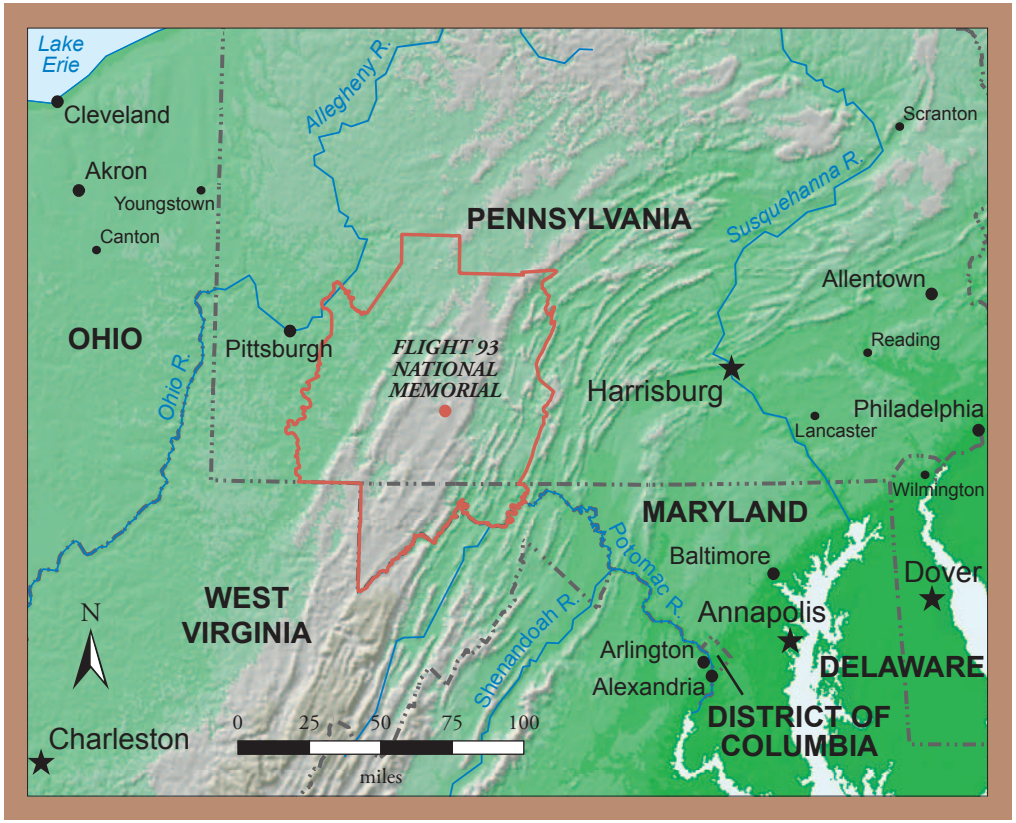
A Socioeconomic Atlas for



Flight 93 National Memorial and its Region

2004

A Socioeconomic Atlas for Flight 93 National Memorial and its Region

by

Jean E. McKendry

Cynthia A. Brewer

Steven D. Gardner

2004

Acknowledgments

We would like to express our appreciation to the staff of Flight 93 National Memorial for their enthusiasm and interest throughout this project, especially Superintendent Joanne Hanley and Jeff Reinbold, NPS Park Planning and Special Studies Division. We are also grateful to Marie Rust, Northeast Regional Director, and Terrence Moore, Regional Chief of Park Planning and Special Studies, for their commitment. Funding from the National Park Service (NPS) Social Science Program and the NPS Recreational Fee Demonstration Program supported this project. In addition, the Peter R. Gould Center for Geography Education and Outreach at the Pennsylvania State University generously supported this project with systems administration and facilities.

About this Atlas

This atlas is one in a developing National Park Service atlas series. The purpose of the atlas series is to show socioeconomic trends for regions around individual national park units. Pilot atlases were completed for Harpers Ferry National Historical Park, Joshua Tree National Park, Mount Rainier National Park, and Wilson's Creek National Battlefield. The potential to link these atlases to park planning, e.g., updating the General Management Plan, is being explored with a second series of atlases that began with the Blue Ridge Parkway. After NPS produced the Blue Ridge Parkway atlas, atlases in the second series have been created in collaboration with the Department of Geography at the Pennsylvania State University. Flight 93 National Memorial is one of the atlases in the second series. For more information about the atlas series, contact Jean McKendry, National Park Service, 1849 C Street NW (3130), Washington, DC 20240 (jean_mckendry@partner.nps.gov).

About the Authors

Jean McKendry is Principal Scientist with the University of Idaho, College of Natural Resources. She is assigned to work with the National Park Service under a cooperative agreement. She serves as Principal Investigator/Project Manager for this atlas series.

Cynthia Brewer is an Associate Professor of Geography at the Pennsylvania State University. Her specializations are cartographic design and visualization. She manages production of the atlas series at Penn State.

Steven Gardner is a Masters student in the Department of Geography at the Pennsylvania State University. He specializes in cartography. He prepares data, maps, and graphs and edits text for the atlas series.

Final Version Date: 1/2005

Preface

Protection of the National Park System requires active and scientifically informed management. If park resources – both natural and cultural – are to be protected for future generations, the NPS must develop efficient ways to monitor the condition and trends of natural and human systems. Such monitoring must provide usable knowledge that managers can apply to the preservation of resources. And the NPS must share this information with surrounding communities, stakeholders, and partners to help them make important choices about their future.

Because of these reasons and more, the NPS has embarked on a significant initiative – the Natural Resource Challenge, an action plan for preserving natural resources and our country's natural heritage within the complexities of modern landscapes (http://www1.nature.nps.gov/challenge/index.htm).

This atlas is one component in that effort. It is a tool for park managers, planners, community leaders, and others to use in addressing the challenge of preserving the natural and cultural resources of Flight 93 National Memorial. Part of that challenge involves understanding conditions outside park boundaries – conditions which can have significant impacts on park resources. Systematic study and monitoring of regional conditions involves, to a large degree, investigation of human activities. This atlas focuses on such human activities, characterizing them in terms of standardized measures known as socioeconomic indicators.

The atlas can currently serve as an aid to management and planning, as a training tool, and as a means to facilitate public participation. It can be of long-term benefit by establishing baseline data for monitoring changing conditions and trends in the region. Through these and other potential uses, the atlas supports the critical goal of improving park management through a greater reliance on usable scientific knowledge, and contributes to meeting the Natural Resource Challenge.

Gary E. Machlis
Visiting Senior Scientist
National Park Service

Table of Contents

page

Introduction 3

Socioeconomic Indicators: Valuable Management Tools 4

The Region 8

Using the Socioeconomic Indicators and Maps 10

The Socioeconomic Indicators 11

- General Population 12
- Economy and Commerce 24
- Social and Cultural Characteristics 38
- Recreation and Tourism 44
- Administration and Government 52
- Land Use 62

Conclusion: Using This Atlas for Park Management 76

Appendices 78

- Appendix 1: Data Sources for Indicators 78
- Appendix 2: Technical Notes on Map Design 83
- Appendix 3: Technical Notes on Measurement of Selected Indicators 84

Introduction

The purpose of this atlas is to provide park managers, planners, community leaders, and others with an understanding of human activities and socioeconomic conditions in the region surrounding Flight 93 National Memorial. Information about regional trends and conditions is needed in order to manage and conserve park resources – both natural and cultural – more effectively. This atlas provides such information in a series of maps, complemented by tables, other graphics, and explanatory text.

Maps are effective ways of conveying information. A map can highlight geographical patterns in data by showing the relationship between what is happening and where it is happening. For example, a map that shows a park's road network and also shows the locations of traffic accidents may indicate that certain sections of park roadway are particularly hazardous. Or a map that plots where park visitors come from might show that the park is popular with residents from a particular part of the region or the nation.

The maps in this atlas combine *contextual* information (such as boundary lines, roads, and key towns) with *thematic* information (such as demographic or economic statistics). This combination of contextual and thematic information helps the reader observe general trends inherent in the distribution of data. For example, a map that shows the population growth rate for each county in the park region may reveal that all of the highest growth rates are concentrated in counties south of the park.

Each map is designed to allow for easy comparison, so readers can see how conditions and trends in their own counties compare with those in other counties and relate to larger regional patterns. The consistent map design allows readers to make useful comparisons among two or more maps. For example, comparing maps of federal expenditures per person and poverty rates might reveal that federal expenditures tend to be higher in a region's poorer counties.

There are many potential uses for this atlas. For example, park managers can share the atlas with new park staff, regional staff, the media, or policy makers as a way of orienting them to the basic facts about the region. Planners can use the atlas to examine emerging trends outside the park and to prioritize actions to mitigate any anticipated adverse impacts on park resources. Local and regional leaders can consult the atlas to develop environmental policies that support park management goals while remaining responsive to local needs. Researchers can use the atlas to design studies that have practical benefit to park and ecosystem management. Additional uses are discussed in the atlas' concluding section, pages 76 - 77. Regardless of how it is used, the atlas can serve as a useful reference tool that adds to the body of usable scientific knowledge about Flight 93 National Memorial and its surrounding region.

Socioeconomic Indicators: Valuable Management Tools

The Relevance of Human Activities to Park Resource Management

The management of park resources always requires attention to human behavior and activities. Protection of a threatened archaeological site can mean educating visitors about the Antiquities Act. Controlling non-native plant species can require close collaboration with park neighbors and volunteers. Preservation of scenic values can depend upon the monitoring of emissions from electrical generation plants several states away.

While there is an on-going and healthy debate about how to address this "human factor" in park management, a consensus has emerged about three basic principles:

- people are part of park ecosystems, and their needs and activities must be considered in management plans;
- park managers should be concerned with short and long-term trends, as well as the local, regional, and national consequences of actions; and
- where appropriate, decisions about park resources should be made collaboratively, including federal agencies, local governments, and citizens in the process.

Managing parks in accordance with these principles requires careful planning, for people have many competing needs.

Careful planning requires an accurate and objective assessment of current conditions as well as on-going trends. Hence, understanding the social, cultural, and economic characteristics of the park region is crucial for successful park management.

The Value of Socioeconomic Indicators

One approach to understanding social, cultural, and economic conditions and trends is to use *socioeconomic indicators*. Socioeconomic indicators are regularly collected economic or social statistics that describe or predict changes and trends in the general state of society. For example, the consumer price index (CPI) keeps track of changes in the price of a typical group of consumer goods. The CPI is used to monitor inflation, to compare the cost-of-living in one region of the country to another, and to support economic policy-making. Socioeconomic indicators can address historical trends, present conditions, or future projections.

An integrated set of socioeconomic indicators can be effective in presenting the "basic facts" about the people of a region. Such basic facts are important to park management, and can be used in many ways: assessing the potential impact of government policies, developing sound resource management strategies, designing effective interpretive programs, increasing public involvement in the planning process, and so forth. Like measures of water quality or wildlife populations, socioeconomic indicators enable managers and citizens to make scientifically informed decisions concerning public resources.

The Integrated Set of Indicators

The indicators in this atlas are not simply a collection of various statistics displayed in maps, but an integrated set of indicators organized around broad areas of human activity that are of particular relevance to park management. The selection of a broad range of relevant indicators is important because the dynamics of human interaction on a regional scale are complex. For example, the growth of a new industry can influence a rise in immigration, which in turn can influence other human activities such as housing development. While industry, immigration, and housing are categorically different indicators, each one could be important for a park manager trying to anticipate growth issues that might impact park visitation or ecological systems.

The integrated set of indicators displayed in this atlas encompasses six general categories:

- *General population* indicators measure how many people live in a given area, where those people are concentrated, their ages, patterns of migration, and so forth. General population indicators provide a profile of the people who are neighbors to the park and potential partners in park management.

- *Economy and commerce* indicators measure the flow and distribution of money, materials, and labor. Economy and commerce indicators provide an overview of the interdependent economic relationships among people, businesses, industries, and government within the park region.

- *Social and cultural* indicators measure aspects of personal and group identity such as cultural origin, political and religious beliefs, health, and language. Social and cultural indicators provide insights into the varying perceptions and expectations that people bring with them when they go to their place of work, participate in a public meeting, or visit a park interpretive site.

- *Recreation and tourism* indicators measure activities specifically related to the provision of accommodations, entertainment, and personal services. Recreation and tourism indicators provide a way to analyze the economic role that travelers, vacationers, and other recreationists play in the region surrounding the park, which is itself closely linked to the recreation/tourism sector.

- *Administration and government* indicators measure the structure, resources, and actions of government organizations. Administration and government indicators provide an orientation to the role of government – local, state, and federal – in the park region.

- *Land use* indicators measure the interactions between people and terrestrial resources such as land, water supply, and vegetation. Land use indicators provide a way to gauge the impact of human activities such as farming, forestry, and urban development upon ecosystems within the park region.

