of Hispanic or Latino Origin

Hispanic or Latino minorities in the United States make up 16.9 percent of the population, but in Kentucky that percentage drops significantly to just 3.2 percent. Christian County has a higher percentage of Hispanic or Latino minorities than that of the State with 6.9 percent being reported by the *2010-2014 American Community Survey*. Block Group (BG) 1 of Census Tract (CT) 201301 has the Hispanic or Latino population listed as 2.1 percent of the Block Groups' population which is below the percentage for Christian County and slightly lower than the State percentage. Block Group 2 of CT 201301 has a Hispanic or Latino population of 0.0 percent which is well below the percentage for the County and State.



**Table 2**  
**Population by Persons of Hispanic or Latino Origin**

	Black or African American Alone (%)	American Indian and Alaska Native Alone (%)	Asian Alone (%)	Native Hawaiian and other Pacific Islander alone (%)	Some other race alone (%)	Two or more races (%)	Hispanic or Latino Origin (%)*
<b>United States</b>	12.6%	0.8%	5.0%	0.2%	4.7%	2.9%	16.9%
<b>Kentucky</b>	7.9%	0.2%	1.2%	0.1%	0.9%	2.0%	3.2%
<b>Christian County</b>	19.9%	0.5%	1.5%	0.3%	0.9%	4.3%	6.9%
<b>Study Area</b>	9.5%	0.0%	1.0%	0.0%	0.0%	1.5%	2.1%
<b>Tract 2013, BG 1</b>	13.0%	0.0%	0.0%	0.0%	0.0%	2.1%	3.2%
<b>Tract 2013, BG 2</b>	3.2%	0.0%	2.9%	0.0%	0.0%	0.7%	0.0%

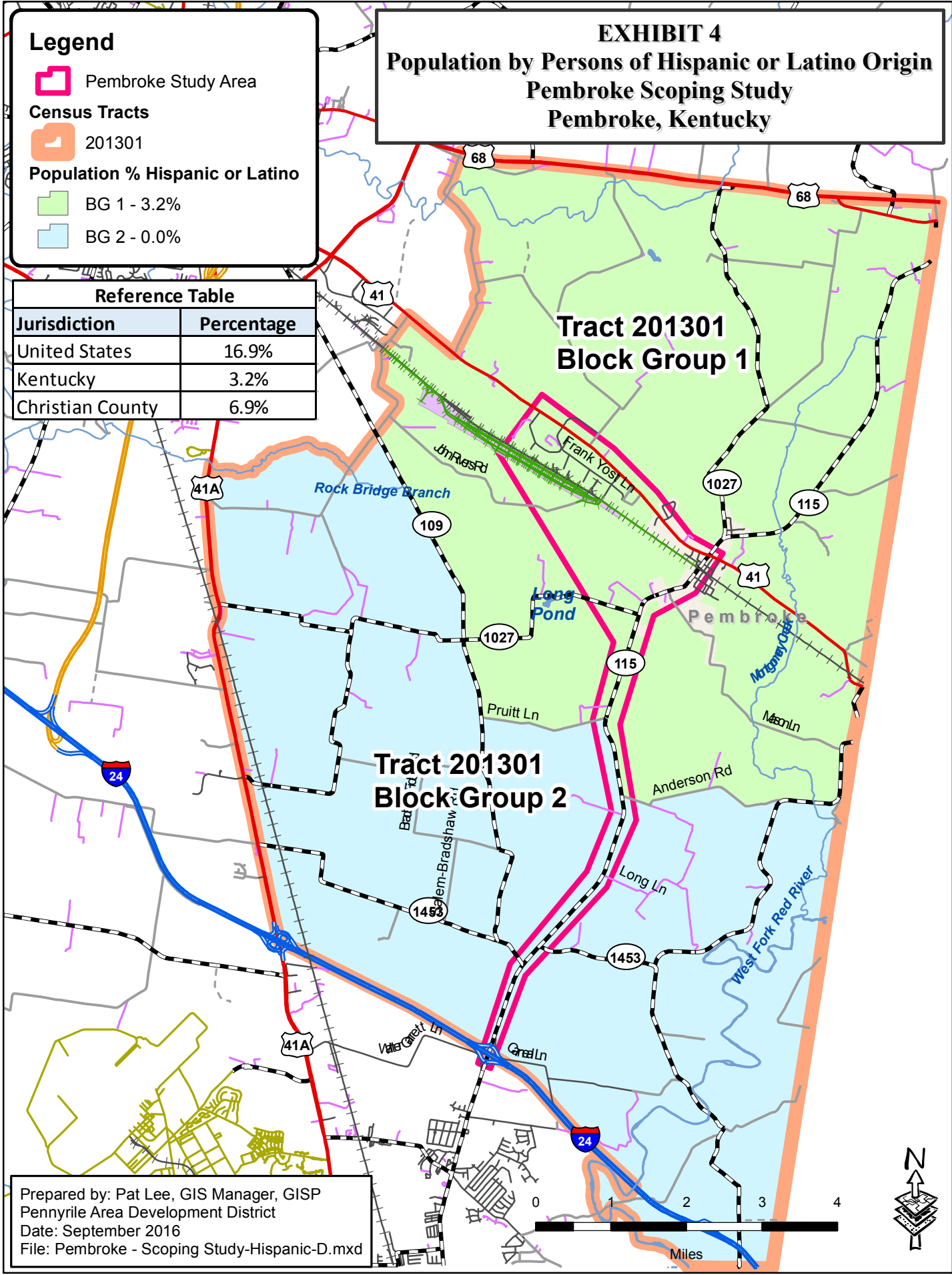
Source: US Census Bureau, 2010-2014 American Community Survey - Table: B03002

