



Current status and recent trends in age and race of local communities surrounding Kings Mountain National Military Park

Kings Mountain National Military Park was established by Congress in 1931 to commemorate the October 7th, 1780 American victory of the battle of Kings Mountain during the Revolutionary War, a victory so monumental that even Thomas Jefferson described it as “the turn of the tide of success”. Located in South Carolina near the border of North Carolina (Figure 1), Kings Mountain venerates the first major patriot victory to occur after the British invasion of Charleston, yet the battle was waged entirely among Americans, splitting and pitting families against one another who fought for either independence or loyalty to England. The battle also has historical significance because it involved large numbers of rifleman in the American militia who fought mostly musketeers in the loyalist ranks. At the time of the War, rifles were hunting weapons

used by families on the frontier, so the use of rifles in battle – a battle won by the rifleman – is noteworthy because it portended the use of rifles in subsequent wars like the Civil War.

Kings Mountain National Military Park is free to the public and has much to offer both local and out-of-town recreational visitors, including 1.5 miles of battlefield trail, 21.5 miles of hiking trail, 16 miles of horse trail, and camping at the Garner Creek Campsite. In addition, the Park has a visitor center with interpretive exhibits and a 26 minute film that explains who the troops were, what precipitated and happened during the battle, and how its outcome changed the course of the Revolutionary War. Every October 7th, the Park honors those who fought at Kings Mountain by holding a morning wreath-laying

ceremony at the monument and a program in the amphitheater at 3:00 PM, the time the battle began. Throughout the year, the Kings Mountain Backcountry Militia, along with other revolutionary war demonstration groups, hold special events showcasing militia service, weapons, equipment, and life skills such as leatherworking, blacksmithing and woodworking as it would have been in the 1700's.

Park visitation is important because South Carolina had more engagements and battles than any other colony, and Kings Mountain is one of a relatively small number of historic sites describing key turning points of the War. Hence, Kings Mountain serves an invaluable role of educating visitors about this monumental period in American history. As background, not all Park visitors are recreational. Kings Mountain is bisected by highway 216, which at the Park's boundaries creates the East and West entrances (Figure 1). Each month, approximately equal numbers of visitors are stopping to enjoy the Park (recreational)

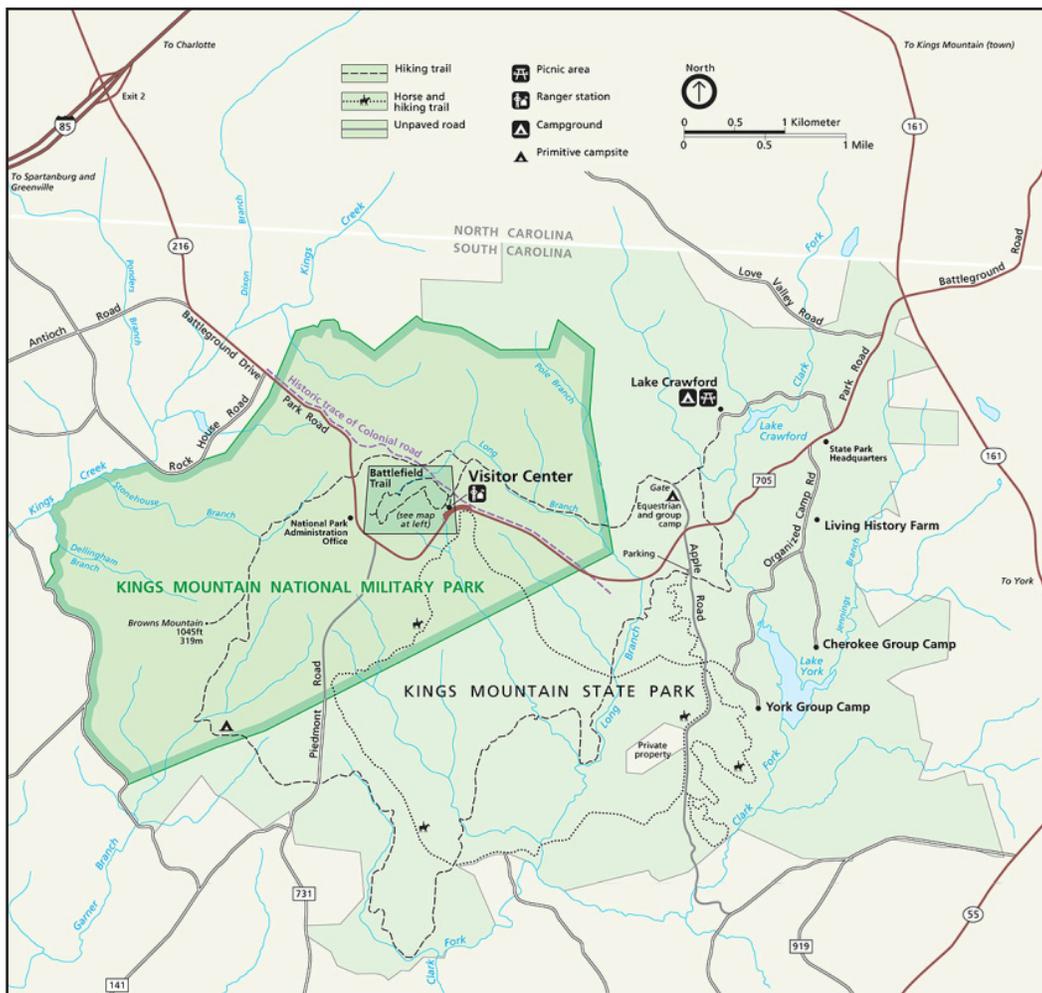


Figure 1. Kings Mountain National Military Park and surrounding vicinity. <http://www.nps.gov/kimo/>.

Recreational vs. Non-recreational Visitors

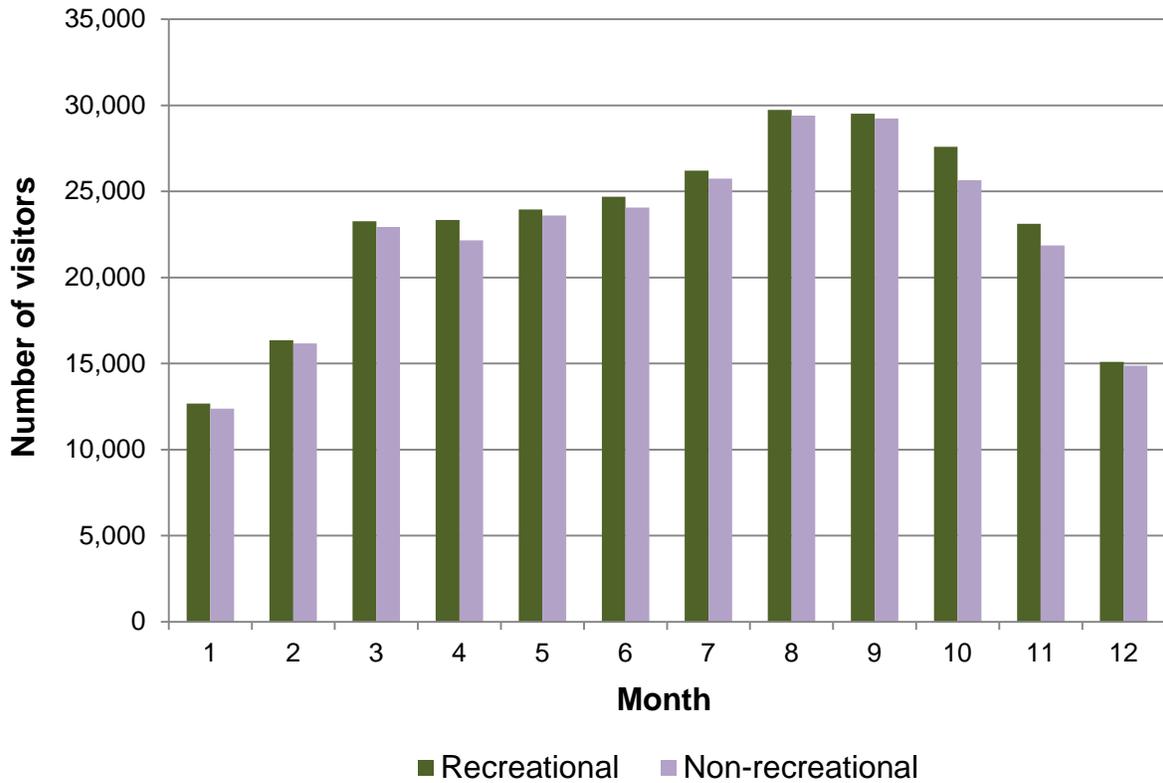


Figure 2. Total number of recreational and non-recreational visitors by month in 2010. Data obtained from the NPS Public Use Statistics Office (<http://www.nature.nps.gov/stats/>) on 9 January 2012.

Recreational Visitors

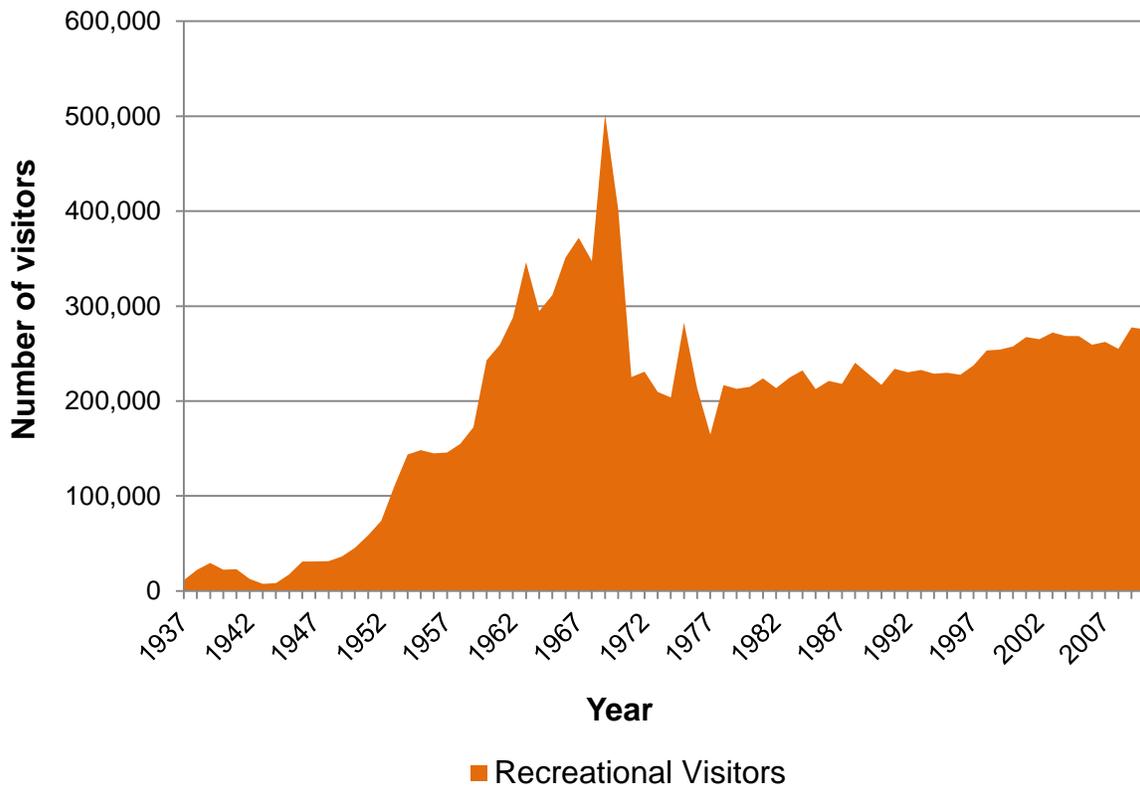


Figure 3. Total number of recreational visitors by year (1937-2010) to Kings Mountain National Military Park. Data and plot obtained from the NPS Public Use Statistics Office (<http://www.nature.nps.gov/stats/>) on 9 January 2012.