Selecting Specific Indicators

Drawing from the six general categories of socioeconomic indicators described above, a menu of 67 socioeconomic indicators was developed. Each indicator was determined to be readily available and mappable at the county level. From this menu, 17 *core indicators* were selected that would be common to all atlases published in this series. The core indicators provide information useful to all park managers. Incorporating these core indicators throughout the series of atlases enables park managers to make comparisons among parks in different regions of the country. Flight 93 National Memorial staff chose additional indicators from the menu described above. Park staff selected these indicators to customize the atlas so that it would target information relevant to their particular management needs. Figure 1 shows the six general categories and the specific indicators included in this atlas; for each category, indicators are listed in the order they appear in the atlas.

The maps in this atlas are based on county-level data wherever possible. County-level data have several advantages. Good quality data are available at this scale, consistently collected at regular intervals, and comparable across all U.S. counties. Also, counties are stable geographic units for monitoring trends, as little change in county boundaries occurs over time. Finally, as administrative and political units, counties significantly influence environmental change and can be important partners in park management.

Technical Notes

Appendix 1 provides the data sources for the indicators presented in this atlas. Appendix 2 provides technical information on the design of the maps. Appendix 3 includes endnotes and text that provide additional information on the measurement of selected indicators.

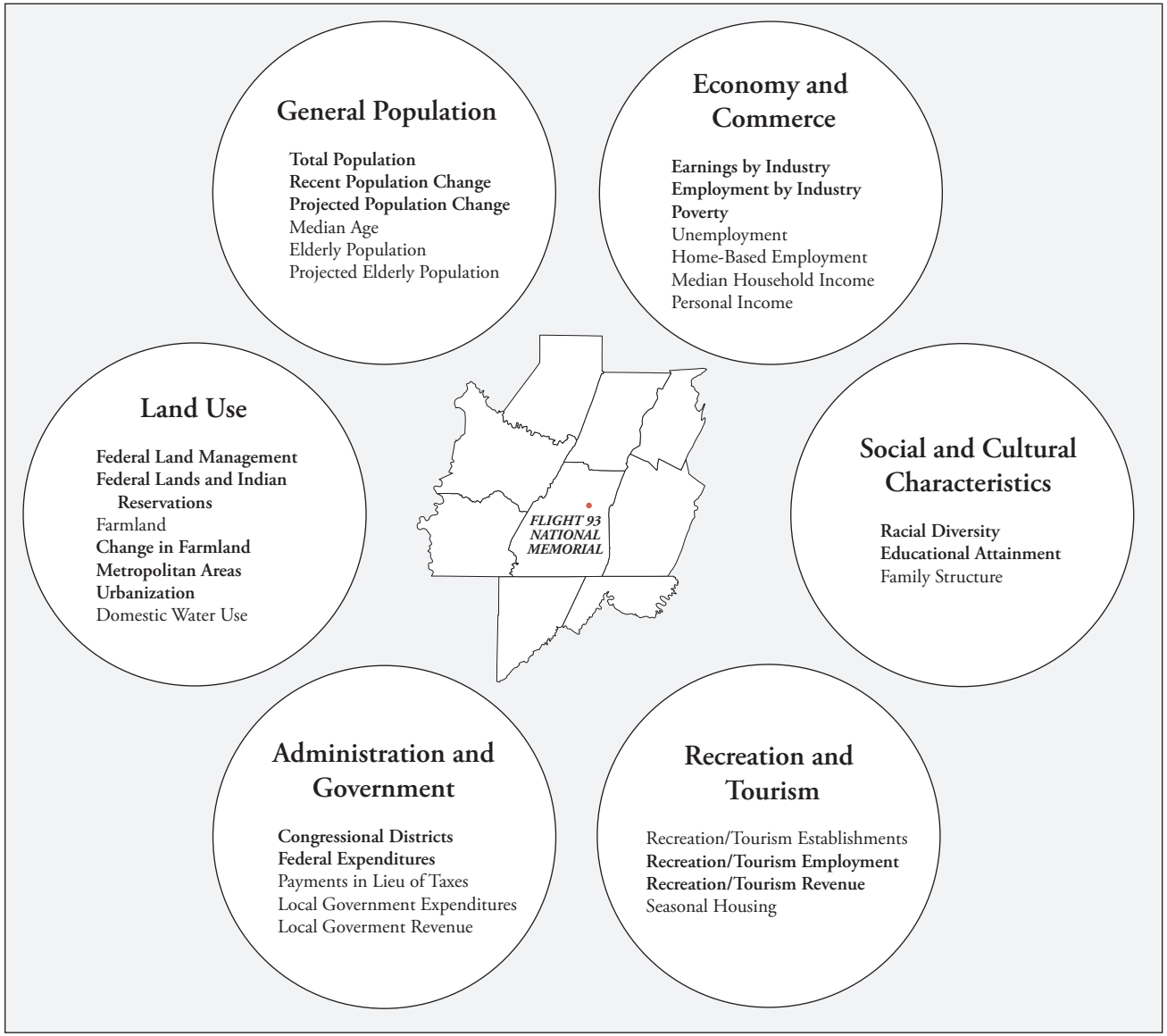


Figure 1. Indicators Included in this Atlas

core indicator additional indicator

The Region

Flight 93 National Memorial is located in the rolling hills of Shanksville, Pennsylvania, which is 80 miles southeast of Pittsburgh, 170 miles northwest of Baltimore, Maryland, and 230 miles west of Philadelphia. The Allegheny Mountains traverse from north to south through the region, with Laurel Hill on the western side. Small communities dot the landscape, with no large metropolitan areas.

Flight 93 National Memorial was established through an Act of Congress as a new national park unit in September 2002 to "commemorate the passengers and crew of Flight 93 who, on September 11, 2001, courageously gave their lives thereby thwarting a planned attack on our Nation's Capital." The National Memorial is in the planning and design phase.

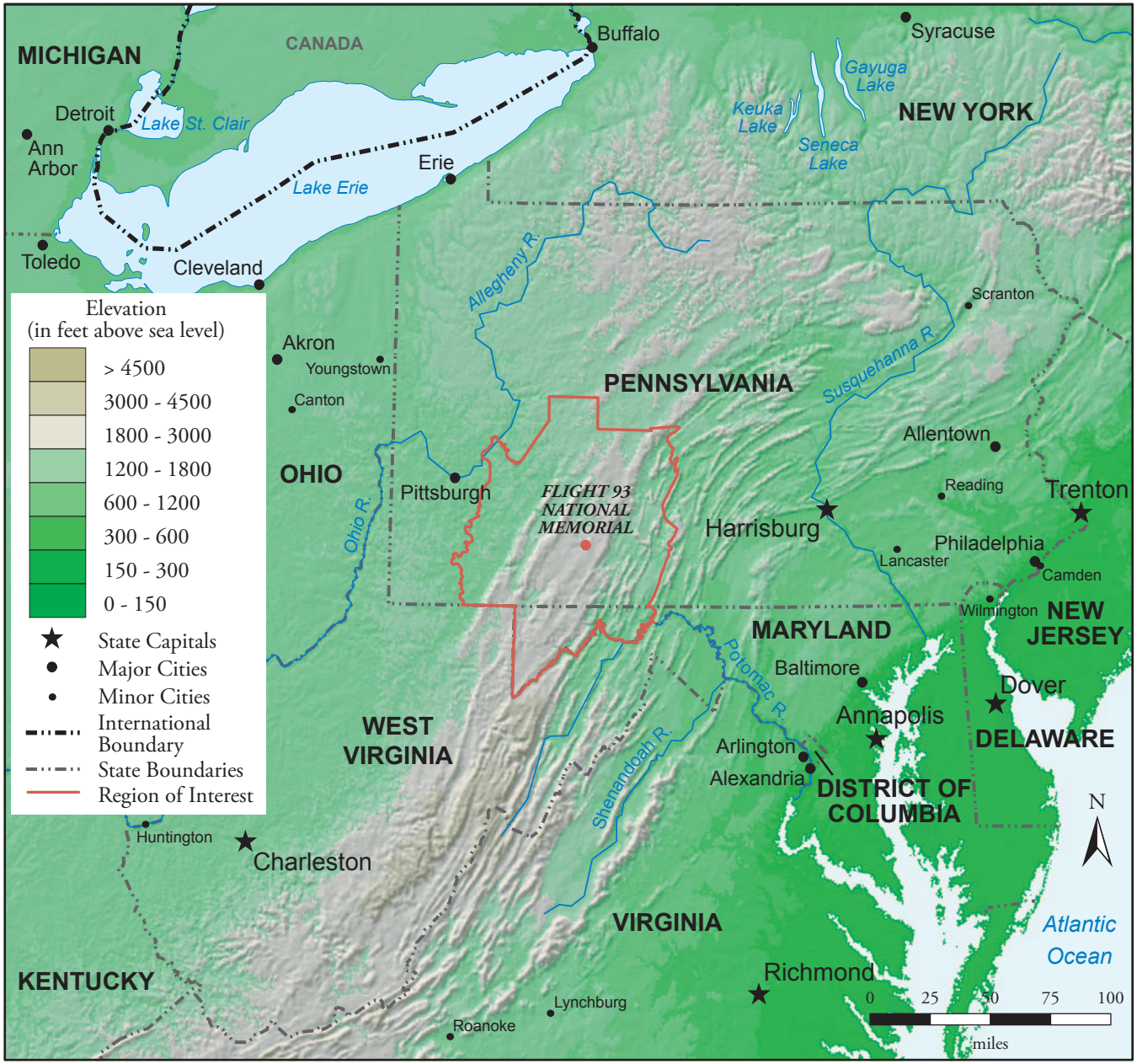
In selecting the boundaries of the region of interest covered by this atlas, Flight 93 National Memorial staff and planners were asked to define the geographic area that may have the most significant impact on the memorial's management. Because the atlas relies on county-level socioeconomic data, the region of interest was restricted to entire counties, rather than parts of counties. The region selected includes seven counties in Pennsylvania and two counties in Maryland. The map on the facing page depicts the region in its larger context.

Coal mining has historically been important to the area. Coal, iron, and steel production once defined much of the economy. Though still important today, these industries do not have the prominence they once did. Agriculture and timbering contribute to the economy in many of the small towns of the region. Dairy production is the single most important agricultural product in each of the Pennsylvania counties. Poultry, livestock, horticulture, and mushrooms are also important. The amount of land in agriculture has been steadily declining over the past two decades. Tourism has become increasingly important as visitors come to enjoy the natural splendors and cultural heritage of the region.

The population in the region is aging. At the county level, the median age is from 36.2 to 41.3 years and the percentage of the population over 65 is 15% or more in each of the counties (the national average is 12.4%).

In addition to Flight 93 National Memorial, the region contains other national park units, including Allegheny Portage Railroad National Historic Site, Johnstown Flood National Memorial, Fort Necessity National Battlefield, and Friendship Hill National Historic Site.

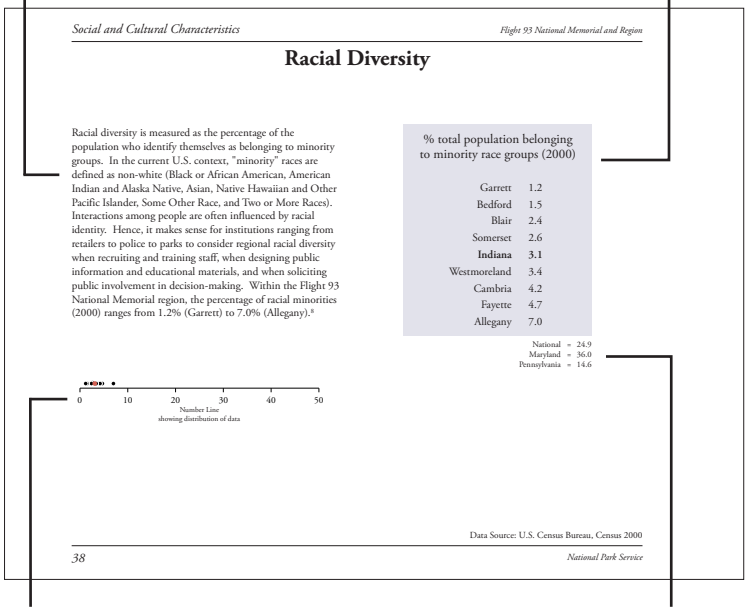
Flight 93 National Memorial and its Region