# EXHIBIT 4 Population by Persons of Hispanic or Latino Origin Pembroke Scoping Study Pembroke, Kentucky

**Legend**

- Pembroke Study Area
- Census Tracts**
- 201301
- Population % Hispanic or Latino**
- BG 1 - 3.2%
- BG 2 - 0.0%

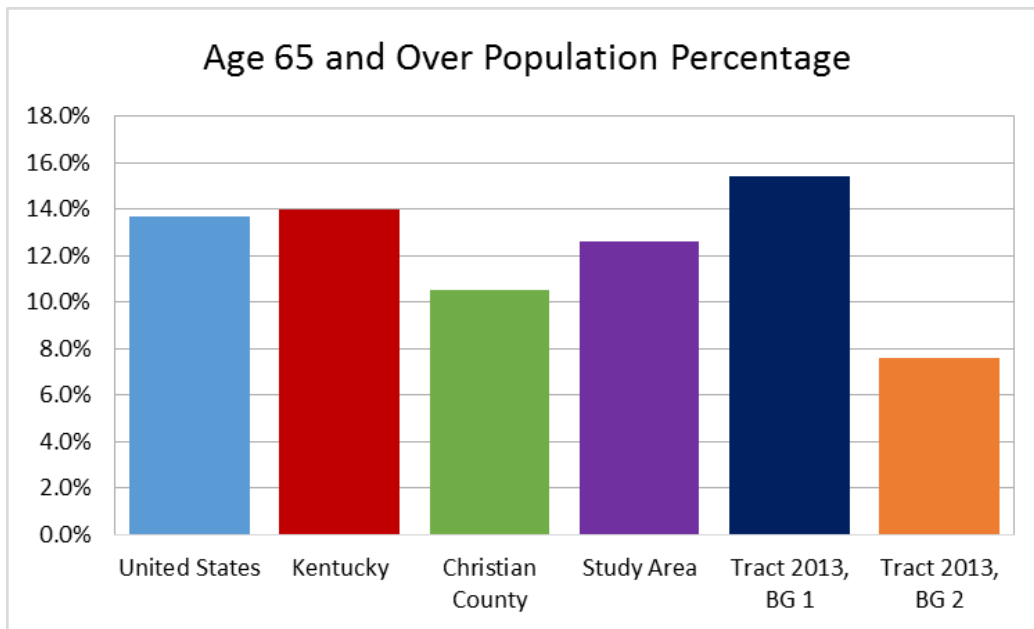
Reference Table	
Jurisdiction	Percentage
United States	16.9%
Kentucky	3.2%
Christian County	6.9%



Prepared by: Pat Lee, GIS Manager, GISP  
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 Date: September 2016  
 File: Pembroke - Scoping Study-Hispanic-D.mxd

## Population by Persons Age 65 Years and Older

The population of persons with an age of 65 years and older in the United States make up 13.7 percent of the entire US population. In the State of Kentucky, that percentage increase slightly to 14.0 percent of the population. Christian County has a lower percentage of persons with an age of 65 years and older than that of the State with 10.5 percent being reported by the *2010-2014 American Community Survey*. Block Group (BG) 1 of Census Tract (CT) 201301 has the persons with an age of 65 years and older population listed as 15.4 percent which is above the percentage for Christian County and the State percentage. Block Group 2 of CT 201301 has the persons with an age of 65 years and older population of 7.6 percent which is well below the percentage for the County and State.