East vs. West Park Entrances

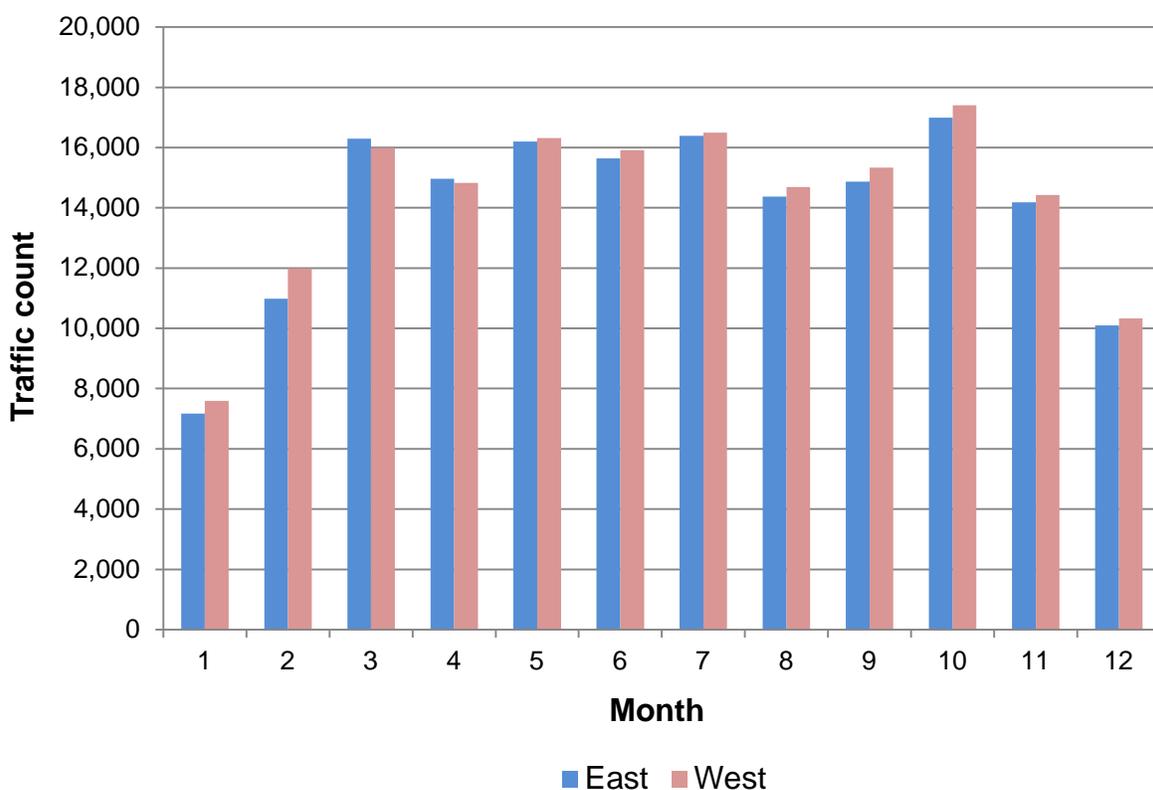


Figure 4. Traffic counts by location (Park entrance) and month in 2010. Data obtained from the NPS Public Use Statistics Office (<http://www.nature.nps.gov/stats/>) on 9 January 2012.

versus driving through (non-recreational) (Figure 2). Historically, Park recreational visitation peaked during the late 1960's, declined precipitously during the 1970's, and since then has been on a gradual and steady incline (Figure 3). The two Park entrances do not receive equal numbers of visitors. In 2011, traffic counts at the West entrance were greater than the East in all months except March and April, and counts through the West entrance were approximately 1.8% higher overall for the year (Figure 4).

Public use statistics like these prompt a number of essential questions about what Kings Mountain can do to promote Park visitation. The focus of this resource monitoring brief is on opportunities for promoting visitation by local communities. Age and race are two important demographic factors that affect how parks communicate with and engage visitors. Thanks to the US Census we have decadal estimates of how these measures have changed in recent time. Furthermore, we have ways of looking at these measures for various landscapes around Kings Mountain that characterize different travel times for visitors reaching the Park. Combined, these data allow us to (i) evaluate the current status and recent trends in the demographics of local communities surrounding Kings Mountain, and (ii) interpret how those results might inform efforts to proactively engage recreational visitors who live nearby.

Methods

The data and methods underlying the analyses presented in this resource brief originate from NPScape, a landscape dynamics monitoring project of the NPS Inventory and Monitoring Program. NPScape provides landscape-scale data, methods, analyses, maps, reports and interpretations

to the approximately 300 natural resource parks managed by the NPS. An important measure of anthropogenic influence around parks is human population, which is further defined by a number of different metrics (e.g., population totals, densities) that are calculated for various attributes (e.g., race, age, sex). The population data considered here originate from the 1990, 2000, and 2010 US Censuses (US Census Bureau 1991, 2001, 2011). Census data were processed and analyzed by NPScape at the census block-group level using standardized Geographic Information System (GIS) methods and tools (National Park Service 2012).

The population metrics selected for analysis included for race: Asian American, Black, Hispanic, Native American, and White (categories standardized across the three decades). Median age was also selected, along with total population for comparison with patterns that emerged with race and age. Densities rather than counts were emphasized in order to control for differences in census block-group size, both spatially and across time (census block-groups can change in shape and size from decade-to-decade). Densities were simply calculated by dividing the total number of people in each category (e.g., number of Hispanics) by the size or area in km² of the census block-group (National Park Service 2012). For purposes of interpreting the population densities in the context of raw numbers, we also included total population counts by census block-group.

A travel time model was used for purposes of relating estimates of population status and trend to local communities (Sherrill et al. 2010). This model allowed us to define a series of 4 areas of analysis (AOAs) that categorized different surrounding communities based on their proximity and potential ease of access to Kings Mountain National Military Park. We selected for

analysis areas that were within 30, 60, 90, and 120 minute travel times from at least one of the two park entrances, reachable by major roads (highways and interstates). These travel times are arbitrary but likely reflect real time commitments that are considered by residents of surrounding communities when deliberating on whether to visit the Park.

For each population metric (e.g., median age), we analyzed both current status and recent trend. For current status, we focused on the results of the latest US Census (2010), and calculated average median age and racial density by census block-group across a geography that included all travel time AOAs. These results are presented below as maps in order to emphasize geographic differences across metrics. They are also summarized by AOA in a table. For recent trends, we used the 4 travel time AOAs to statistically summarize the densities by population metric for each decade (1990, 2000, and 2010). These results are presented below as plots of metric density vs. time in order to emphasize overall spatiotemporal trends. Hence, while the maps of current status are especially useful for evaluations of how local residents are distributed with respect to the Park, the plots of recent trends may be used to further consider whether and how these distributions have changed over time within the 4 major travel time categories.

Travel Times

The original travel time model is shown in Figure 5. For purposes of the present analysis, the model was run for the area encompassed by a 100 mile buffer around Kings Mountain National Military Park. Within this area, calculated travel times ranged from 0 (at the two Park entrances, symbolized by the yellow triangles) to 480 minutes (larger roadless areas within the area of analysis, shown in dark purple).

The 4 focal travel time AOAs (within 30, 60, 90, and 120 minutes of Kings Mountain) are highlighted in Figure 6. The total areas encompassed by each travel time zone are: within 30 minutes (138,525 acres or 56,059 hectares), within 60 minutes (994,829 acres or 402,593 hectares), within 90 minutes (2,916,462 acres or 1,180,250 hectares), and within 120 minutes (5,684,485 acres or 2,300,430 hectares). Along the I-85 corridor, where speed limits are highest, some areas up to 95 miles away are within 120 minutes from the Park (e.g., southwestern portion of 100 mile buffer). Meanwhile, along highways and major roads, the 120 minute travel time zone encompasses areas that are upwards of 75 and 50 miles (respectively) from the Park.

A more detailed view of the travel time AOAs within approximately 20 miles of the Park is shown in Figure 7. Areas within 30 minutes of the Park include the cities and towns of Clover (SC), Gaffney (SC), Shelby (NC), Kings Mountain (NC), Gastonia (NC), and Charlotte (NC). Most of the other towns shown on the map – e.g., Spartanburg (SC), Lincolnton (NC) – are within 60 minutes.

Population Current Status

The total number of people by census block-group in the year 2010 is shown in Figure 8. This map provides an overall indication of how many people inhabit different areas, but spatial patterns are difficult to interpret because block-groups vary in size. Figure 9 thus reports the corresponding density of total population by census block-group. From this we see the population footprints of large cities and towns – e.g., Charlotte (NC), Columbia (SC), Shelby (NC). The total densities shown

in Figure 9 are useful for interpreting the densities reported by racial group in subsequent maps.

Median age by census block-group illustrates how cities and towns tend to be younger than surrounding areas (Figure 10). However, some notable exceptions exist, including in the vicinity of Kings Mountain National Military Park: Union (SC), Shelby (NC), and Forest City (NC).