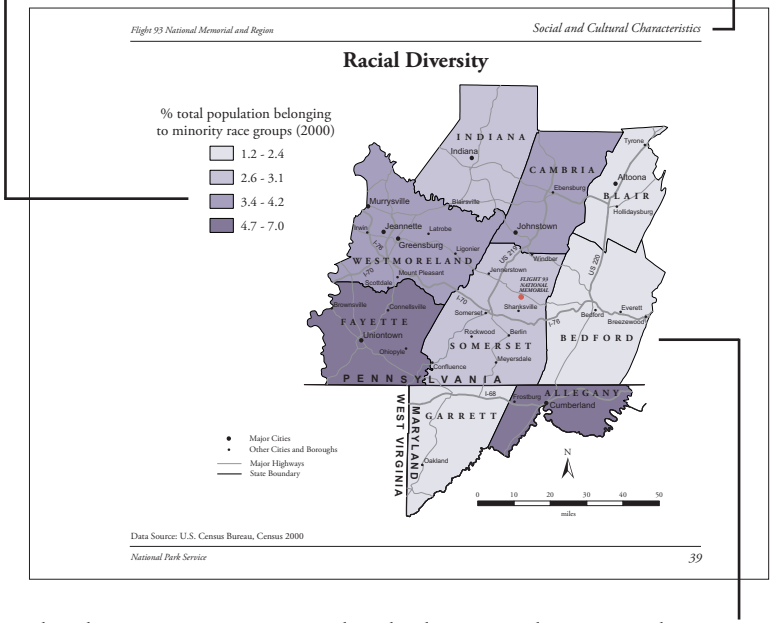


Using the Socioeconomic Indicators and Maps

The socioeconomic indicators for the Flight 93 National Memorial region of interest are presented in a series of maps. The best available county-level data are presented for each indicator. The following information is provided for each indicator:

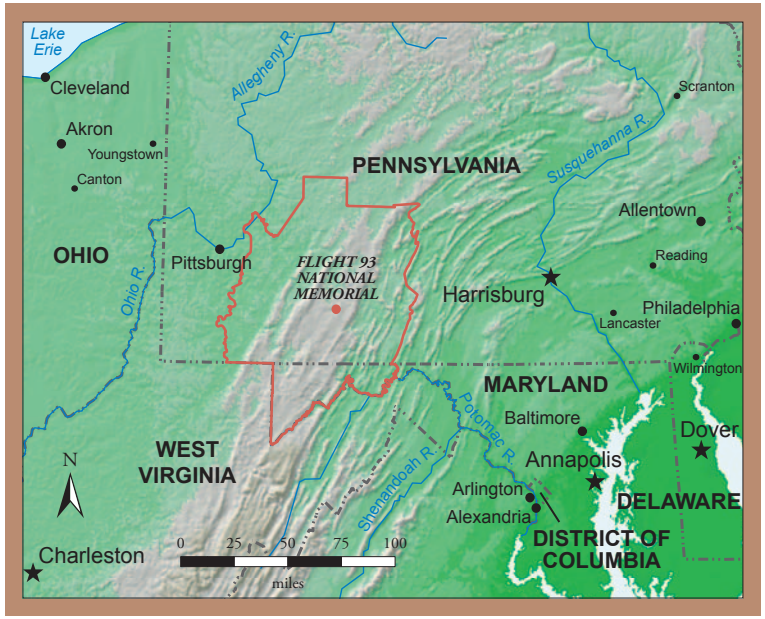
- a brief description of the socioeconomic indicator and an observation about the spatial variation in the data as displayed on the map.
- a table that shows the data and relative rank for each county. The median value is shown in bold type. The table allows the reader to look up and compare specific indicator values for each county.
- a map legend describing how the indicator is measured, the year that the data were gathered, and the range of values for each quartile grouping.
- the name of the general category to which this particular indicator belongs (such as general population or land use). Maps in the same general category share similar sets of color symbols.





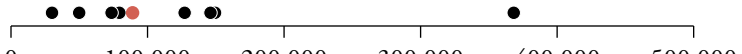
- a number line that shows the distribution of values for the indicator, useful in understanding patterns in the data. The median value is represented by a **red** dot.
- a section displaying national and state data that can be compared with regional county data.
- a map that displays general patterns inherent in the data. For most indicators, counties are grouped into four classes that correspond to four sub-ranges of data values. These groups are called quartiles. The highest-ranked quartile receives the darkest shading. For more information on quartile classification, see Appendix 2, page 83.

The Socioeconomic Indicators



Total Population

Population size is one of the most important influences on the character of human activities in a place and a key influence on resource use. People bring labor, knowledge, and economic activity to a place. At the same time, they generate demand for natural resources, goods, and services ranging from food to recreational opportunities. Within the Flight 93 National Memorial region, county population (2003) ranges from 30,049 (Garrett) to 368,224 (Westmoreland).[1]



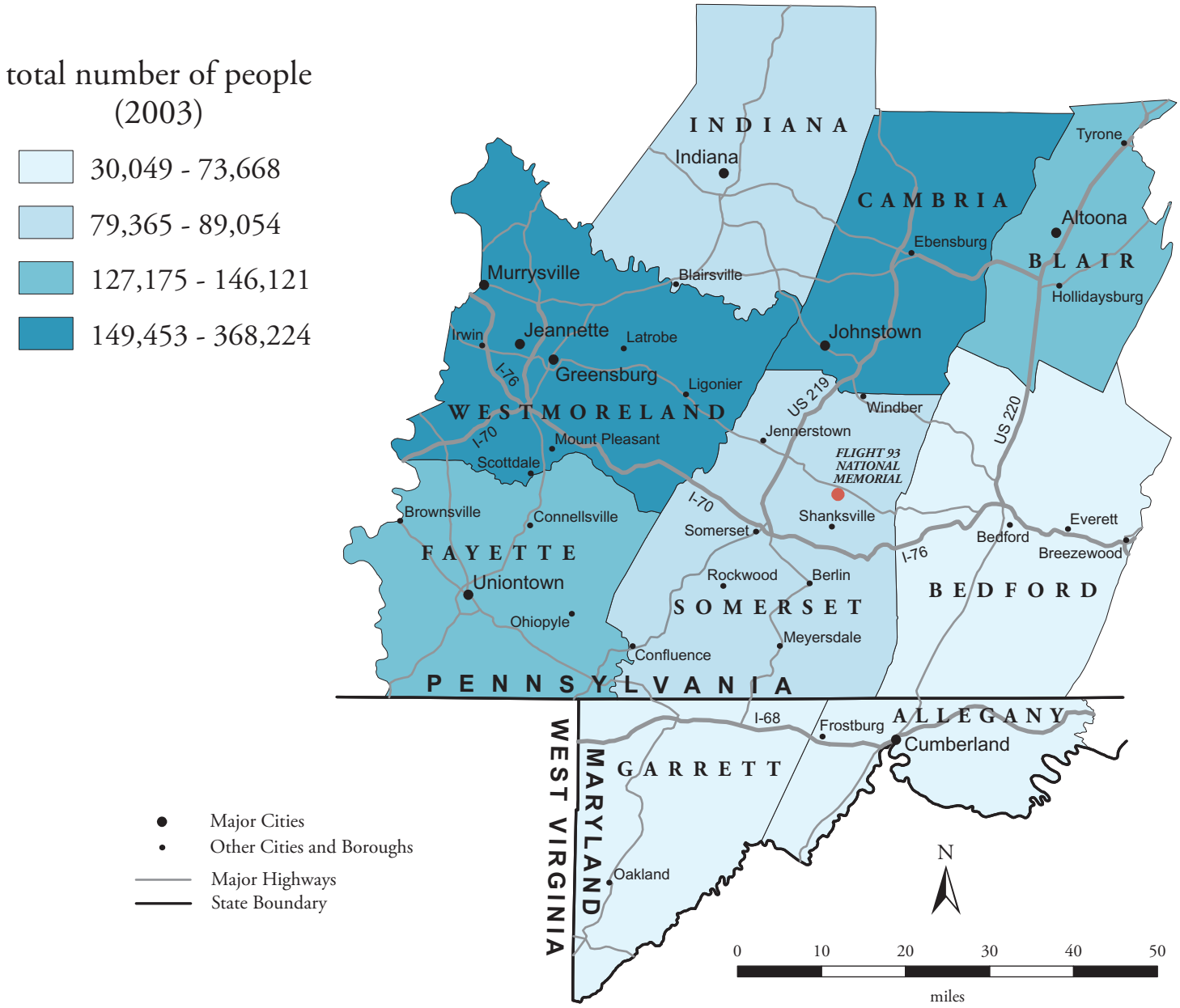
Number Line
showing distribution of data

total number of people (2003)	
Garrett	30,049
Bedford	49,941
Allegany	73,668
Somerset	79,365
Indiana	**89,054**
Blair	127,175
Fayette	146,121
Cambria	149,453
Westmoreland	368,224

National = 290,809,777
Maryland = 5,508,909
Pennsylvania = 12,365,455

Data Source: U.S. Census Bureau, Population Estimates

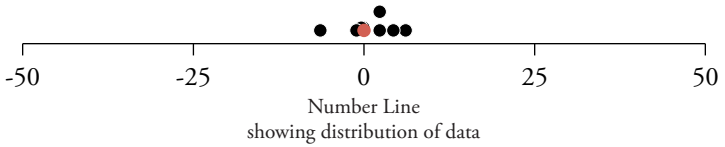
Total Population



Data Source: U.S. Census Bureau, Population Estimates

Recent Population Change

Measuring recent population change provides an indication of the extent to which population change is influencing current local or regional priorities. For example, population growth changes the tax base, adds new voters, and can increase demand for services ranging from schools to transportation to outdoor recreation. Within the Flight 93 National Memorial region, the recent change in county population (1990 - 2000) ranges from a decrease of 6.4% (Cambria) to an increase of 6.1% (Garrett).



Number Line
showing distribution of data

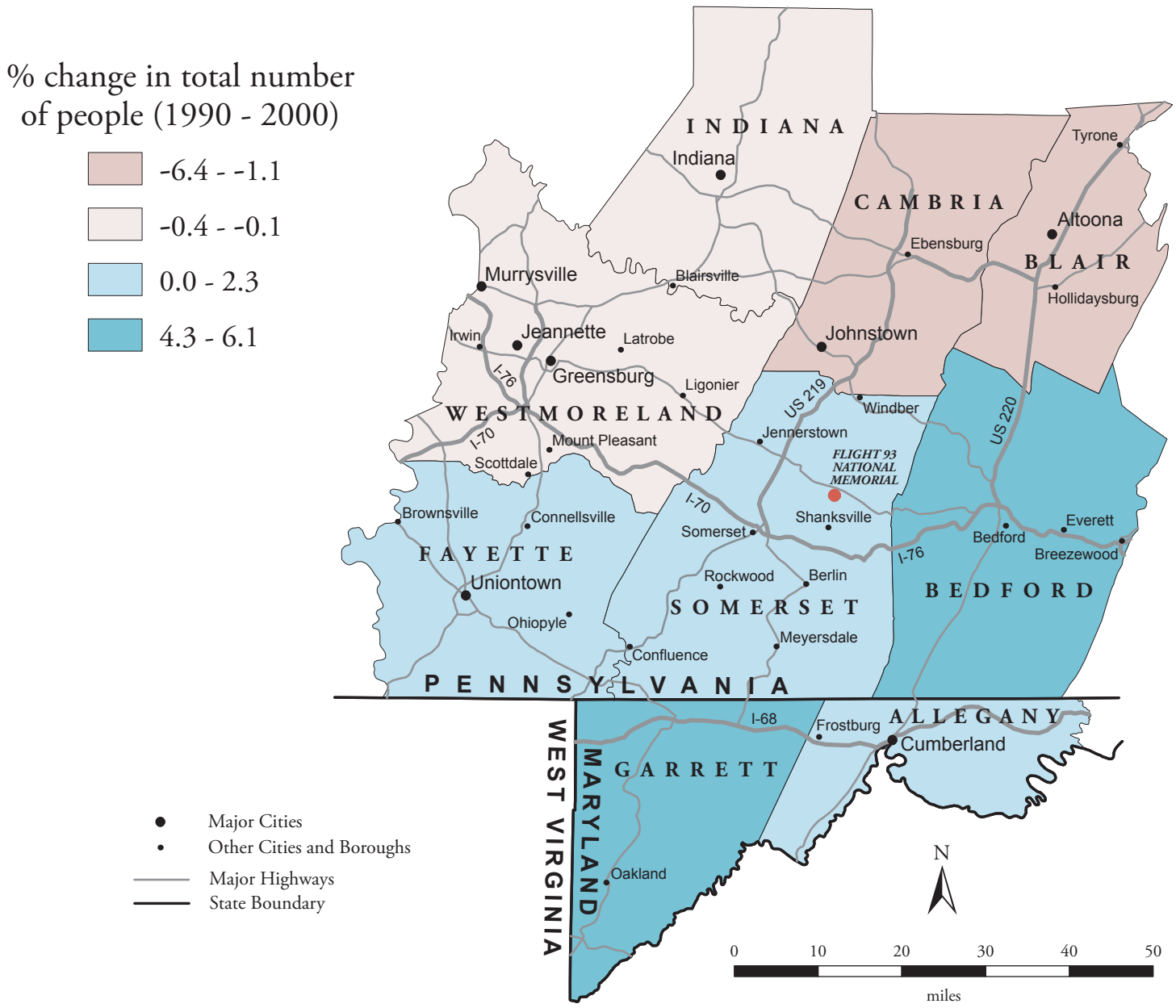
% change in total number of people (1990 - 2000)