**Table 3**  
**Population of Persons with an Age of 65 Years and Older**

	Total	Persons 65 and Over (%)
<b>United States</b>	43,177,961	13.7%
<b>Kentucky</b>	614,496	14.0%
<b>Christian County</b>	7,825	10.5%
<b>Study Area</b>	374	12.6%
<b>Tract 2013, BG 1</b>	292	15.4%
<b>Tract 2013, BG 2</b>	82	7.6%

Source: US Census Bureau,  
2010-2014 American Community Survey - Table: B01001

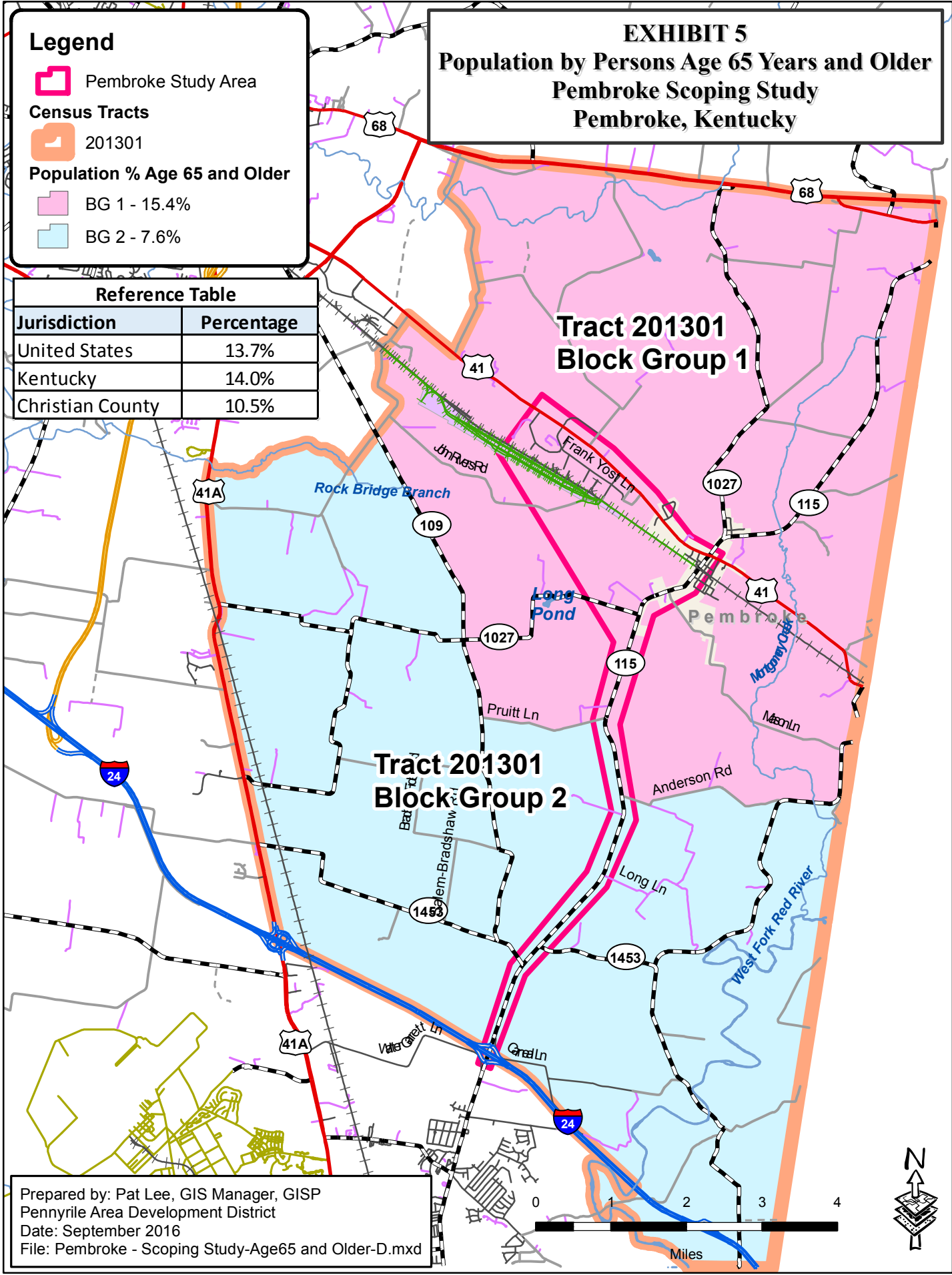
# EXHIBIT 5 Population by Persons Age 65 Years and Older Pembroke Scoping Study Pembroke, Kentucky

**Legend**

- Pembroke Study Area
- Census Tracts**
- 201301
- Population % Age 65 and Older**
- BG 1 - 15.4%
- BG 2 - 7.6%