Maps of population density by racial group are shown in Figures 11 (Asian American), 12 (Black), 13 (Hispanic), 14 (Native American), and 15 (White). Overall, densities are greatest for Whites, followed by Blacks, Hispanics, Asian Americans, and Native Americans (Table 1). Although actual density estimates by AOA vary, this pattern of rank density is seen consistently across the 30, 60, 90, and 120 minute travel time zones (Table 1). Among travel time AOAs, densities in all 5 racial groups are highest within 60 minutes of the Park (Table 1). This pattern is likely explained by the major cities and large towns that are just beyond the 30 minute travel time zone (Figures 6 and 7).

Population Recent Trends

Areas within 30, 60, 90, and 120 minutes of Kings Mountain National Military Park have become older (Figure 14). From 2000 to 2010, areas aged between 1.6 years (within 60 minutes) and 2.8 years (within 30 minutes).

Asian Americans increased in density throughout all travel time zones, both 1990-2000 and 2000-2010 (Figure 15). Increases were especially pronounced within 60 minutes of the Park, and least pronounced within 30 minutes. The difference is likely explained by the 60 minute AOA including all of Charlotte (NC), as well as other cities and towns that are large in relation to those encompassed by the 30 minute AOA (Figures 6 and 7). Many of these population centers in the 60 minute zone presently have relatively high densities of Asian Americans (Figure 11).

From 1990 to 2010, Blacks increased in density throughout all travel time zones (Figure 16). In parallel with Asian Americans (Figure 15), increases were most pronounced within 60 minutes of the Park, and least pronounced within 30 minutes. Overall, from 1990 to 2010, Blacks were the second fastest growing racial group within the 30 and 60 minute AOAs, and the third fastest in the 90 and 120 minute AOAs.

Hispanics were the fastest growing racial group, 1990-2010, in the 30 and 60 minute travel time zones (Figure 17). Areas within 30 minutes of the Park increased 12x between 1990 and 2010. The largest relative increase in density over this same period occurred within 90 minutes (15x).

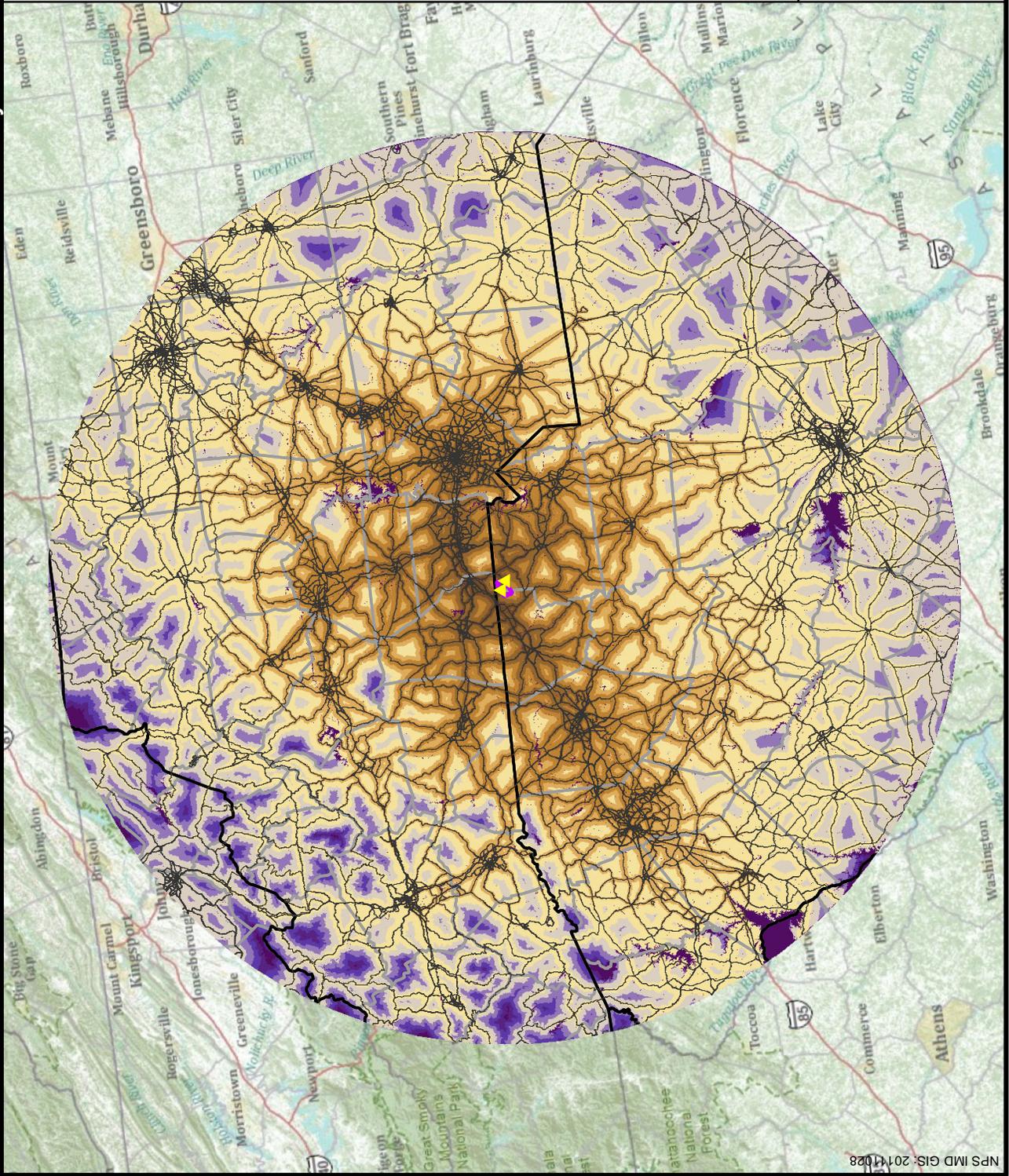
Native Americans increased in density throughout all travel time zones, especially between 2000 and 2010 (Figure 18). The increases were further noteworthy in that they were comparable across the 30, 60, 90, and 120 minute travel time AOAs.

Lastly, Whites were the one racial group to actually decrease in density from 1990 to 2010, specifically within the 30 minute travel time zone (Figure 19). Increases were otherwise seen in the remaining AOAs. In the 90 and 120 minute travel time zones, Whites were the fastest growing racial group.

>>> Figures 5 - 19 and Table 1 are shown consecutively on the next 10 pages.

**Travel Time Cost Surface Model
Kings Mountain National Military Park**

**National Park Service
U.S. Department of the Interior
Inventory and Monitoring Division**



NPS IMD GIS-2011-1028

Figure 5. Travel time model for Kings Mountain National Military Park.

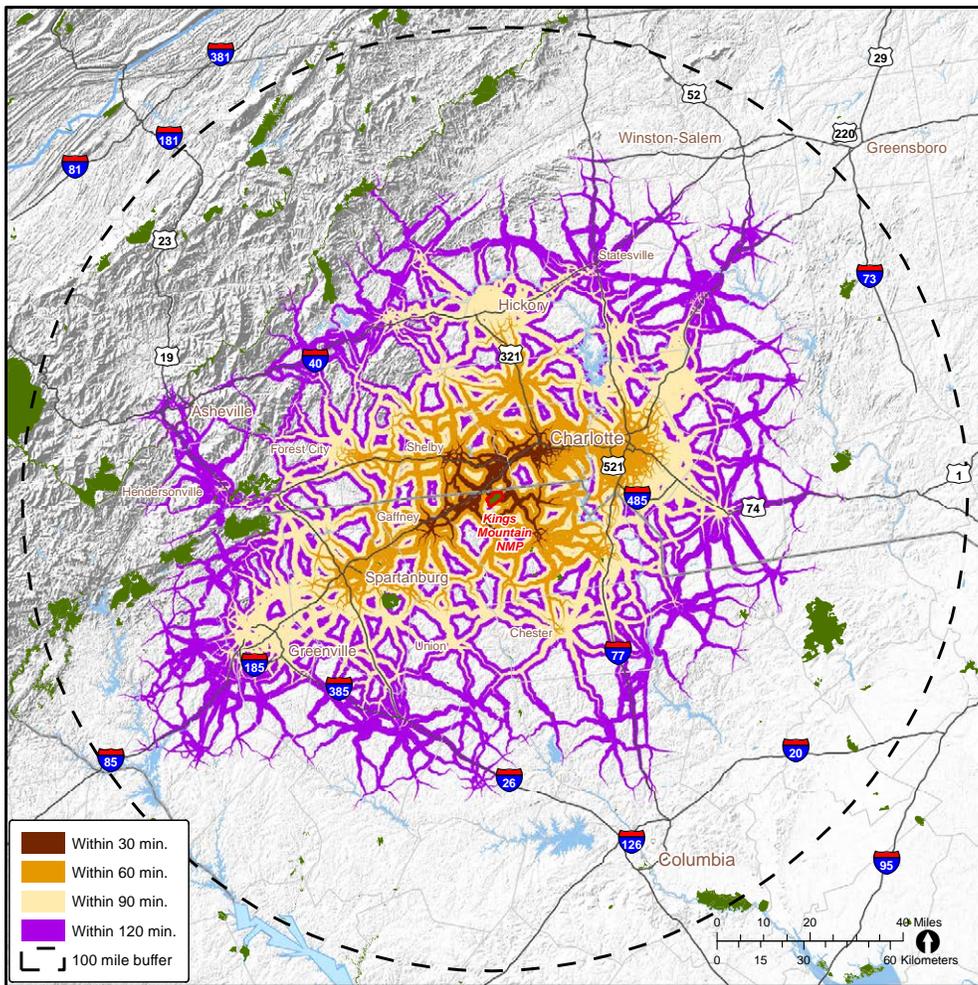


Figure 6. A regional view of the travel time model for Kings Mountain National Military Park, highlighting the 4 AOs considered in the population analyses presented here: 30, 60, 90, and 120 minute travel times. Here and below on subsequent maps (to facilitate comparisons): major protected areas are shown in green, along with cities, towns, highways and interstates.