Cambria	-6.4
Blair	-1.1
Indiana	-0.4
Westmoreland	-0.1
Allegany	**0.0**
Fayette	2.3
Somerset	2.3
Bedford	4.3
Garrett	6.1

National = 13.2
Maryland = 10.8
Pennsylvania = 3.4

Data Source: U.S. Census Bureau, 1990, 2000

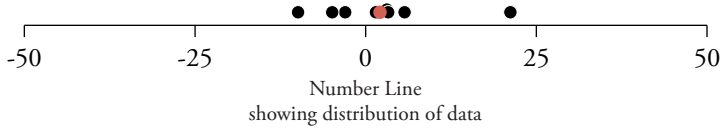
Recent Population Change



Data Source: U.S. Census Bureau 1990, 2000

Projected Population Change

Population projections can be made with some accuracy for short and mid-range time spans. Projections can help planners anticipate potential impacts on park resources. For example, population growth can generate changes in land use and transportation, growth of new and existing communities, and increases in the demand for park experiences. Within the Flight 93 National Memorial region, the projected change in county population by the year 2020 ranges from a decrease of 9.9% (Cambria) to an increase of 21.2% (Garrett).[2]



Number Line
showing distribution of data

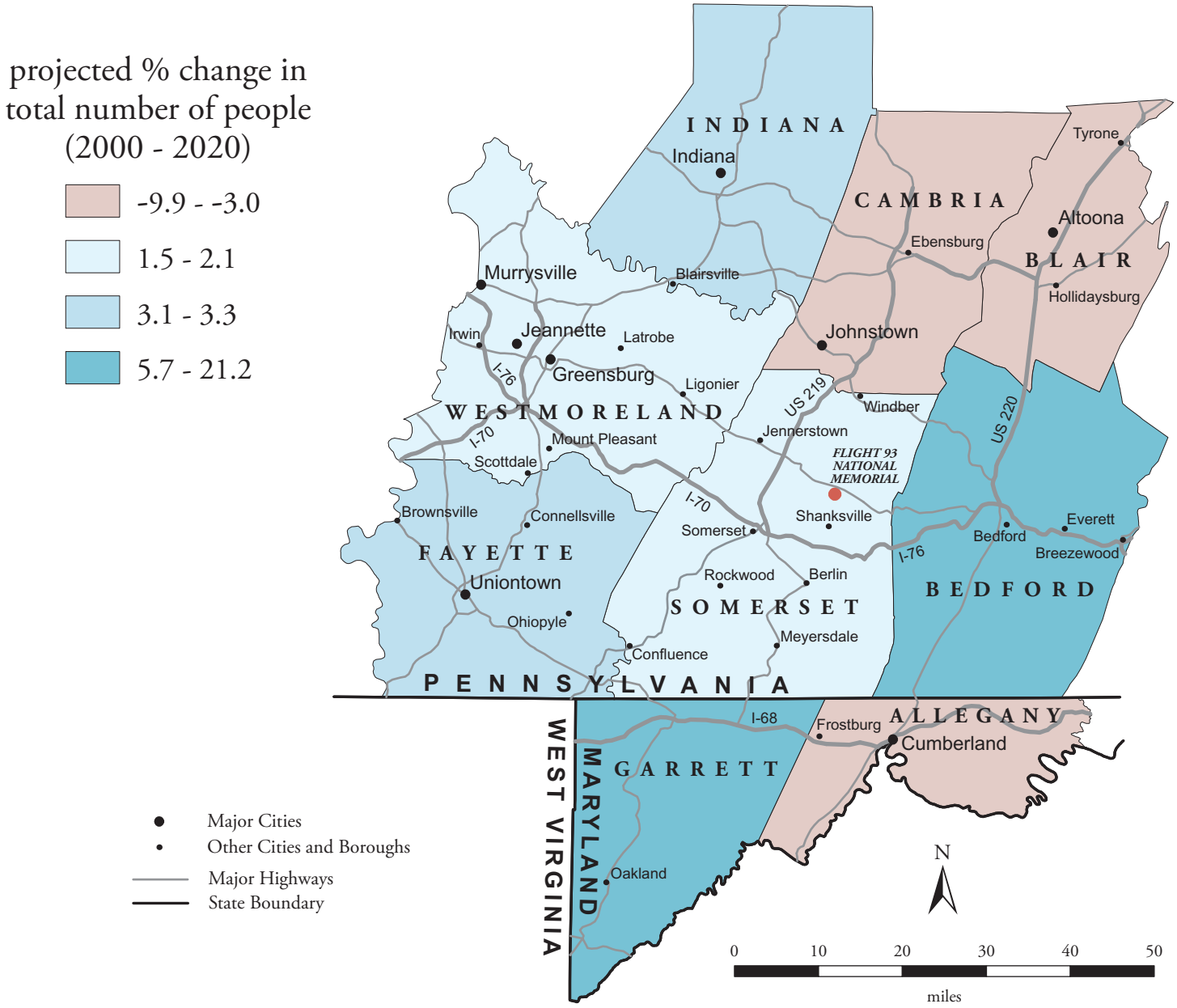
projected % change in total number of people (2000 - 2020)

Cambria	-9.9
Allegany	-4.9
Blair	-3.0
Somerset	1.5
Westmoreland	**2.1**
Indiana	3.1
Fayette	3.3
Bedford	5.7
Garrett	21.2

National = 21.1
Maryland = 21.8
Pennsylvania = 7.1

Data Source: Woods & Poole, Inc. 2002

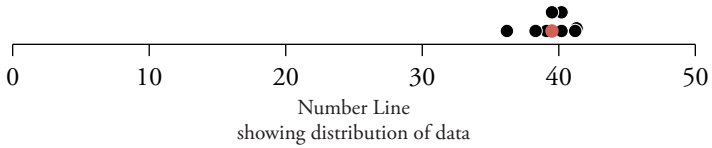
Projected Population Change



Data Source: Woods & Poole, Inc. 2002

Median Age

Median age expresses the age of a "typical" county resident for whom half the population is older and half is younger. Just as age is an important influence on individual behavior, the median age of a county's population can influence its character in many ways. For example, a relatively young county population might place a higher priority on schools, while a relatively old county population might place a higher priority on health care. Within the Flight 93 National Memorial region, the median age of total population (2000) ranges from 36.2 (Indiana) to 41.3 (Westmoreland).



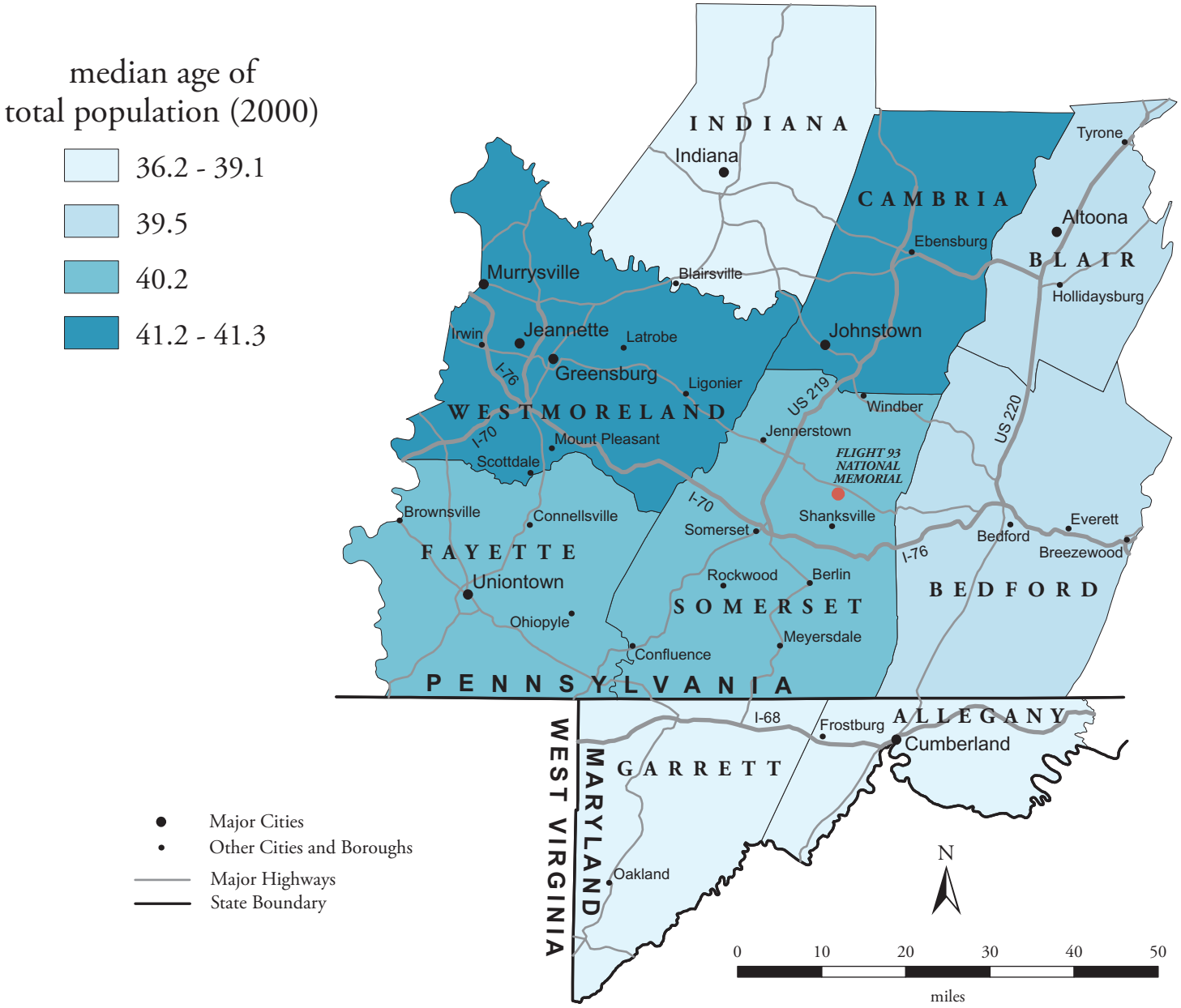
Number Line
showing distribution of data

median age of total population (2000)	
Indiana	36.2
Garrett	38.3
Allegany	39.1
Bedford	**39.5**
Blair	**39.5**
Fayette	40.2
Somerset	40.2
Cambria	41.2
Westmoreland	41.3

National = 35.3
Maryland = 36.0
Pennsylvania = 38.0

Data Source: U.S. Census Bureau, Census 2000

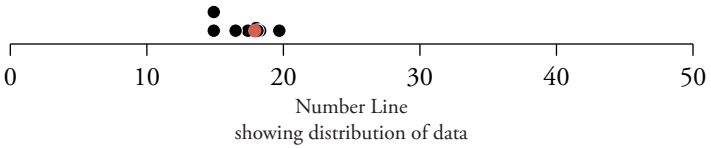
Median Age



Data Source: U.S. Census Bureau, Census 2000

Elderly Population

The size of a county's elderly population is measured as the percentage of its residents who are 65 years old and over. In counties with a higher percentage of older people, there may be a higher demand for health care and recreational activities more suited to the elderly. There may also be a net inflow of dollars into the local economy in the form of medical, retirement, and disability payments. Aspects of civic life ranging from volunteerism to political participation may also be influenced by the size of the elderly population. The needs and interests of the regional elderly population can influence park management in many ways, including design of facilities, development of interpretive programs, recruitment of volunteers, and visitor use schedules and preferences. Within the Flight 93 National Memorial region, the percentage of county residents 65 years old and over (2000) ranges from 14.9% (Garrett and Indiana) to 19.7% (Cambria).