**Reference Table**

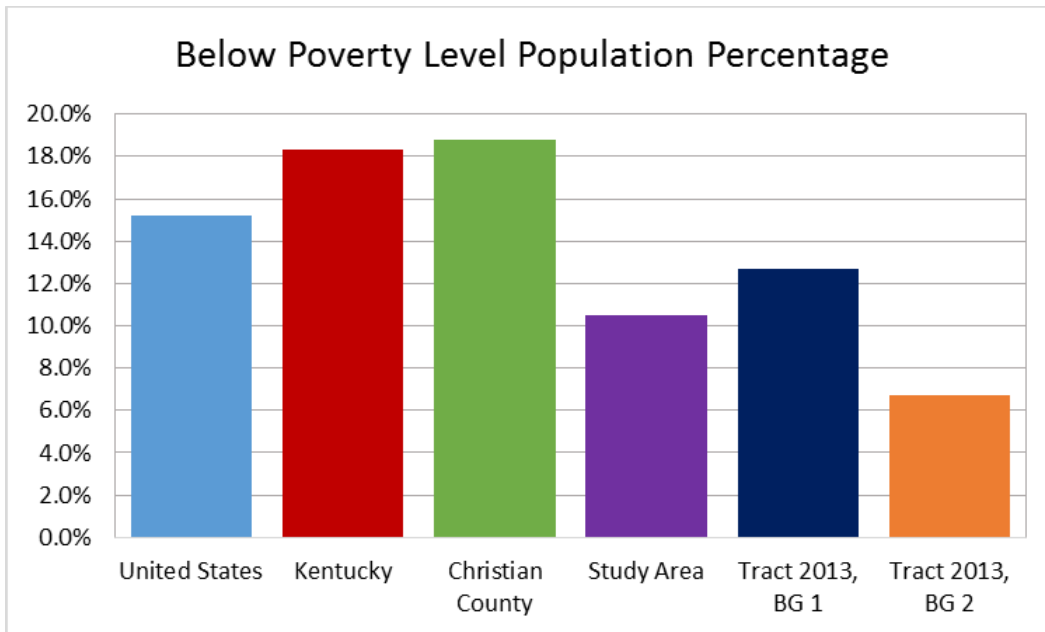
Jurisdiction	Percentage
United States	13.7%
Kentucky	14.0%
Christian County	10.5%



Prepared by: Pat Lee, GIS Manager, GISP  
 Pennyrile Area Development District  
 Date: September 2016  
 File: Pembroke - Scoping Study-Age65 and Older-D.mxd

## Population by Persons below Poverty Level

Persons with income below the poverty level in the United States make up 15.2 percent of the population, but in Kentucky that percentage increases to 18.3 percent. Christian County has a slightly higher percentage of persons below the poverty level than that of the State with 18.8 percent being reported by the *2010-2014 American Community Survey*. Block Group (BG) 1 of Census Tract (CT) 201301 has persons below the poverty level listed as 12.7 percent of the Block Groups' population which is below the percentage for Christian County and the State percentage. Block Group 2 of CT 201301 has the persons below poverty level listed at 6.7 percent which is well below the percentage for the County and State.







**Table 4**  
**Population of Persons below Poverty Level**

	Total	Population Below Poverty Level (%)
<b>United States</b>	47,755,606	15.2%
<b>Kentucky</b>	803,866	18.3%
<b>Christian County</b>	14,007	18.8%
<b>Study Area</b>	313	10.5%
<b>Tract 2013, BG 1</b>	241	12.7%
<b>Tract 2013, BG 2</b>	72	6.7%