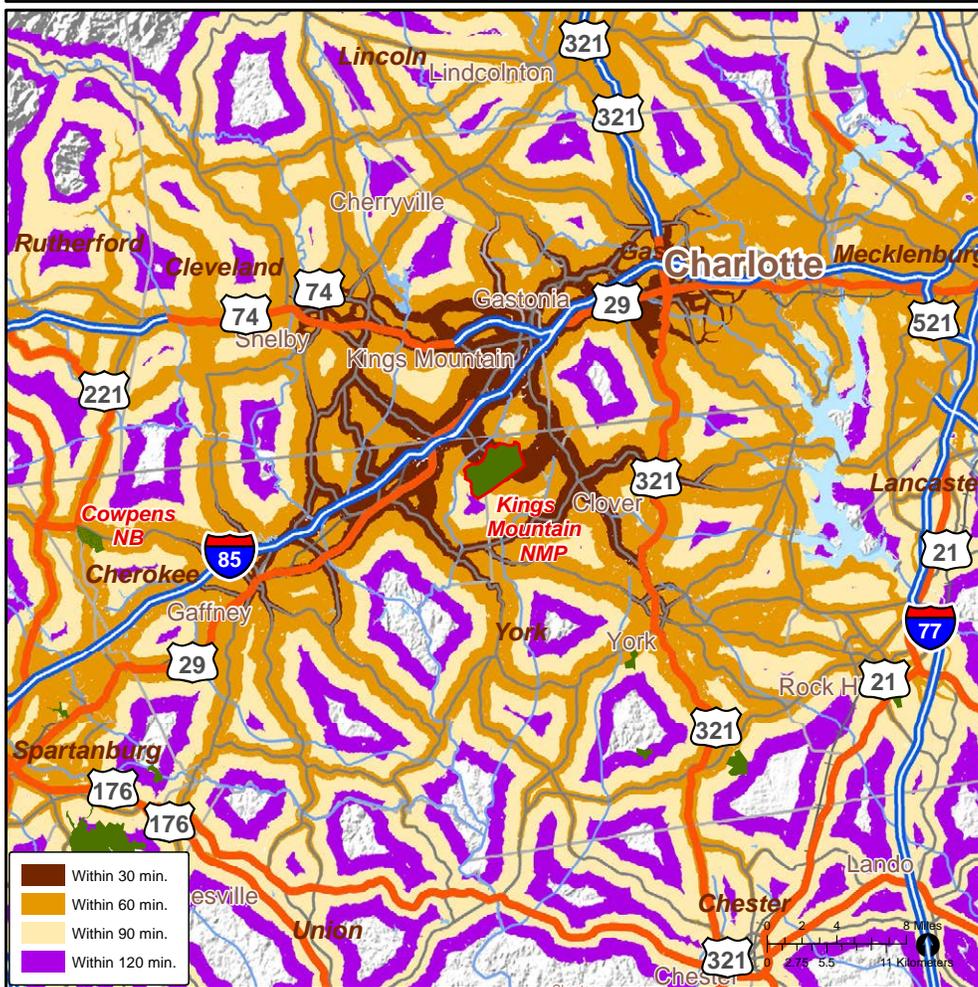


Figure 7. A local view of the travel time model for Kings Mountain National Military Park, highlighting the 4 AOs considered in the population analyses presented here: 30, 60, 90, and 120 minute travel times. Cowpens National Battlefield is located nearby, to the northwest of Gaffney.

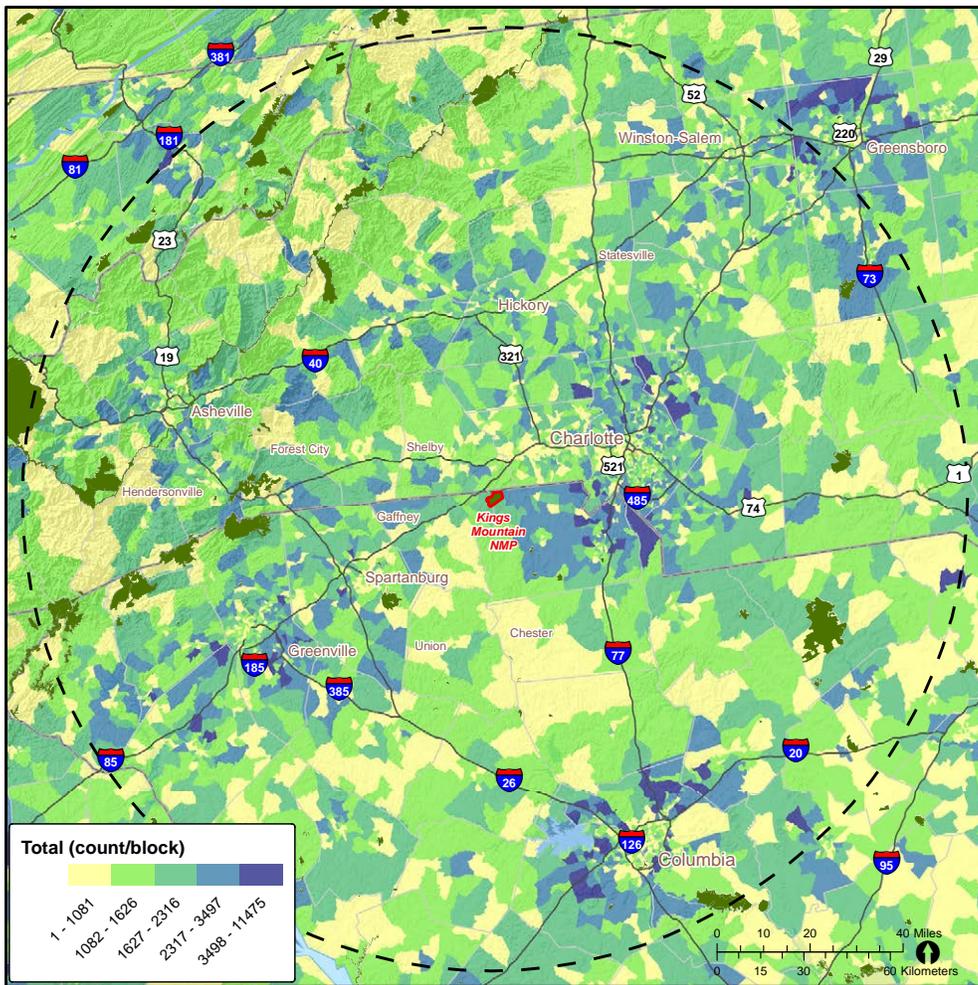


Figure 8. Count of total population by census block-group for the year 2010 in the 100 mile travel time region surrounding Kings Mountain National Military Park.

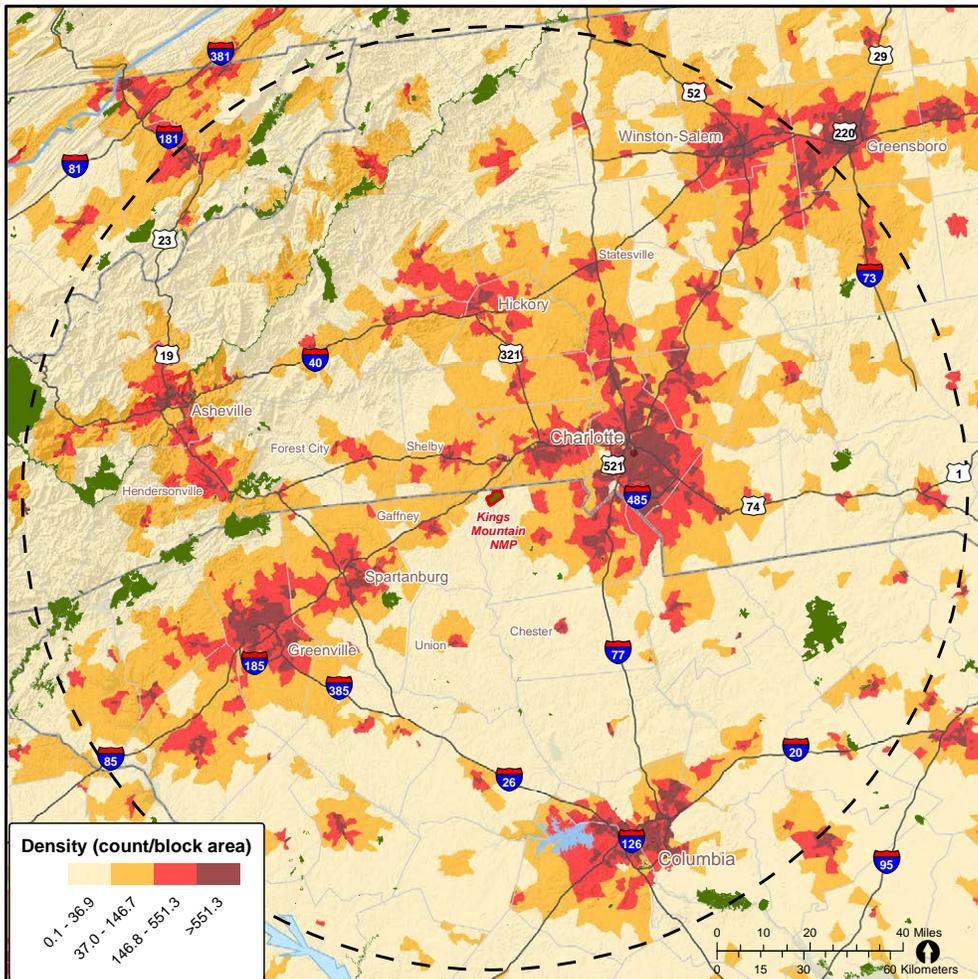


Figure 9. Density of total population by census block-group for the year 2010 in the 100 mile travel time region surrounding Kings Mountain National Military Park.