Number Line
showing distribution of data

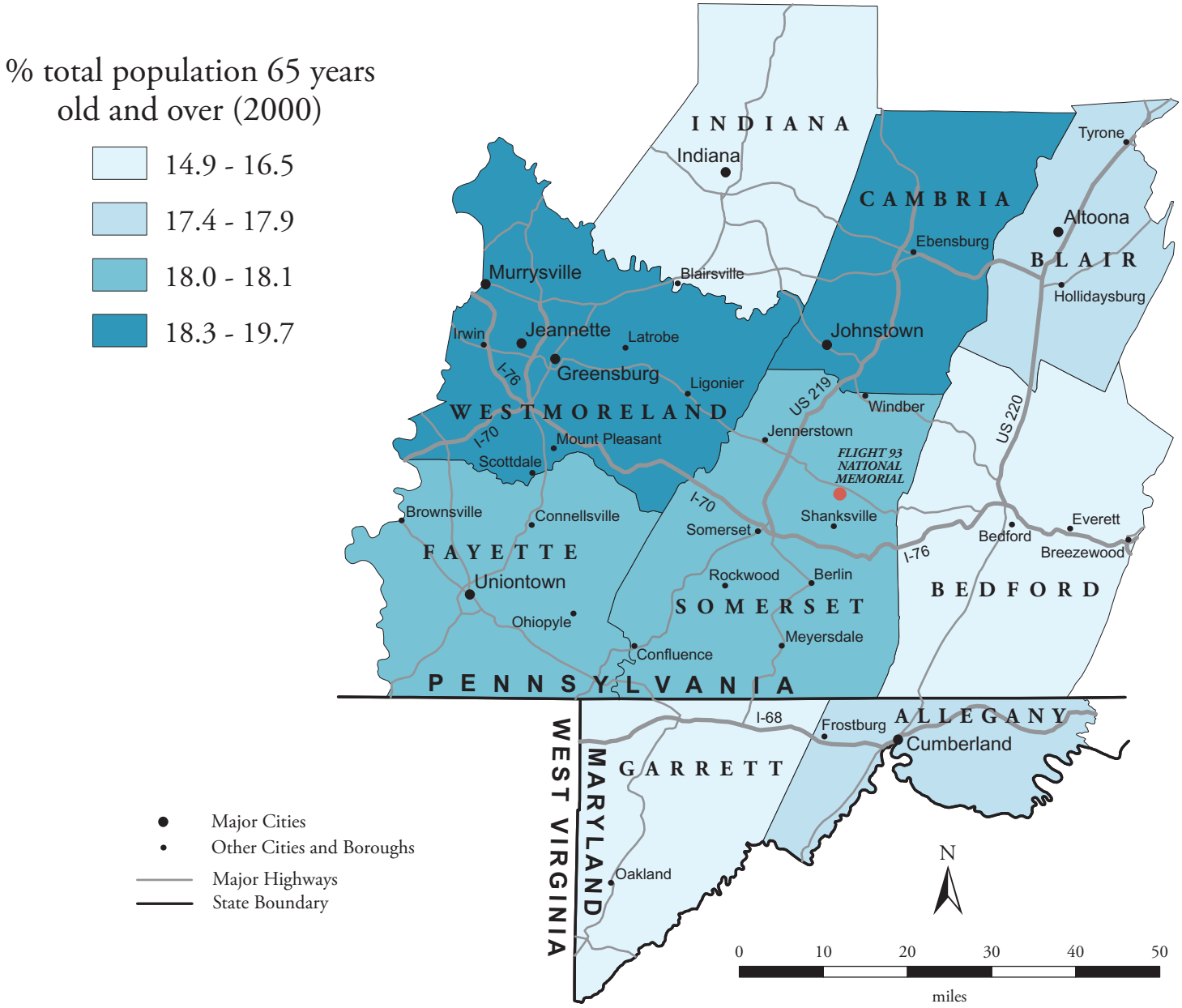
% total population 65 years old and over (2000)

Garrett	14.9
Indiana	14.9
Bedford	16.5
Blair	17.4
Allegany	**17.9**
Somerset	18.0
Fayette	18.1
Westmoreland	18.3
Cambria	19.7

National = 12.4
Maryland = 11.3
Pennsylvania = 15.6

Data Source: U.S. Census Bureau, Census 2000

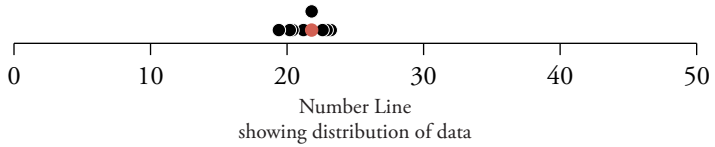
Elderly Population



Data Source: U.S. Census Bureau, Census 2000

Projected Elderly Population

Changes in the percent of the population who are 65 years old and over are projected from recent population data. A variety of factors can lead to increases in the population of elderly residents, including increased longevity due to changes in health care, out-migration by younger people for employment or education, or in-migration by retirees. Planning for increases in an elderly population may include changes in facility design and an expansion of programs that suit the needs and interests of elderly visitors and volunteers. Within the Flight 93 National Memorial region, the projected percentage of county residents 65 years old and over (2020) ranges from 19.4% (Allegany) to 23.2% (Westmoreland).



Number Line
showing distribution of data

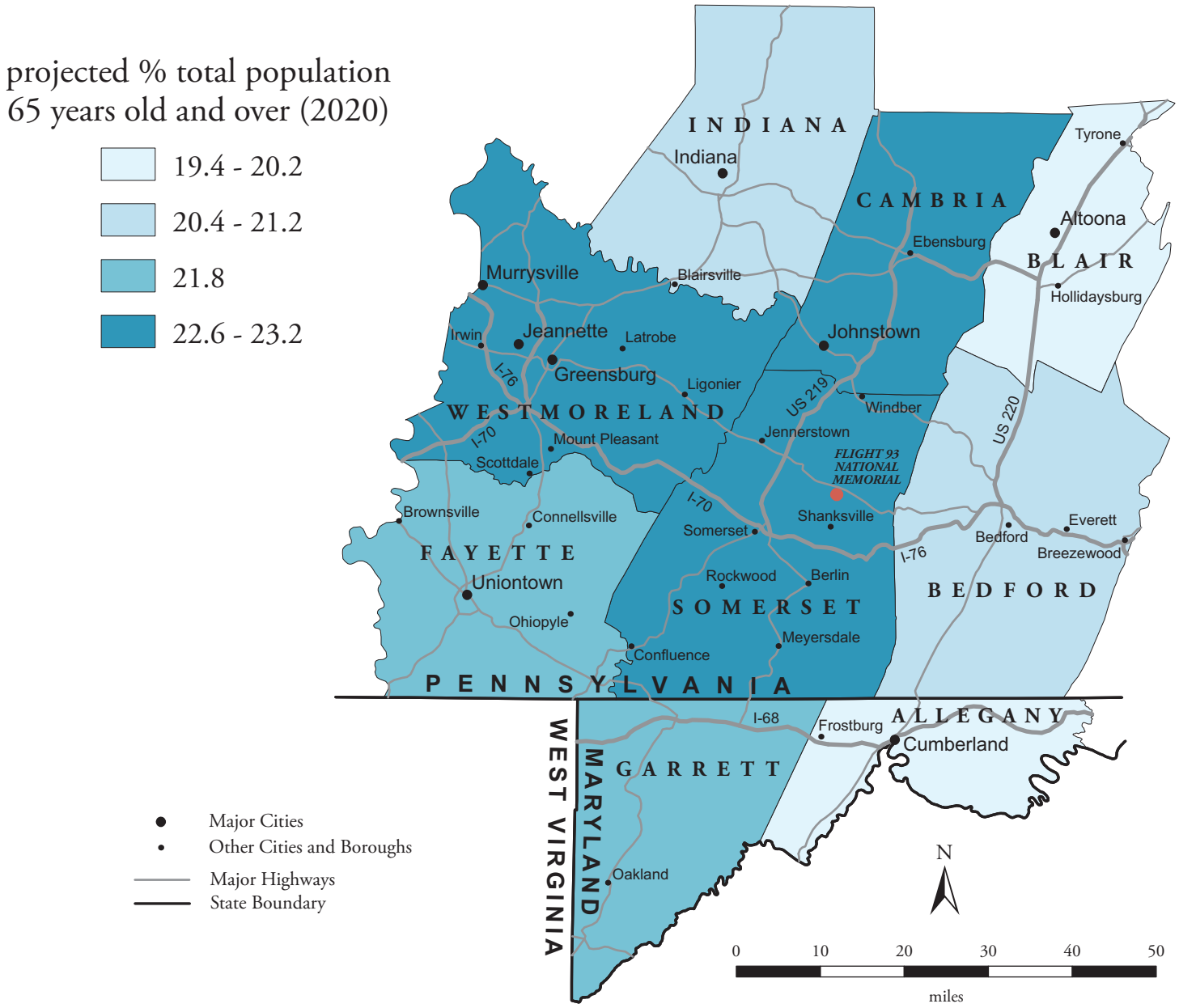
projected % total population 65 years old and over (2020)

Allegany	19.4
Blair	20.2
Bedford	20.4
Indiana	21.2
Garrett	**21.8**
Fayette	**21.8**
Somerset	22.6
Cambria	22.9
Westmoreland	23.2

National = 16.0
Maryland = 16.1
Pennsylvania = 18.9

Data Source: Woods & Poole, Inc. 2002

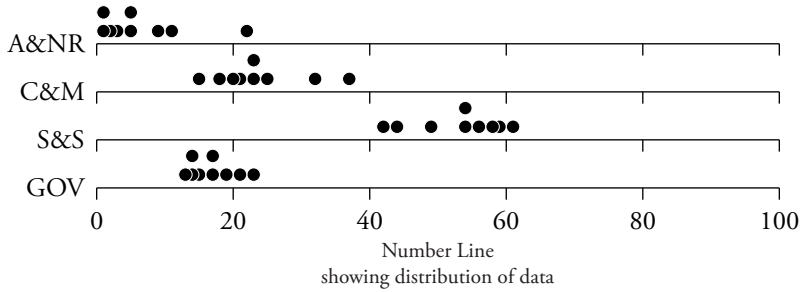
Projected Elderly Population



Data Source: Woods & Poole, Inc. 2002

Earnings by Industry

Earnings by industry are indicative of the overall size of a local economy as well as the relative importance of each major industrial sector within that economy. The diversity of economic activities in the region presents an array of challenges to park management. For example, relatively mobile industries such as light manufacturing or financial services may be concerned with land costs and tax rates, whereas natural resource dependent industries such as farming or mining may be concerned with land use regulations and other environmental policies. Within the Flight 93 National Memorial region, the leading sector of earnings (1999) in all nine counties is Sales and Services.[3]



Number Line
showing distribution of data

% total earnings
by industrial category (1999)

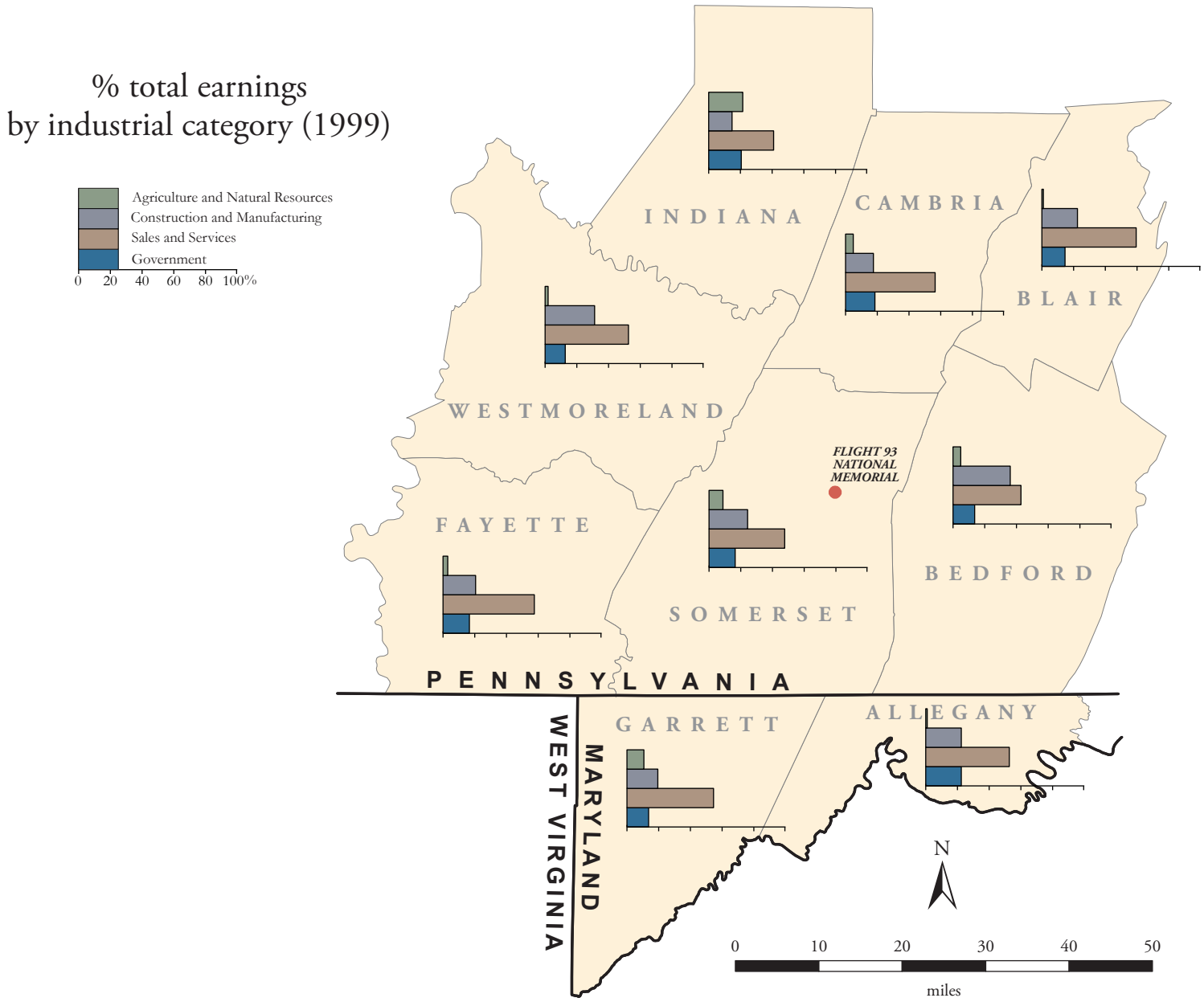
	A&NR	C&M	S&S	GOV
Allegany	1	23	54	23
Garrett	11	20	56	14
Bedford	5	37	44	14
Blair	1	23	61	15
Cambria	5	18	58	19
Fayette	3	21	59	17
Indiana	22	15	42	21
Somerset	9	25	49	17
Westmoreland	2	32	54	13
National	2	22	60	16
Maryland	1	15	61	23
Pennsylvania	2	26	60	13

A&NR = Agriculture and Natural Resources
C&M = Construction and Manufacturing
S&S = Sales and Services
GOV = Government

Percentages may not add to one hundred due to rounding.