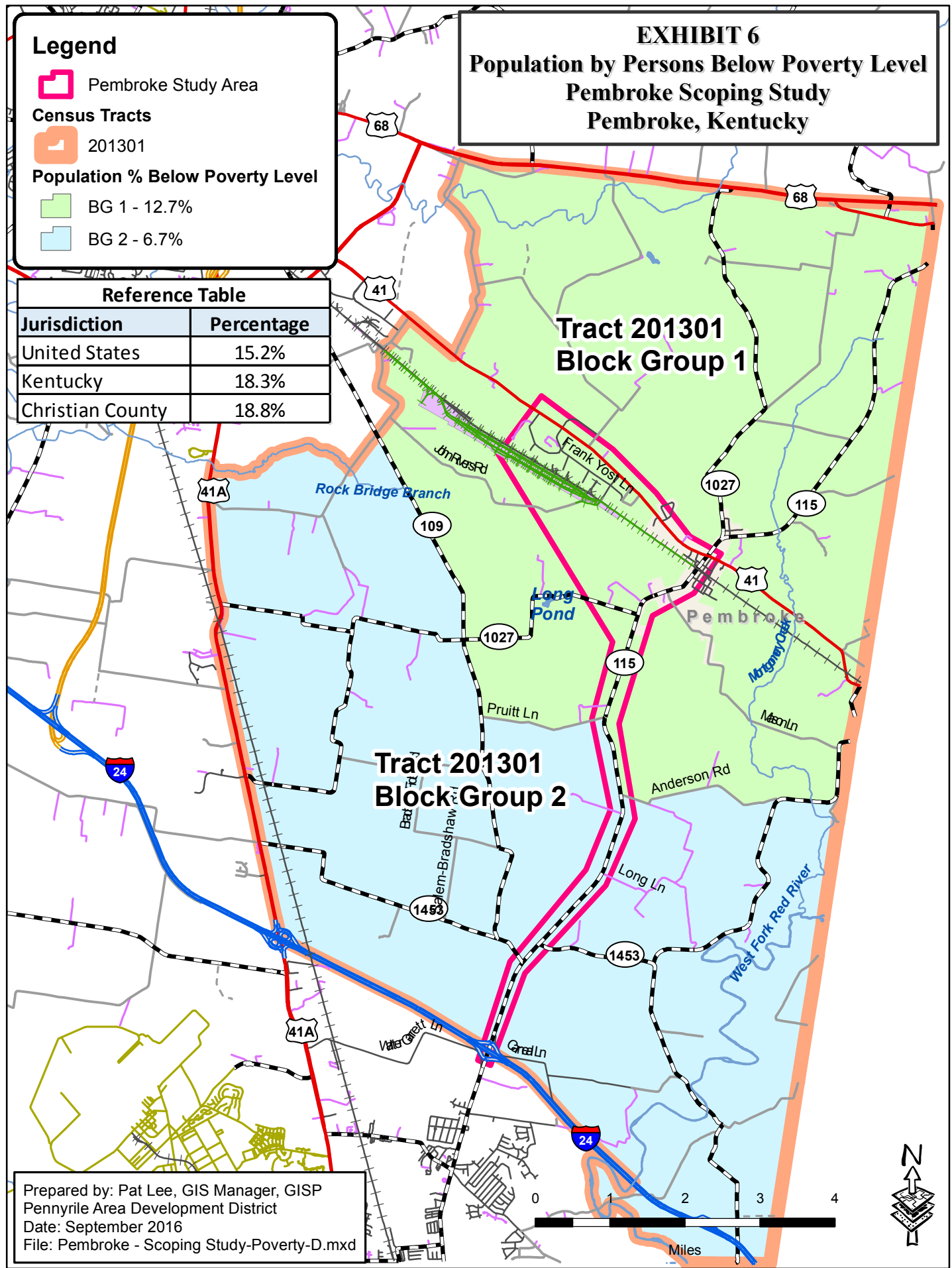
Source: US Census Bureau,  
2010-2014 American Community Survey - Table: B17021

# EXHIBIT 6 Population by Persons Below Poverty Level Pembroke Scoping Study Pembroke, Kentucky

**Legend**

-  Pembroke Study Area
- Census Tracts**
-  201301
- Population % Below Poverty Level**
-  BG 1 - 12.7%
-  BG 2 - 6.7%

Reference Table	
Jurisdiction	Percentage
United States	15.2%
Kentucky	18.3%
Christian County	18.8%

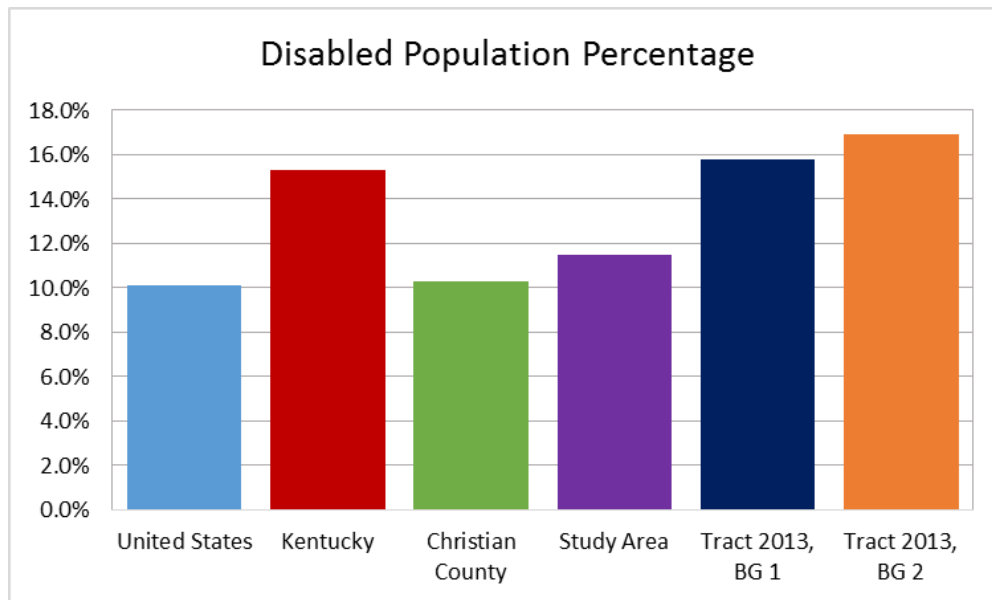


Prepared by: Pat Lee, GIS Manager, GISP  
 Pennyriple Area Development District  
 Date: September 2016  
 File: Pembroke - Scoping Study-Poverty-D.mxd