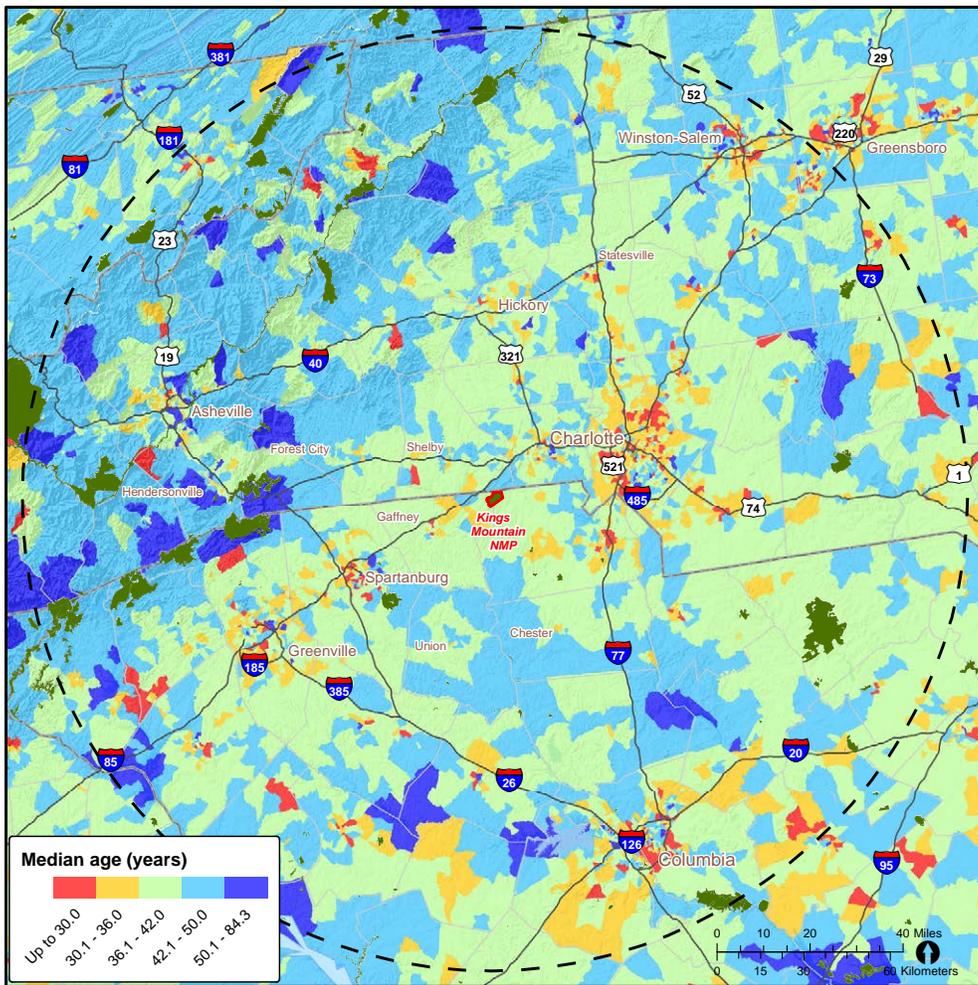


Figure 10. Median age by census block-group for the year 2010 in the 100 mile travel time region surrounding Kings Mountain National Military Park.

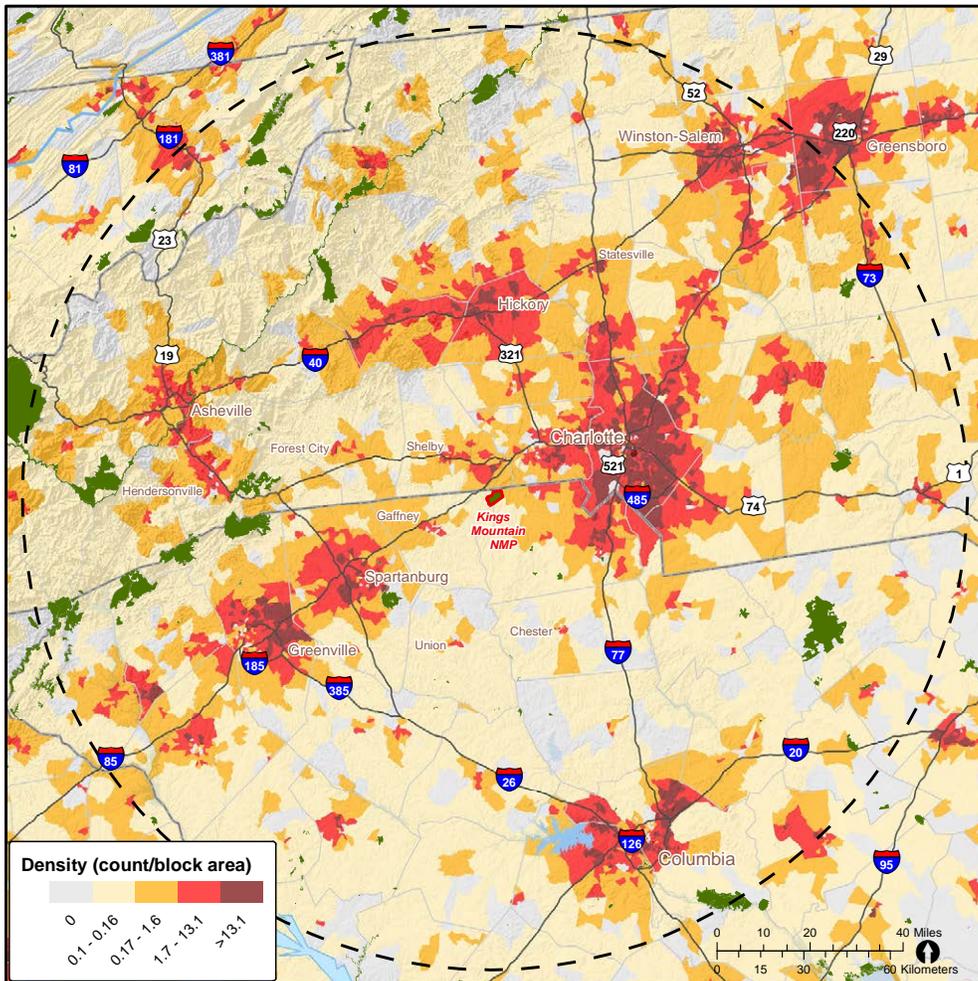


Figure 11. Density of Asian Americans by census block-group for the year 2010 in the 100 mile travel time region surrounding Kings Mountain National Military Park.

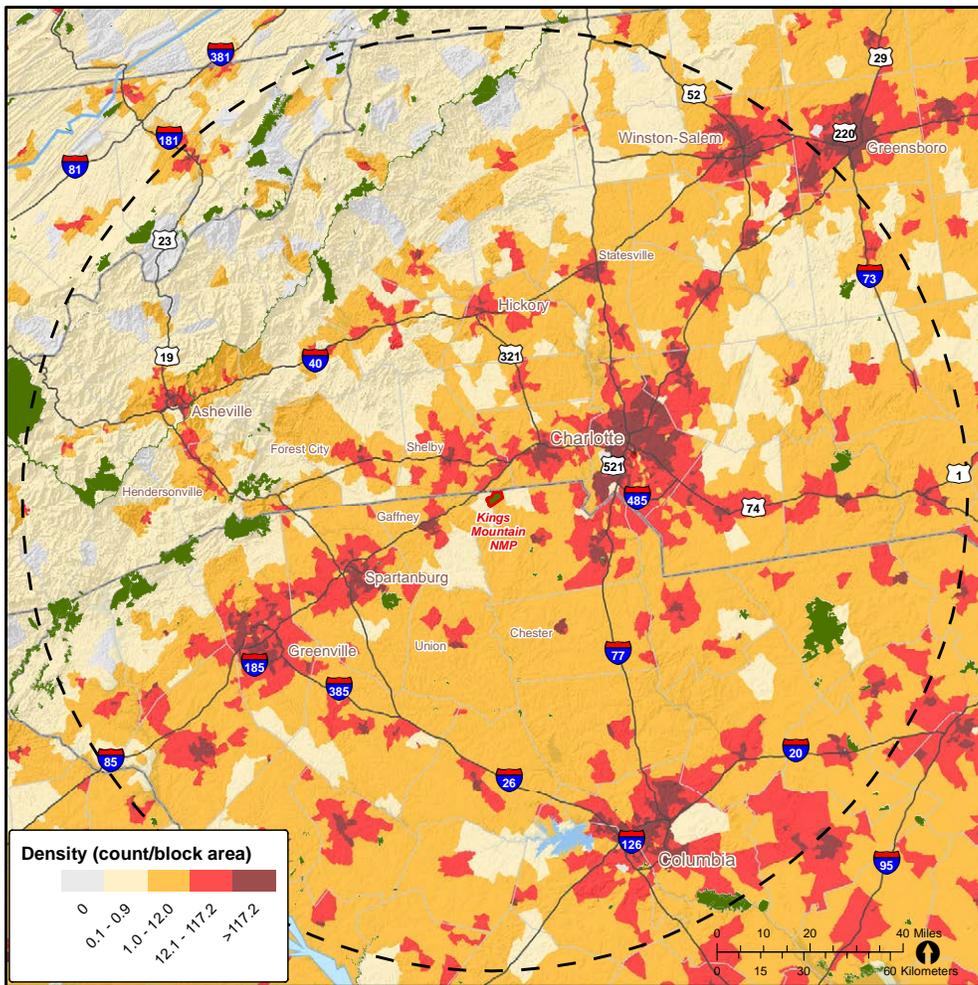


Figure 12. Density of Blacks by census block-group for the year 2010 in the 100 mile travel time region surrounding Kings Mountain National Military Park.

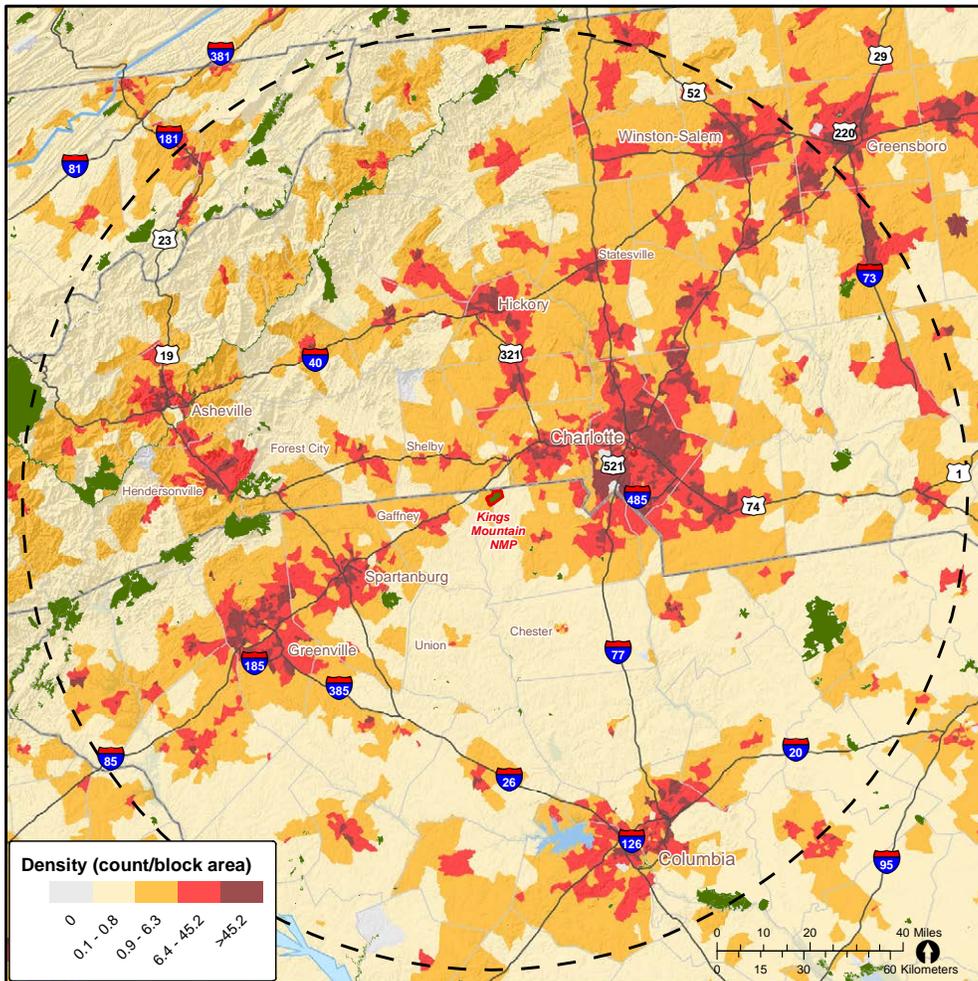


Figure 13. Density of Hispanics by census block-group for the year 2010 in the 100 mile travel time region surrounding Kings Mountain National Military Park.