Data Source: Woods & Poole, Inc. 2002

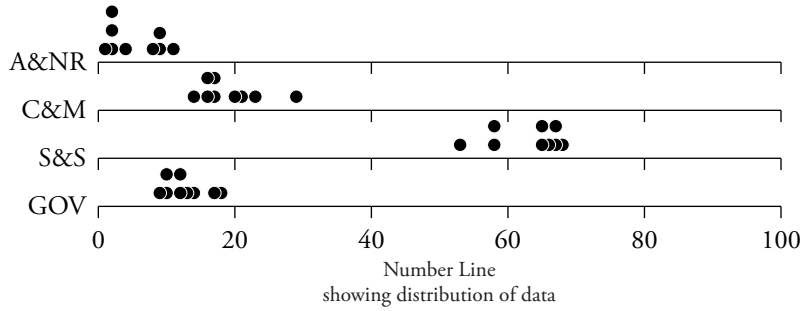
Earnings by Industry



Data Source: Woods & Poole, Inc. 2002

Employment by Industry

One indicator of the way a particular county's job market is structured is the percentage of workers employed in each of the four major industrial sectors. This employment distribution is indicative of the kinds of skills, knowledge, and concerns that are most prevalent among workers. Occupational patterns can influence people's priorities and actions with regard to parks and resource protection. For example, construction workers might welcome the prospect of rapid growth, whereas government workers such as teachers and police might worry that rapid growth would stress existing government resources. Within the Flight 93 National Memorial region, the leading sector of employment (1999) in all nine counties is Sales and Services.[4]



Number Line
showing distribution of data

% employment
by industrial category (1999)

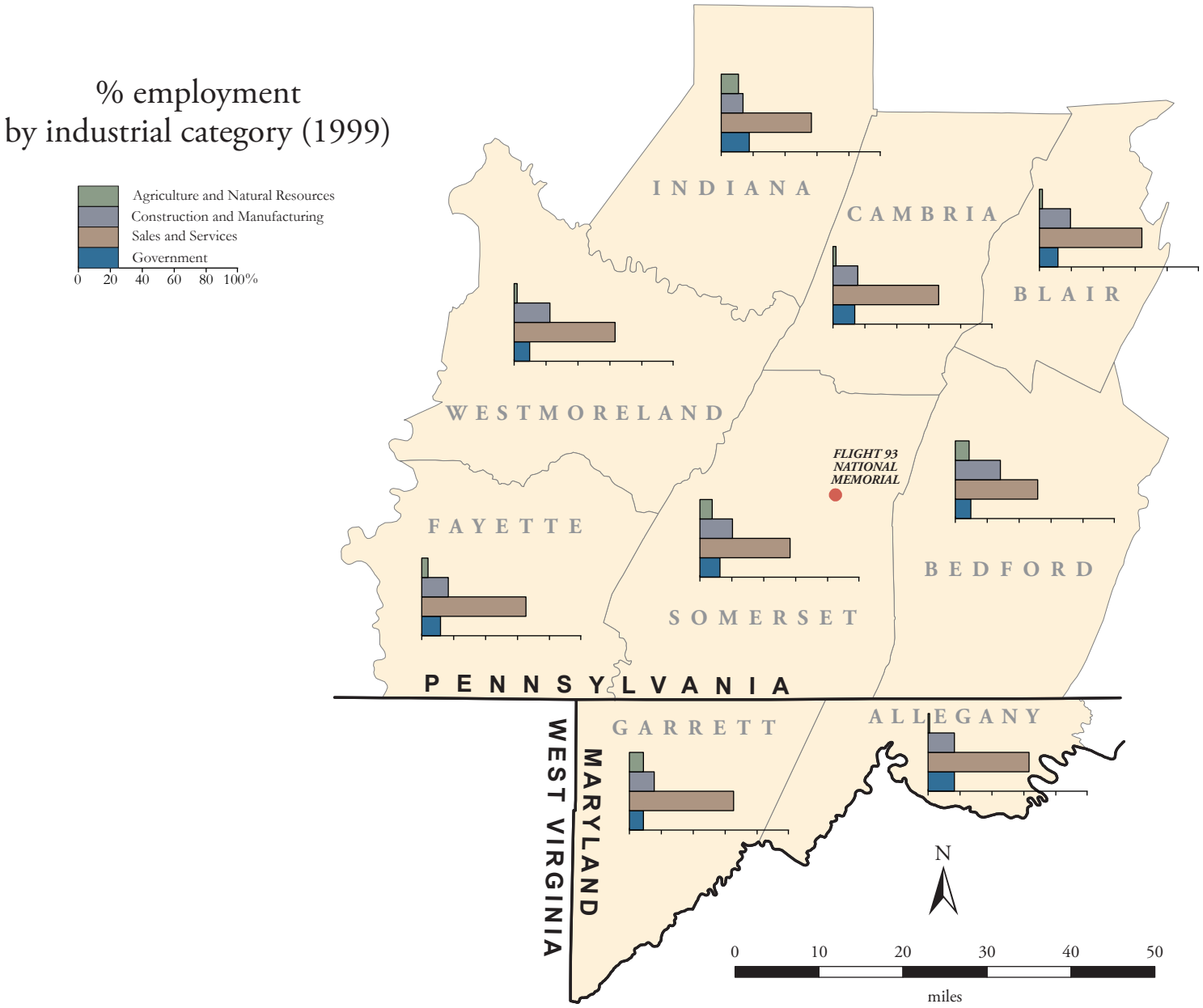
	A&NR	C&M	S&S	GOV
Allegany	1	17	65	17
Garrett	9	16	67	9
Bedford	9	29	53	10
Blair	2	20	66	12
Cambria	2	16	68	14
Fayette	4	17	67	12
Indiana	11	14	58	18
Somerset	8	21	58	13
Westmoreland	2	23	65	10
National	4	17	65	14
Maryland	2	13	69	17
Pennsylvania	2	19	67	11

A&NR = Agriculture and Natural Resources
C&M = Construction and Manufacturing
S&S = Sales and Services
GOV = Government

Percentages may not add to one hundred due to rounding.

Data Source: Woods & Poole, Inc. 2002

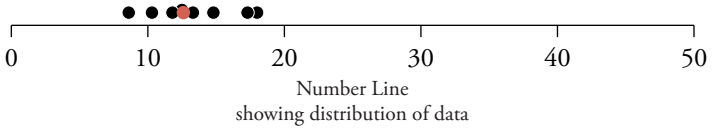
Employment by Industry



Data Source: Woods & Poole, Inc. 2002

Poverty

Poverty is officially defined as the condition of living in a household with income below the federally-determined poverty threshold ($17,029 in 1999 for a family of four people). The extent of poverty can be measured as the percentage of the total population living below that threshold. Those living in poverty can face such difficulties as finding adequate housing and health care, getting enough food, and reaching job sites and government services, including parks. The level of poverty in the park region necessarily becomes significant to park management decisions and priorities. Within the Flight 93 National Memorial region, the incidence of poverty (1999) ranges from 8.6% (Westmoreland) to 18.0% (Fayette).[5]



Number Line
showing distribution of data

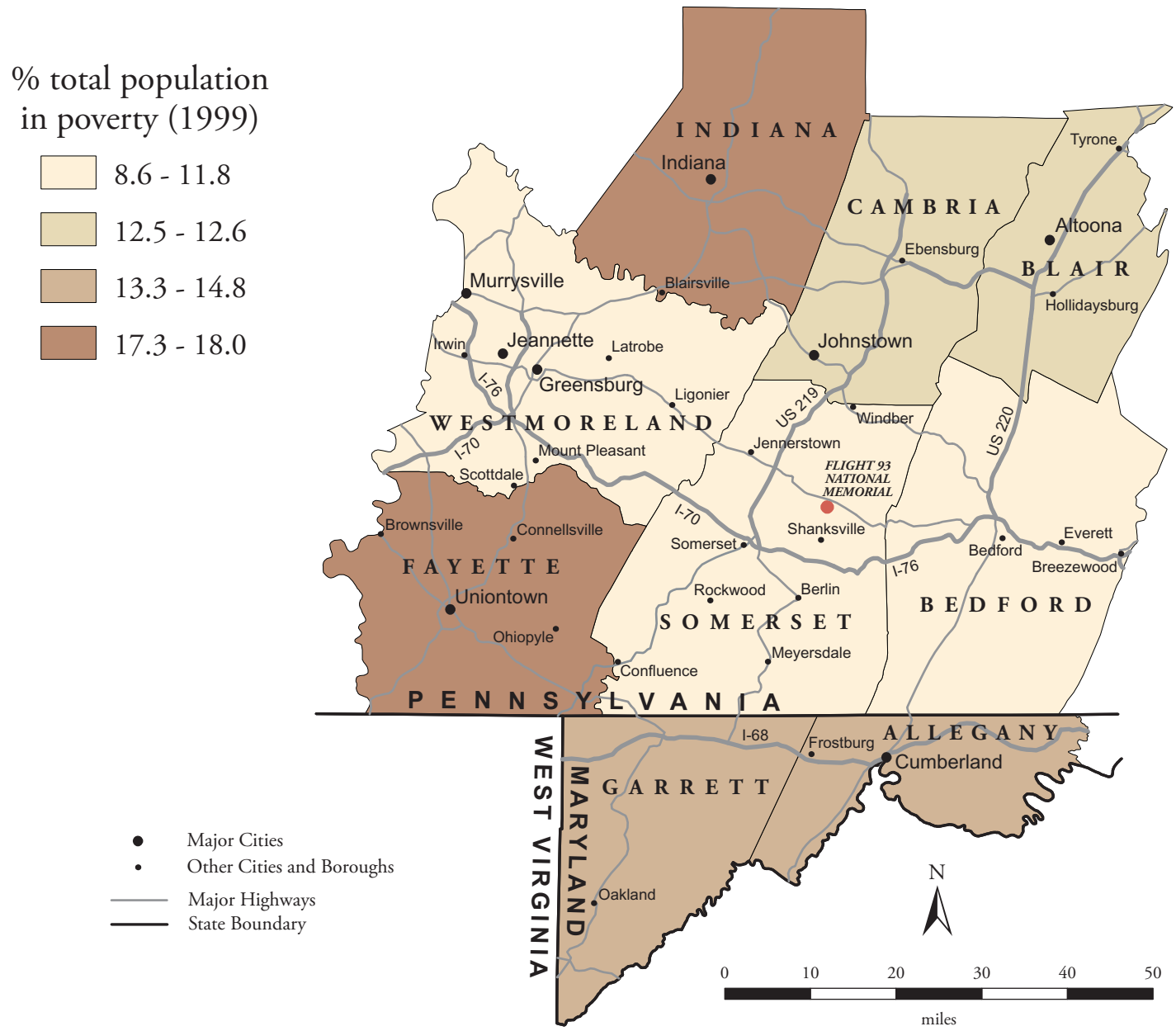
% total population in poverty (1999)

Westmoreland	8.6
Bedford	10.3
Somerset	11.8
Cambria	12.5
Blair	**12.6**
Garrett	13.3
Allegany	14.8
Indiana	17.3
Fayette	18.0

National = 12.4
Maryland = 8.5
Pennsylvania = 11.0

Data Source: U.S. Census Bureau, Census 2000

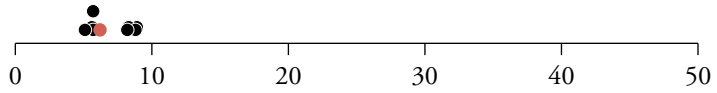
Poverty



Data Source: U.S. Census Bureau, Census 2000

Unemployment

The unemployment rate is one measure of participation in the civilian labor force. Jobs are of critical importance to individuals, families, and communities. Low unemployment rates indicate that the supply of jobs is sufficient to meet demand. Higher unemployment rates suggest that local economies may be too weak to support demand, or that the skills required for available jobs do not match those of the labor force, and local economies may be undergoing some transformation. A situation of high unemployment may generate stress within households and communities. Local and regional political decisions, including those that impact park management goals, often place priority on protecting existing jobs or attracting new employment opportunities. Within the Flight 93 National Memorial region, unemployment (1999) ranges from 5.1% (Westmoreland) to 8.9% (Allegany).[6]