## Population by Disability Status

Persons with disability status in the United States make up 10.1 percent of the population, but in Kentucky that percentage increases to 15.3 percent. Christian County has a slightly lower percentage of persons with a disability status than that of the State with 10.3 percent being reported by the *2010-2014 American Community Survey*. Block Group (BG) 1 of Census Tract (CT) 201301 has the persons with disability status listed as 15.8 percent of the Block Groups' population which is above the percentage for Christian County and the State percentage. Block Group 2 of CT 201301 has the persons with disability status listed at 16.9 percent which is also slightly above the percentage for the County and State.



**Table 5**  
**Population by Disability Status**

	Total Civilian Non-institutionalized Population (Age 16-64)	Disabled Civilian Non-institutionalized Population (%) (Age 16-64)
<b>United States</b>	204,340,912	10.1%
<b>Kentucky</b>	669,876	15.3%
<b>Christian County</b>	7,676	10.3%
<b>Study Area</b>	343	11.5%
<b>Tract 2013, BG 1</b>	206	15.8%
<b>Tract 2013, BG 2</b>	137	16.9%

Source: US Census Bureau,  
2010-2014 American Community Survey - Table: C23023



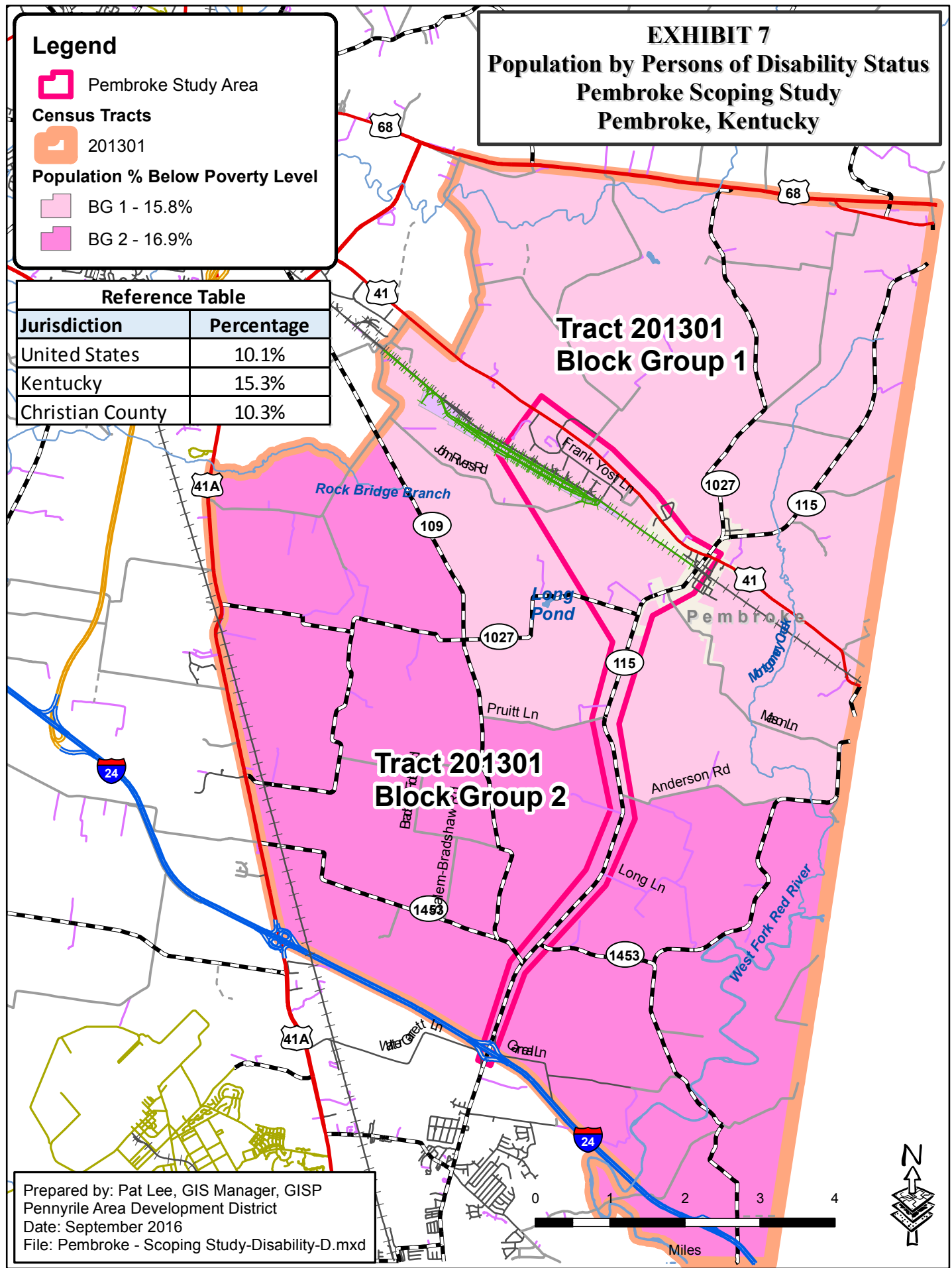
# EXHIBIT 7 Population by Persons of Disability Status Pembroke Scoping Study Pembroke, Kentucky