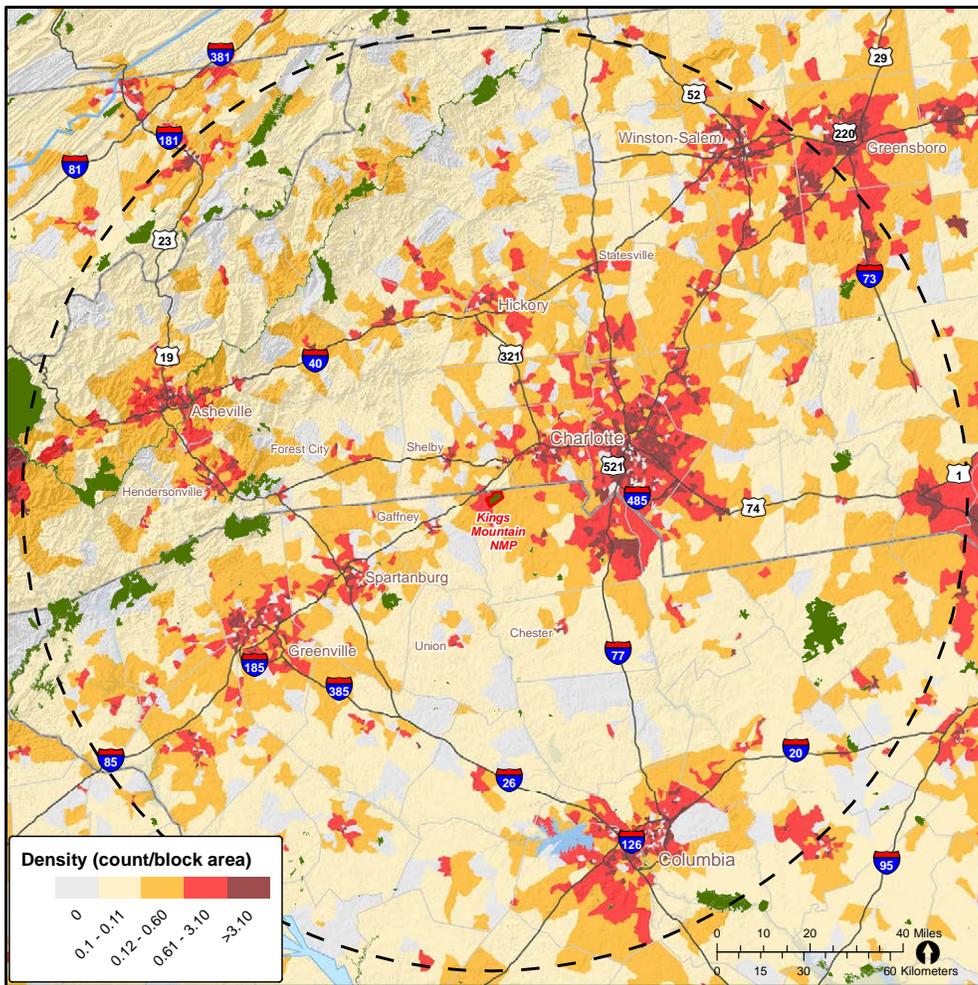


Figure 14. Density of Native Americans by census block-group for the year 2010 in the 100 mile travel time region surrounding Kings Mountain National Military Park.

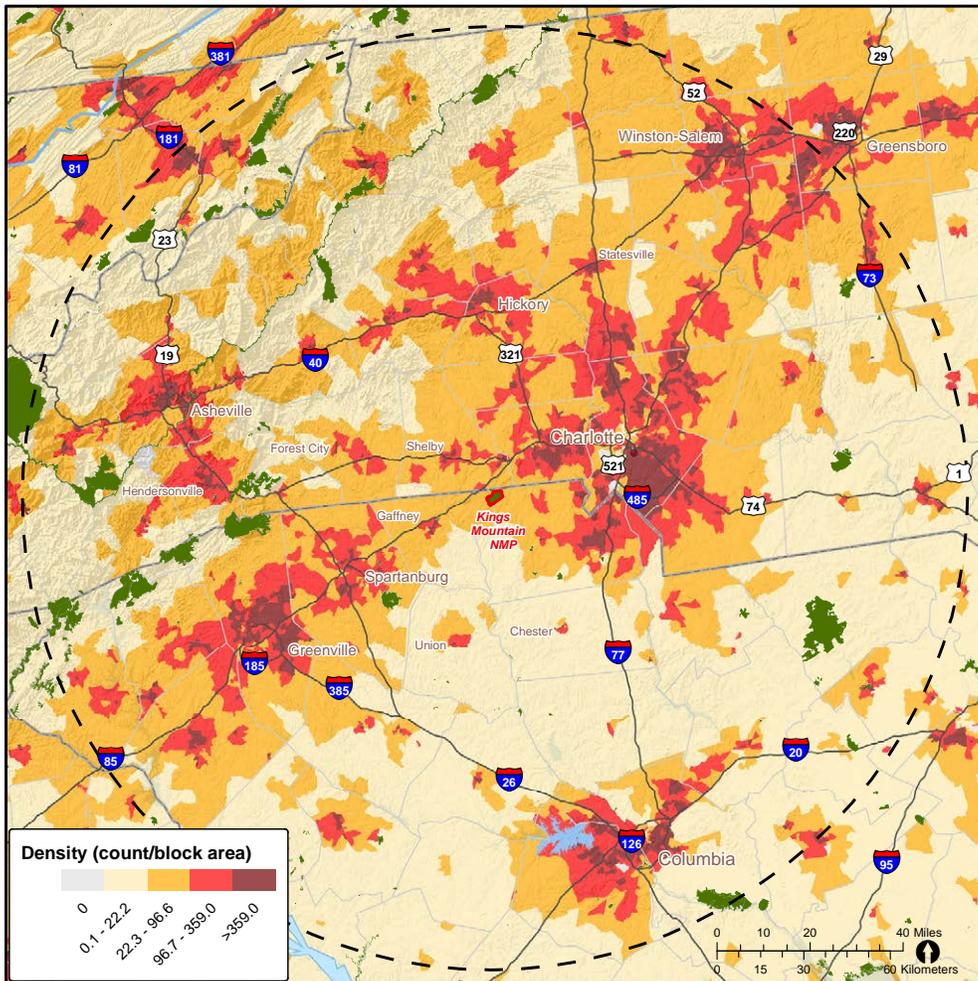


Figure 13. Density of Whites by census block-group for the year 2010 in the 100 mile travel time region surrounding Kings Mountain National Military Park.

Table 1. Summary of the current status (2010) of population metrics for 4 local areas of analysis established by different travel times required to reach Kings Mountain National Military Park: within 30, 60, 90, and 120 minutes. Colors correspond to AOAs in Figures 6 and 7, as well as the trend figures below.

Category	Metric	Within 30 min.	Within 60 min.	Within 90 min.	Within 120 min.
Total	Total (count)	109511	986130	2523337	3614497
	Density (count/area)	198.6	246.1	214.4	157.6
Age	Median	39.3	37.4	38.2	38.9
Race	Density Asian American (count/area)	1.7	6.7	5.9	3.7
	Density Black (count/area)	55.3	71.8	48.0	31.7
	Density Hispanic (count/area)	12.4	23.0	19.5	13.0
	Density Native American (count/area)	0.8	1.0	0.9	0.6
	Density White (count/area)	130.3	149.1	145.0	111.8