Number Line
showing distribution of data

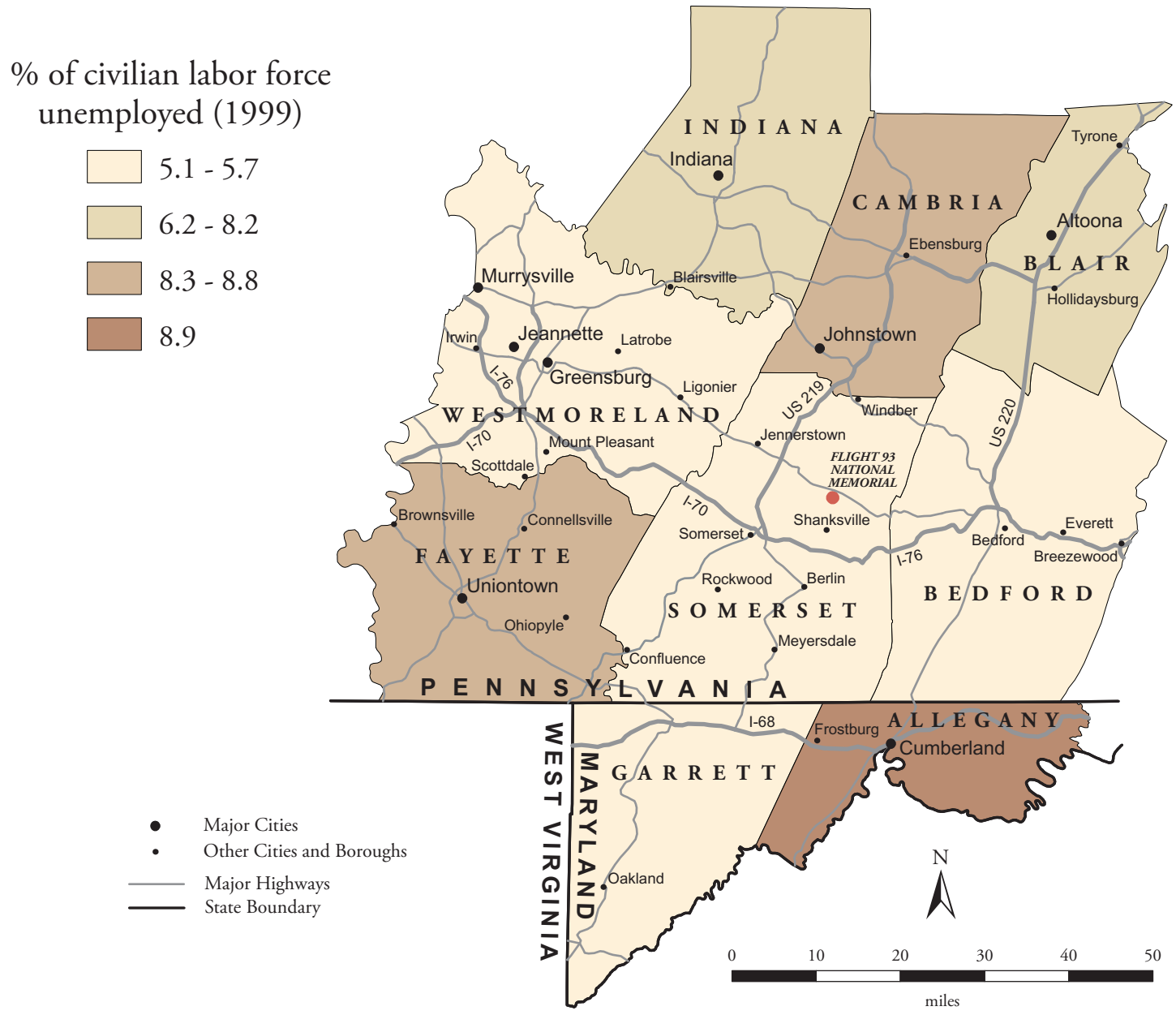
% of civilian labor force unemployed (1999)

Westmoreland	5.1
Garrett	5.6
Bedford	5.7
Somerset	5.7
Blair	**6.2**
Indiana	8.2
Fayette	8.3
Cambria	8.8
Allegany	8.9

National = 5.8
Maryland = 4.7
Pennsylvania = 5.7

Data Source: U.S. Census Bureau, Census 2000

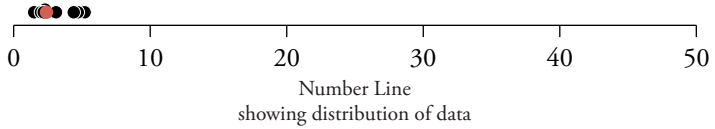
Unemployment



Data Source: U.S. Census Bureau, Census 2000

Home-Based Employment

Since the mid-1980s the Census Bureau has been keeping track of home-based employment. The increased use of the internet and other telecommunication technologies is one factor that has facilitated work at home, not only for owners of small businesses and other self-employed individuals but also for employees from larger businesses who may work from remote locations. Within the Flight 93 National Memorial region, the percentage of the employed labor force working at home (2000) ranges from 1.5% (Allegany) to 5.2% (Garrett).



Number Line
showing distribution of data

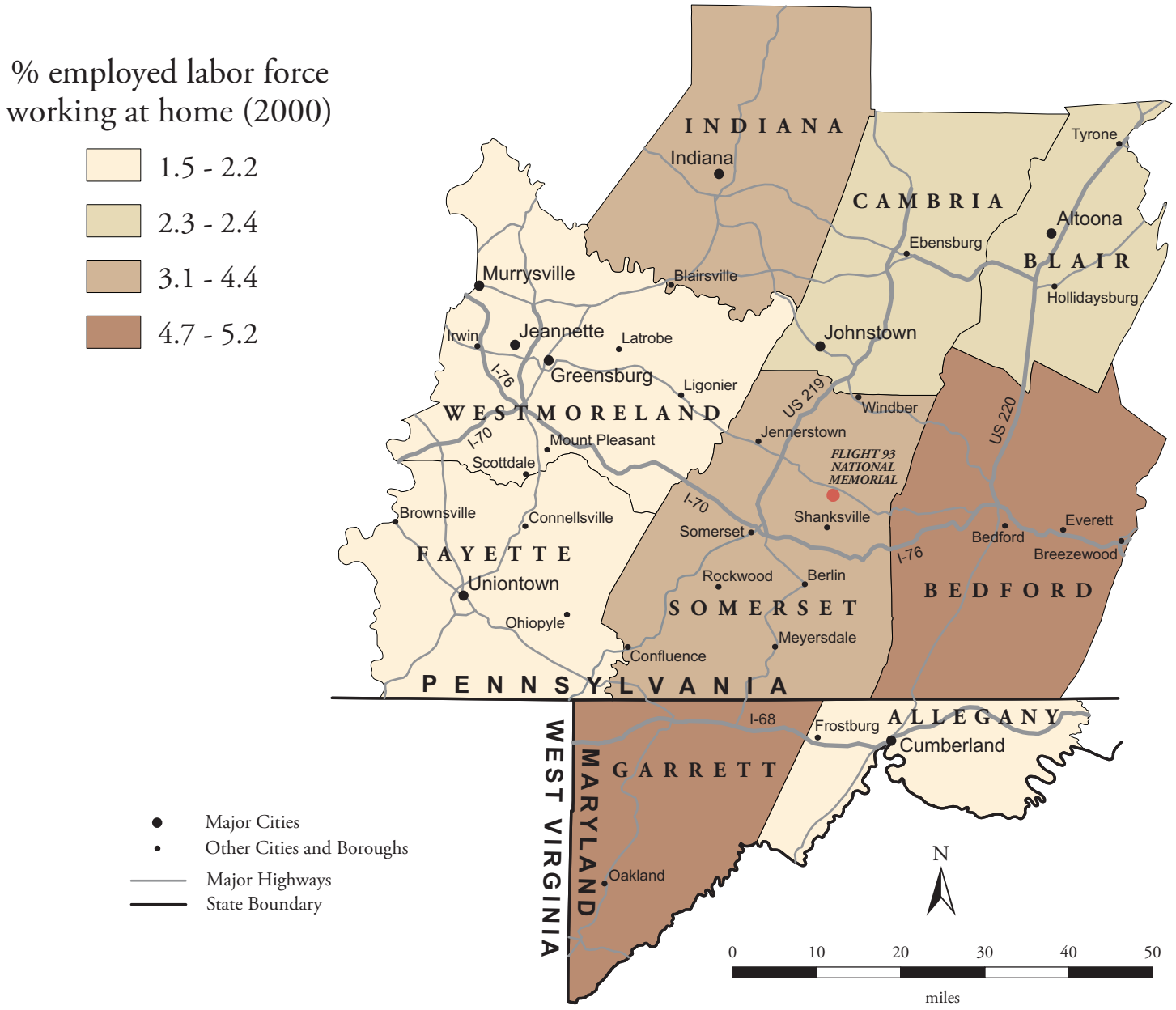
% employed labor force working at home (2000)

Allegany	1.5
Fayette	2.0
Westmoreland	2.2
Cambria	2.3
Blair	**2.4**
Indiana	3.1
Somerset	4.4
Bedford	4.7
Garrett	5.2

National = 3.3
Maryland = 3.3
Pennsylvania = 3.0

Data Source: U.S. Census Bureau, Census 2000

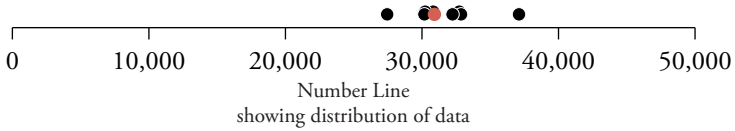
Home-Based Employment



Data Source: U.S. Census Bureau, Census 2000

Median Household Income

Median household income is indicative of the general level of income among households in a county. The median value is the central value in a ranked dataset, with an equal number of observations both above and below the median. General income measures can provide insights into the opportunities and time available for recreation in the park region. Within the Flight 93 National Memorial region, median household income (1999) ranges from $27,451 (Fayette) to $37,106 (Westmoreland).



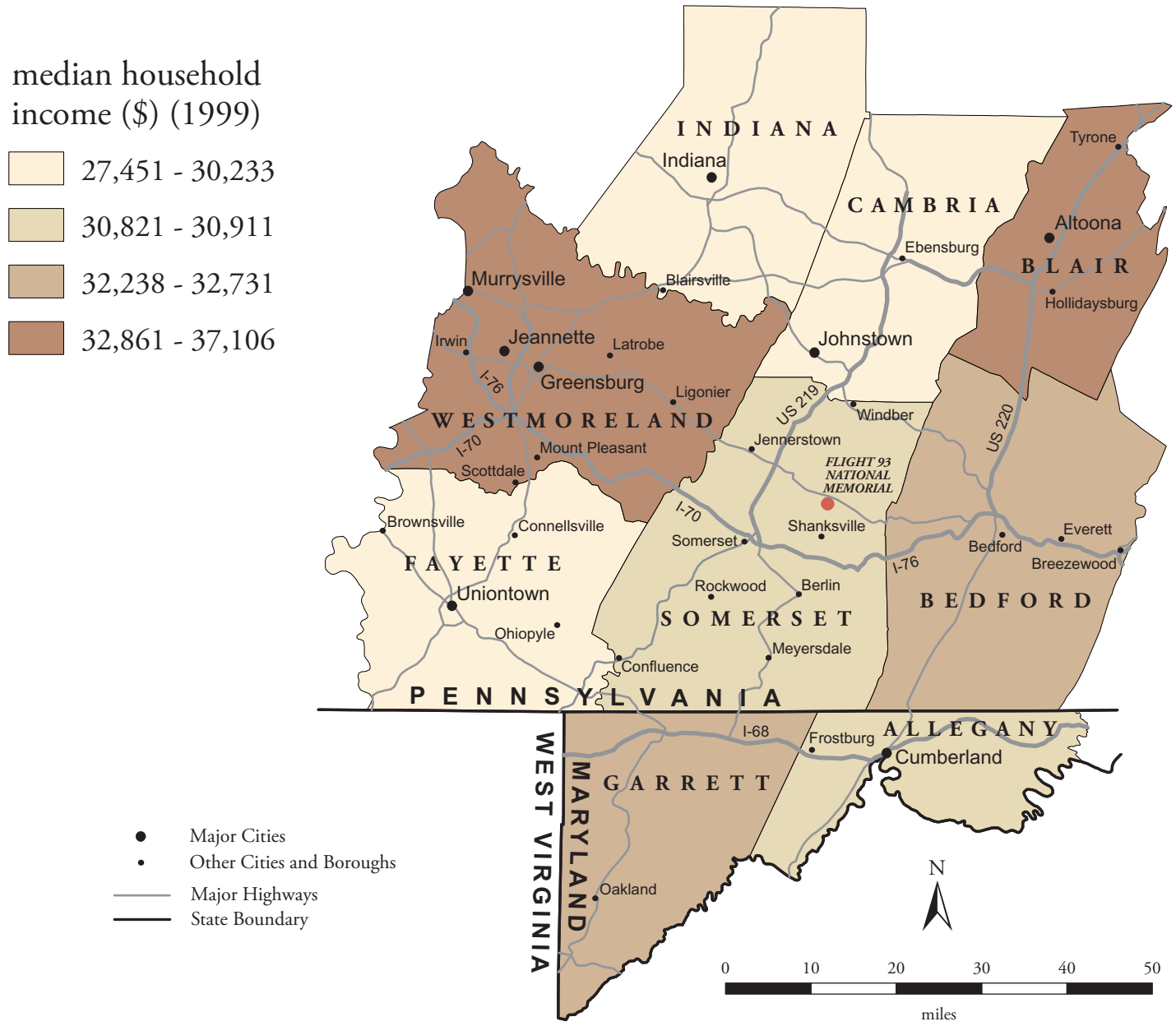
Number Line
showing distribution of data

median household income ($) (1999)	
Fayette	27,451
Cambria	30,179
Indiana	30,233
Allegany	30,821
Somerset	**30,911**
Garrett	32,238
Bedford	32,731
Blair	32,861
Westmoreland	37,106