**Legend**

- Pembroke Study Area
- Census Tracts
- 201301
- Population % Below Poverty Level**
- BG 1 - 15.8%
- BG 2 - 16.9%

**Reference Table**

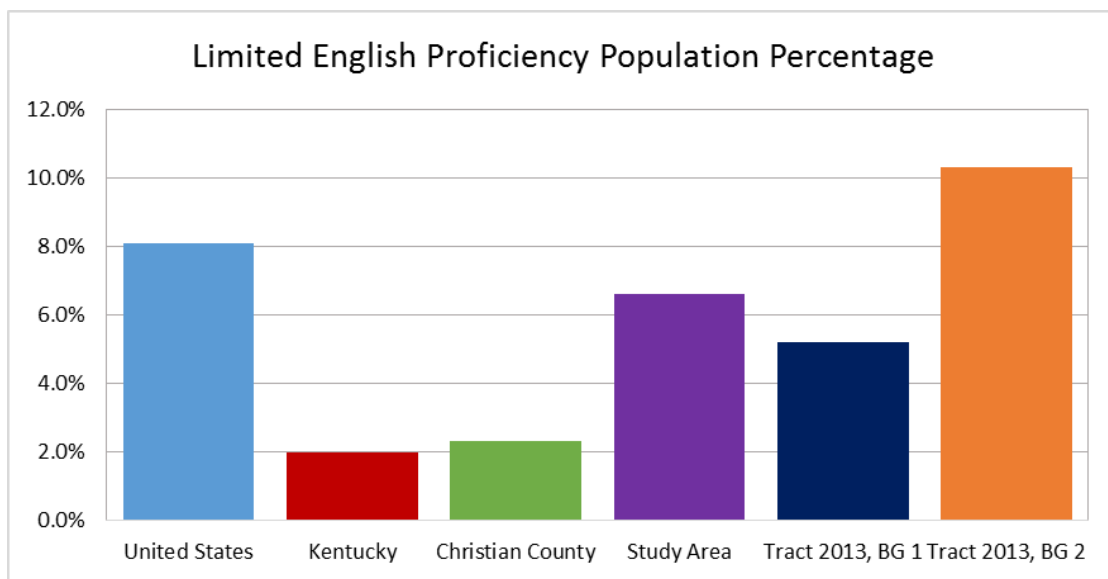
Jurisdiction	Percentage
United States	10.1%
Kentucky	15.3%
Christian County	10.3%



Prepared by: Pat Lee, GIS Manager, GISP  
 Pennyrile Area Development District  
 Date: September 2016  
 File: Pembroke - Scoping Study-Disability-D.mxd

## Population by Persons with Limited English Proficiency

Persons with limited English proficiency in the United States make up 8.1 percent of the population. In the State of Kentucky, that percentage significantly decreases to 2.0 percent. Christian County has a slightly higher percentage of persons with limited English proficiency than that of the State with 2.3 percent being reported by the 2010-2014 American Community Survey. Block Group (BG) 1 of Census Tract (CT) 201301 has persons with limited English proficiency listed as 5.2 percent of the Block Groups' population which is higher than the percentage for Christian County. Block Group 2 of CT 201301 has the persons with limited English proficiency listed at 10.3 percent which is well above the percentage for the County and State. These higher levels are due to a mix of Hispanic and Amish populations in the area.



**Table 6**  
**Population by Persons with Limited English Proficiency**

	Total Population for Whom English Language Proficiency is Determined (Age 5+)	Population with Limited English Proficiency (%) (Age 5+)
<b>United States</b>	25,305,202	8.1%
<b>Kentucky</b>	87,157	2.0%
<b>Christian County</b>	1,740	2.3%
<b>Study Area</b>	197	6.6%
<b>Tract 2013, BG 1</b>	93	5.2%
<b>Tract 2013, BG 2</b>	104	10.3%