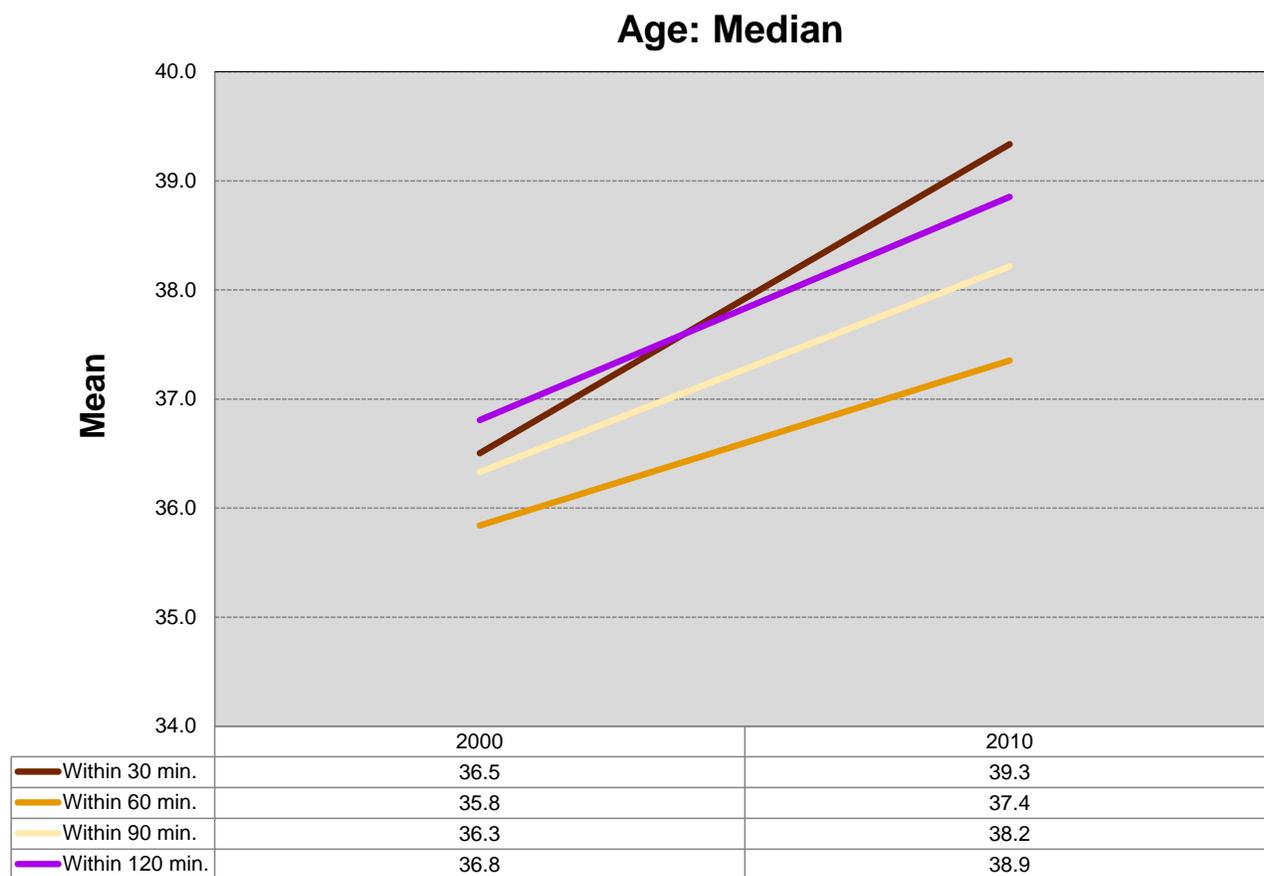


Figure 14. Recent trends in median age (2000 and 2010) for 4 travel time areas of analysis surrounding Kings Mountain National Military Park.

Race: Asian American

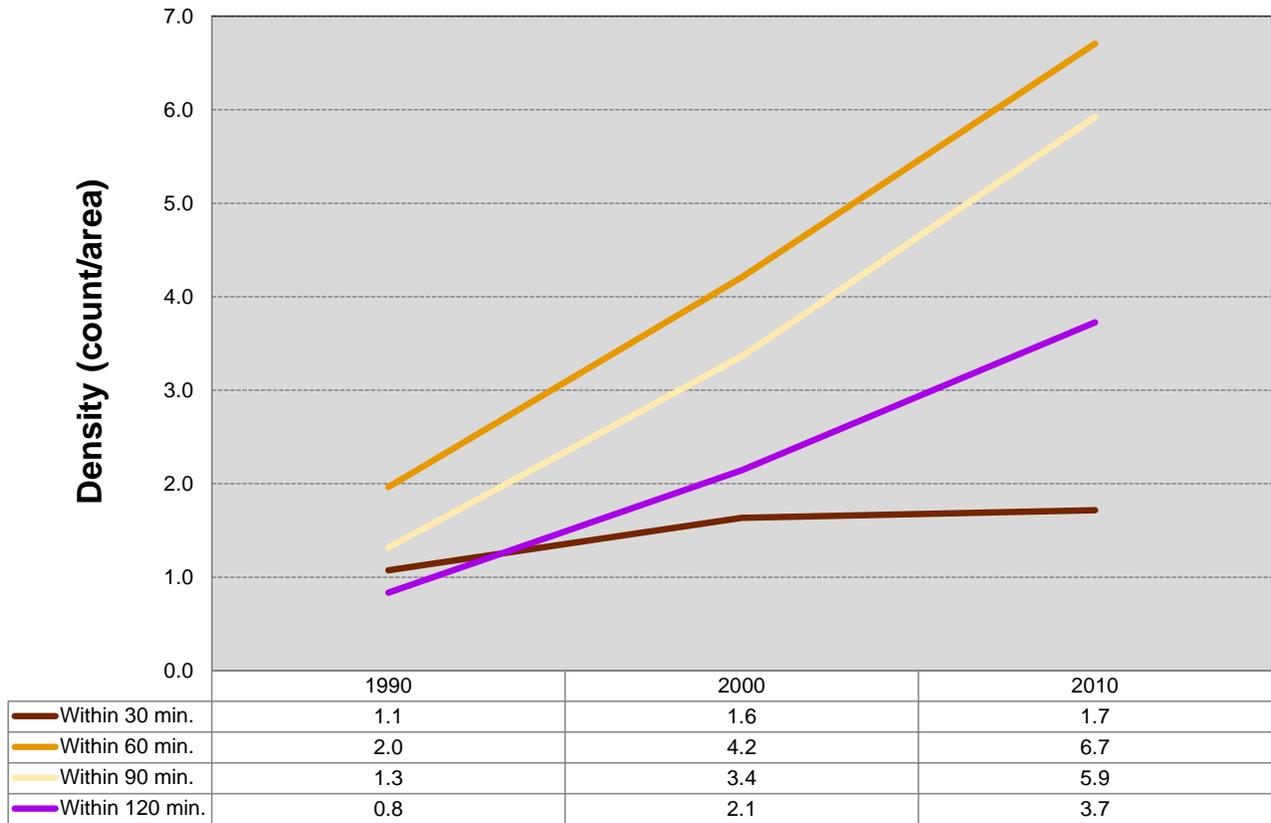


Figure 15. Recent trends in the density of Asian Americans (1990, 2000, and 2010) for 4 travel time areas of analysis surrounding Kings Mountain National Military Park.

Race: Black

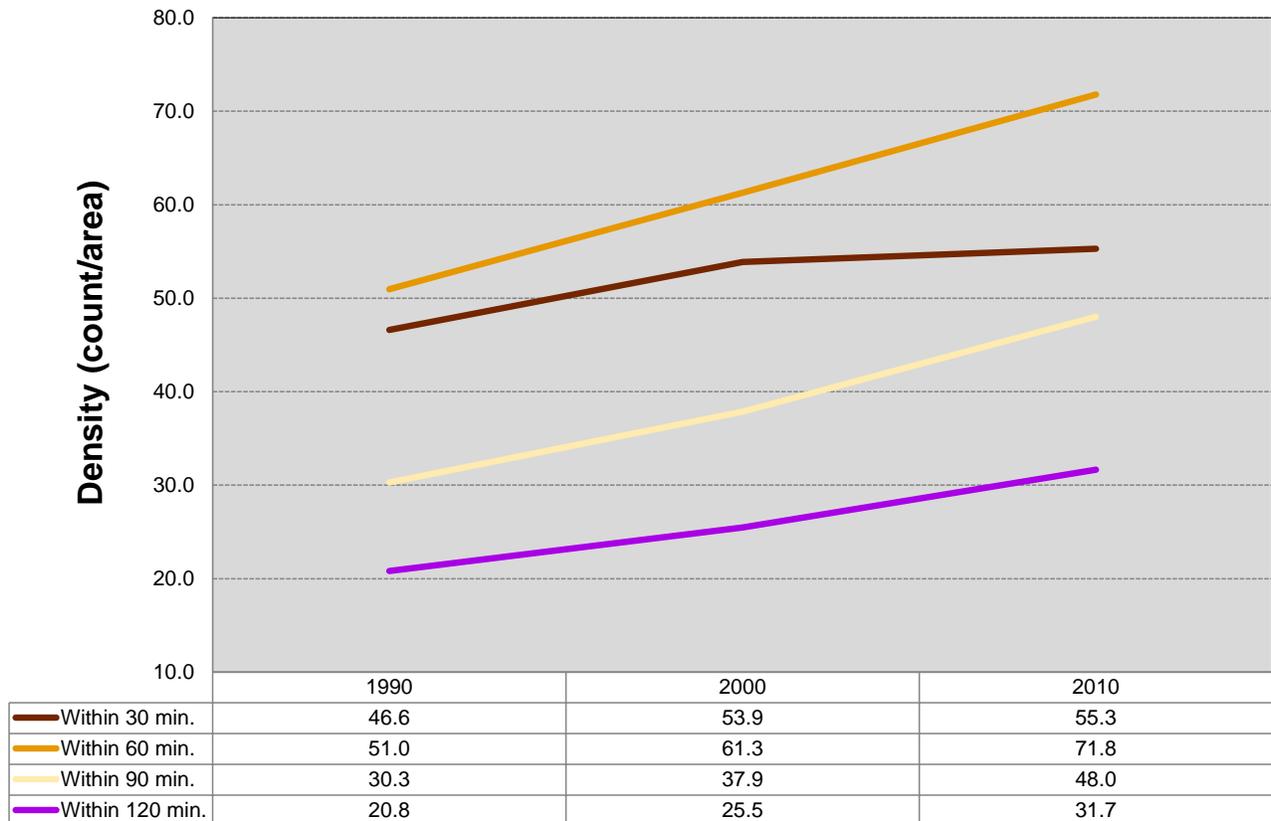


Figure 16. Recent trends in the density of Blacks (1990, 2000, and 2010) for 4 travel time areas of analysis surrounding Kings Mountain National Military Park.

Race: Hispanic

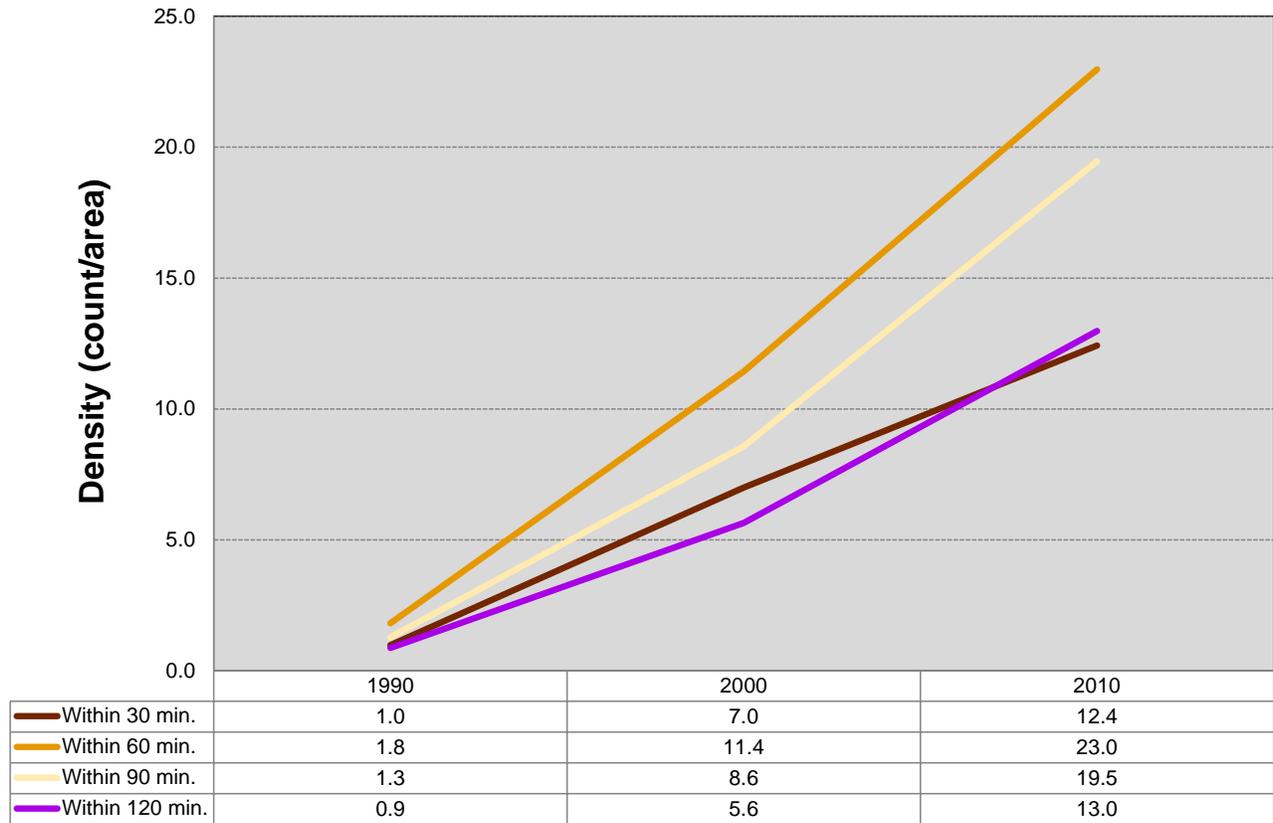


Figure 17. Recent trends in the density of Hispanics (1990, 2000, and 2010) for 4 travel time areas of analysis surrounding Kings Mountain National Military Park.

Race: Native American

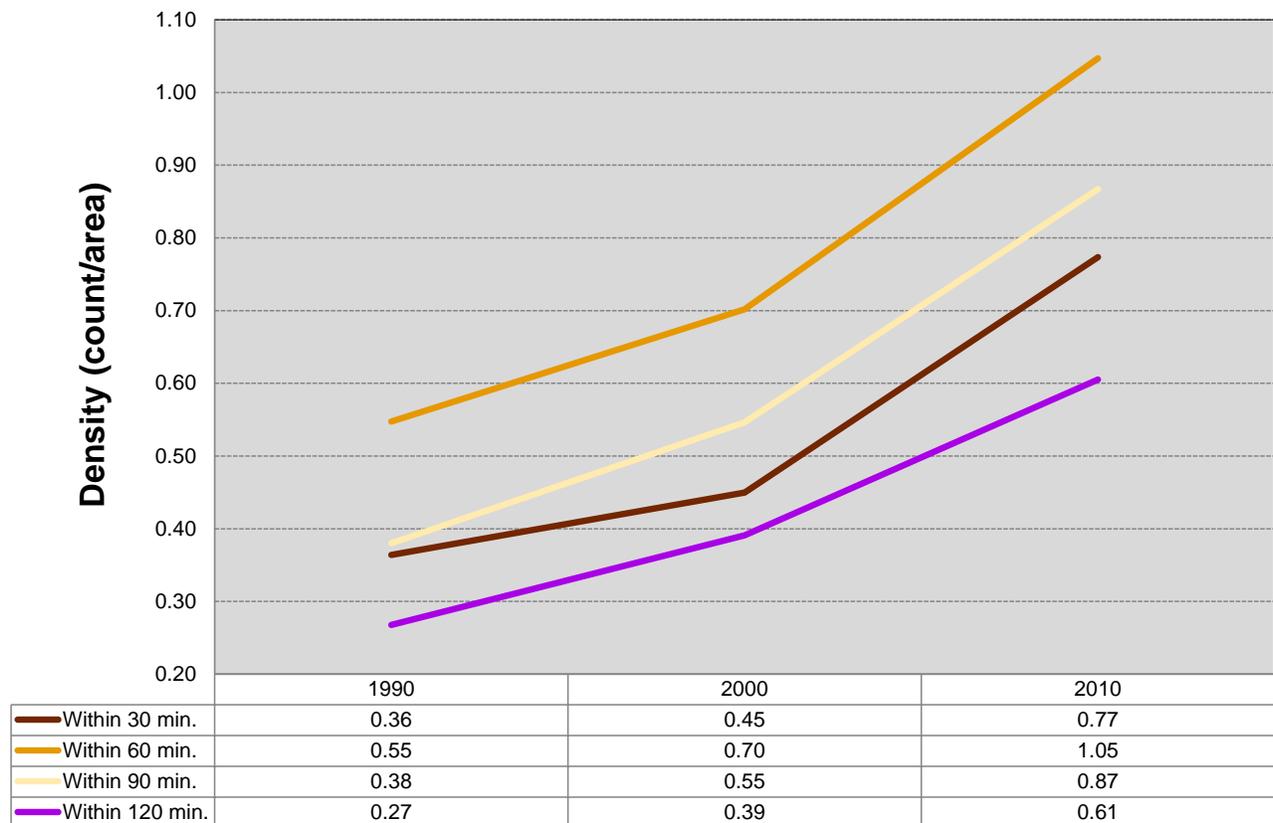


Figure 18. Recent trends in the density of Native Americans (1990, 2000, and 2010) for 4 travel time areas of analysis surrounding Kings Mountain National Military Park.

Race: White

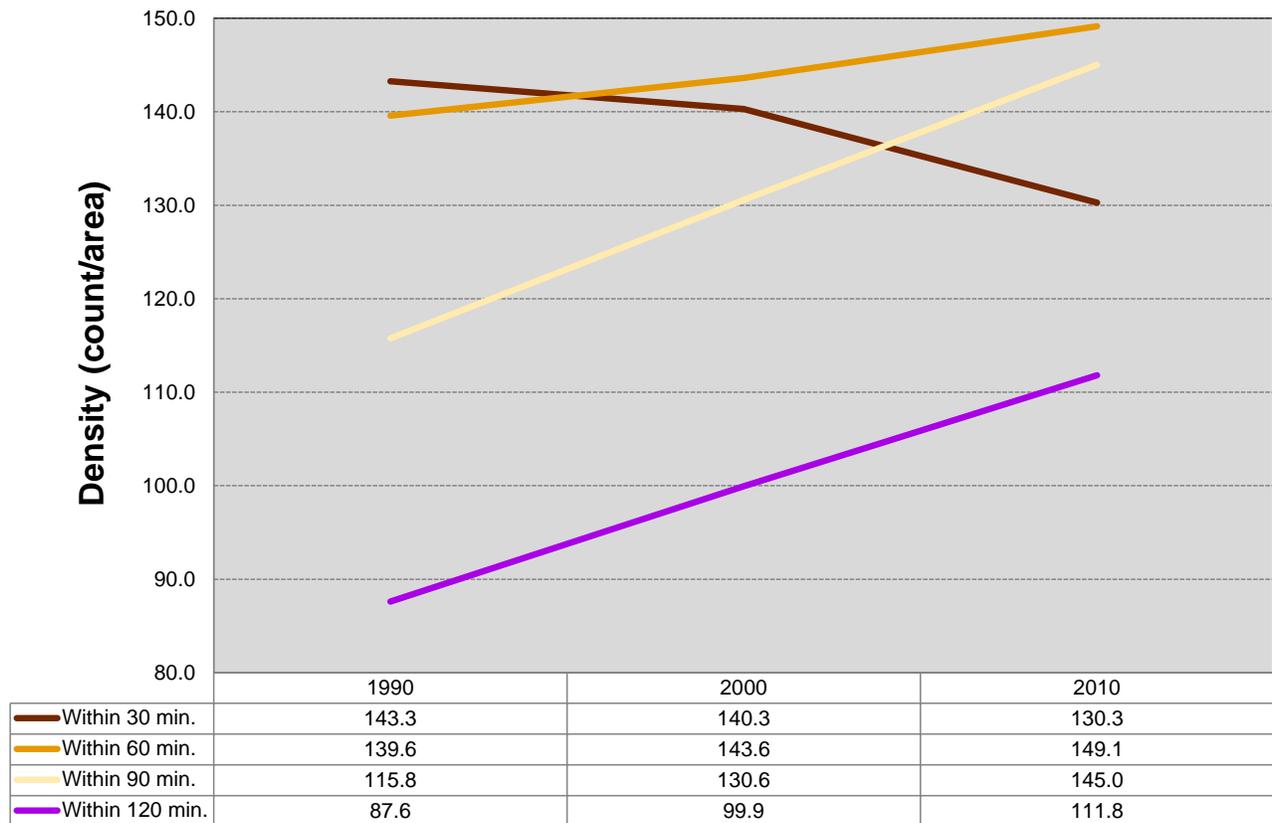


Figure 19. Recent trends in the density of Whites (1990, 2000, and 2010) for 4 travel time areas of analysis surrounding Kings Mountain National Military Park.

Summary

Kings Mountain National Military Park offers visitors a chance to experience and relive a battle that served as an important turning point during the Revolutionary War. Educating local communities about this monumental period and event in American history requires engaging them as recreational visitors. In turn, such engagement requires effective communication and outreach, which are influenced by demographic factors such as age and race.

In communities surrounding Kings Mountain, major cities and towns tend to be several years younger than rural areas. Since 2000, the region has also aged 1 to 2 years.

Areas within 30, 60, 90, and 120 minutes of the Park are dominated by Whites, followed by Blacks, Hispanics, Asian Americans, and Native Americans. Between 1990 and 2010, all travel areas experienced increases in density, except Whites within 30 minutes, which decreased over the 3 decades. Within 30 and 60 minutes of the Park, increases in density were greatest in Hispanics, then Blacks. Within 90 and 120 minutes, increases in density were greatest in Whites, followed by Hispanics and Blacks.

Combined, these results illustrate how the demographics of local communities surrounding Kings Mountain National Military Park have changed in recent time, as well as what they look like today. The underlying data and descriptive results are intended to assist Park staff in interpreting current and future visitation. An example use or application might be to determine where to distribute flyers and other Park materials in Spanish, or where to do outreach in encouraging Park visitation by younger generations.

References

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More Information

Kings Mountain National Military Park
<http://www.nps.gov/kimo/index.htm>

NPScape - Landscape Dynamics Monitoring
<http://science.nature.nps.gov/im/monitor/npscape/>