Source: US Census Bureau,  
2010-2014 American Community Survey - Table: B16004

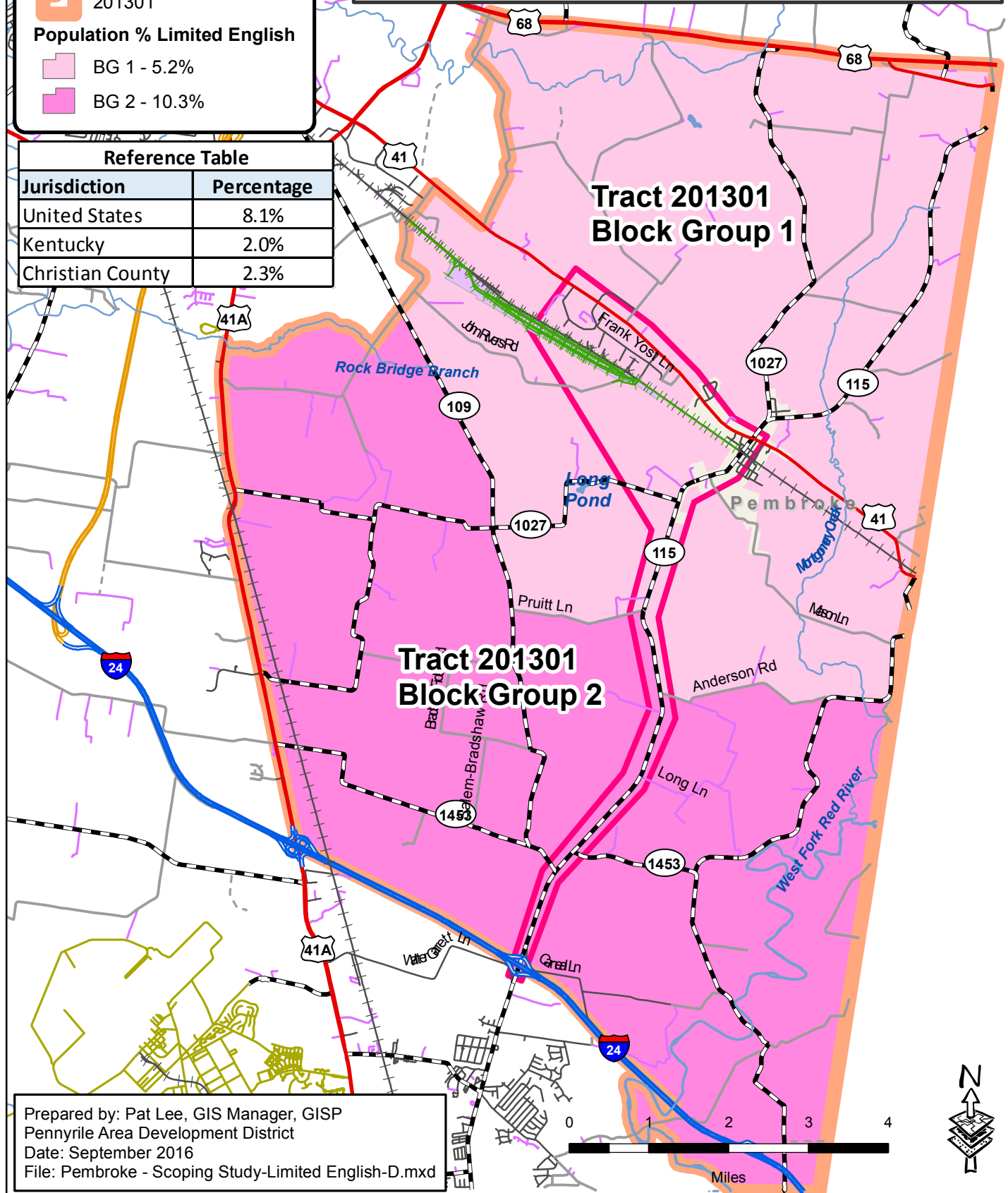
# EXHIBIT 8 Population by Persons with Limited English Proficiency Pembroke Scoping Study Pembroke, Kentucky

**Legend**

- Pembroke Study Area
- Census Tracts
- 201301
- Population % Limited English**
- BG 1 - 5.2%
- BG 2 - 10.3%

**Reference Table**

Jurisdiction	Percentage
United States	8.1%
Kentucky	2.0%
Christian County	2.3%



Prepared by: Pat Lee, GIS Manager, GISP  
 Pennyrile Area Development District  
 Date: September 2016  
 File: Pembroke - Scoping Study-Limited English-D.mxd

## Conclusion

After the analysis of the study area, it became apparent that there are a few minority groups that may require further evaluation depending on the scope of the projects planned within the study area. All BGs with higher percentages of the target populations compared to the State and county thresholds were described in the *Study Findings* section and will not be re-addressed in this Conclusion Section. It should be noted that at least one of the two (2) Block Groups within the study area were either just above or significantly above the county threshold in at least three(3) of the six (6) groups of interest.