National = 41,994
Maryland = 52,868
Pennsylvania = 40,106

Data Source: U.S. Census Bureau, Census 2000

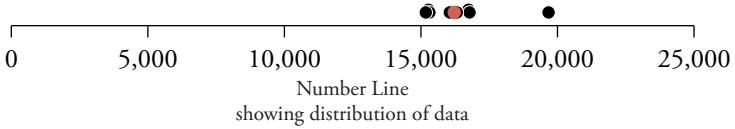
Median Household Income



Data Source: U.S. Census Bureau, Census 2000

Personal Income

Personal income provides an indication of the relative affluence of counties in the region. Variations in average income per person across the region can influence the manner in which residents use tools, such as grassroots organizing, fundraising, legal action, or election cycles, to make local concerns a government priority. Park management and resource protection often require that local relationships be established that transcend differences in wealth and affluence. Within the Flight 93 National Memorial region, average income per person (1999) ranges from $15,178 (Somerset) to $19,674 (Westmoreland).[7]



Number Line
showing distribution of data

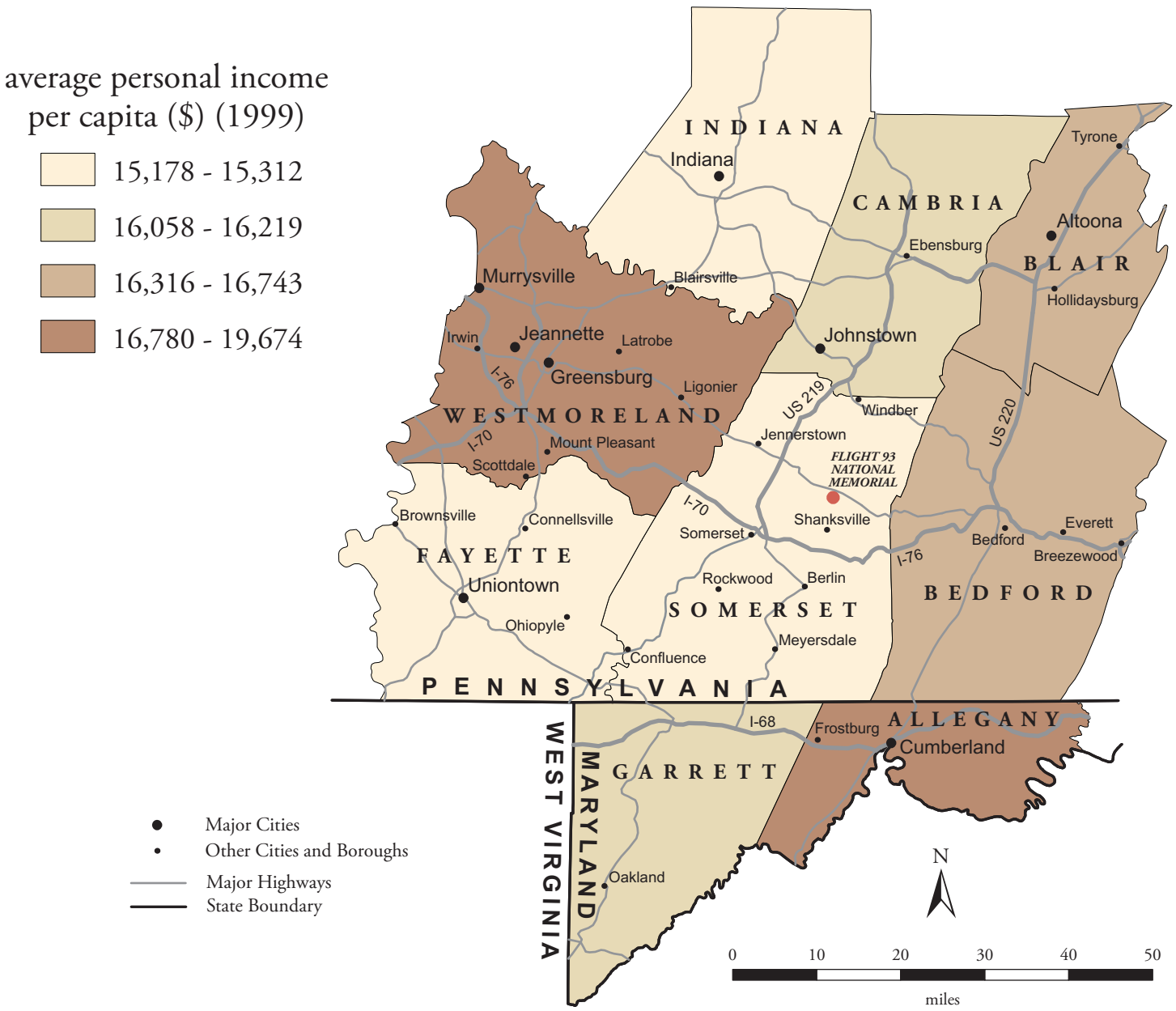
average personal income per capita ($) (1999)

Somerset	15,178
Fayette	15,274
Indiana	15,312
Cambria	16,058
Garrett	**16,219**
Bedford	16,316
Blair	16,743
Allegany	16,780
Westmoreland	19,674

National = 21,587
Maryland = 25,614
Pennsylvania = 20,880

Data Source: U.S. Census Bureau, Census 2000

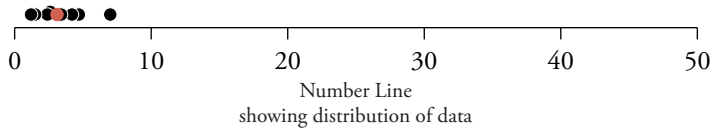
Personal Income



Data Source: U.S. Census Bureau, Census 2000

Racial Diversity

Racial diversity is measured as the percentage of the population belonging to minority groups. In the current U.S. context, "minority" races are defined as non-White (Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Races). Interactions among people are often influenced by racial identity. Hence, it makes sense for institutions ranging from retailers to police to parks to consider regional racial diversity when recruiting and training staff, when designing public information and educational materials, and when soliciting public involvement in decision-making. Within the Flight 93 National Memorial region, the percentage of racial minorities (2000) ranges from 1.2% (Garrett) to 7.0% (Allegany).[8]



Number Line
showing distribution of data

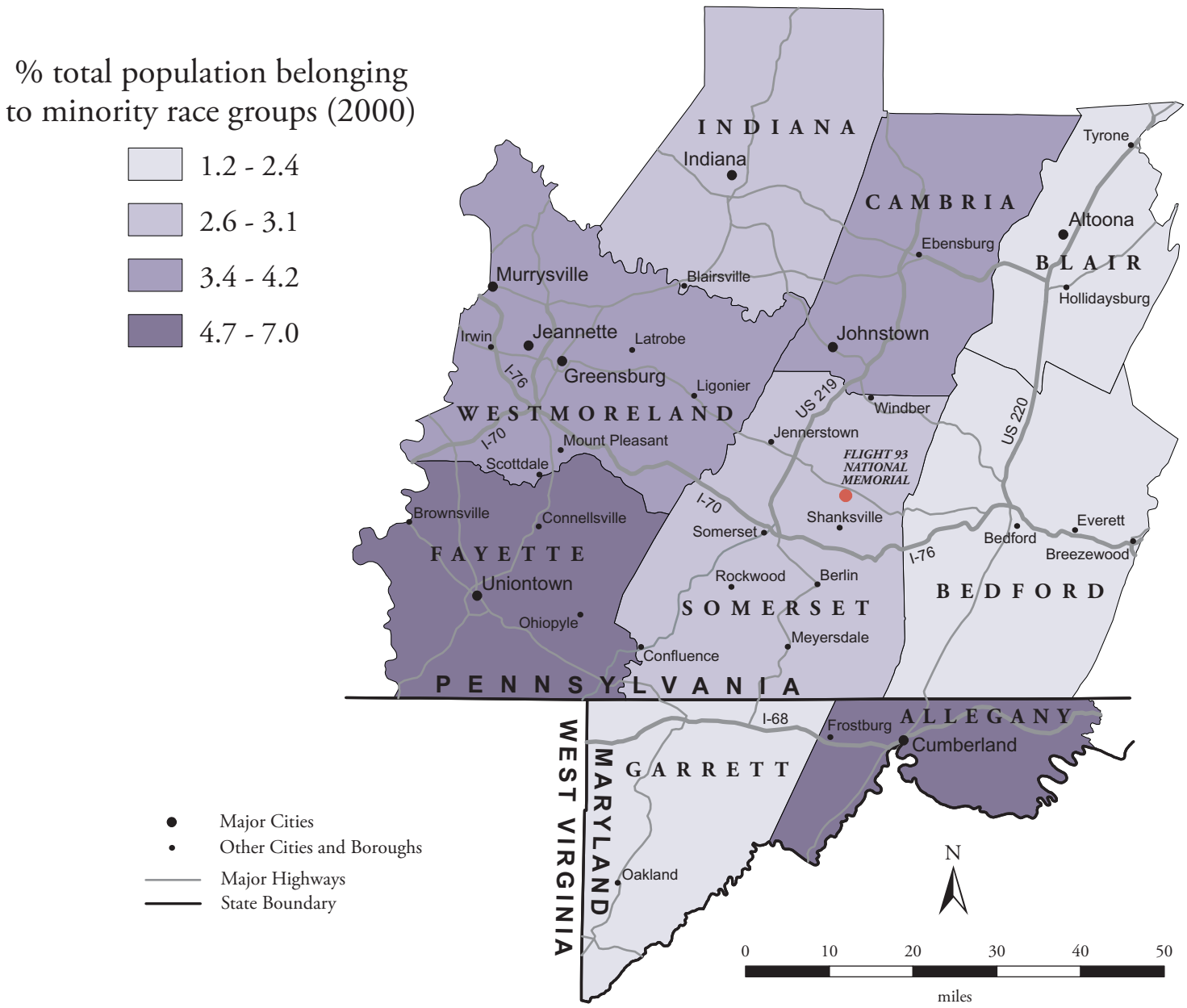
% total population belonging to minority race groups (2000)

Garrett	1.2
Bedford	1.5
Blair	2.4
Somerset	2.6
Indiana	**3.1**
Westmoreland	3.4
Cambria	4.2
Fayette	4.7
Allegany	7.0

National = 24.9
Maryland = 36.0
Pennsylvania = 14.6

Data Source: U.S. Census Bureau, Census 2000

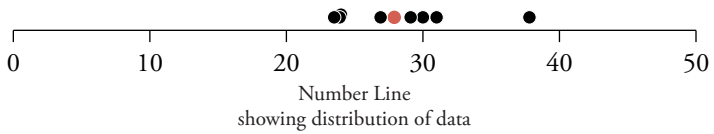
Racial Diversity



Data Source: U.S. Census Bureau, Census 2000

Educational Attainment

Educational attainment indicators measure the average amount of formal education that a county's residents have received. One indicator of educational attainment is the percentage of adults who have attended or graduated from college. Educational attainment influences many aspects of life, such as how much money people earn, what they do for recreation, where they get their information, and how they participate in civic life. With regard to park management, the educational attainment of the general public is an important consideration in activities, such as marketing, public participation processes, and the design of interpretive programs. Within the Flight 93 National Memorial region, the percentage of adults with some college education (2000) ranges from 23.5% (Somerset) to 37.8% (Westmoreland).[9]



Number Line
showing distribution of data

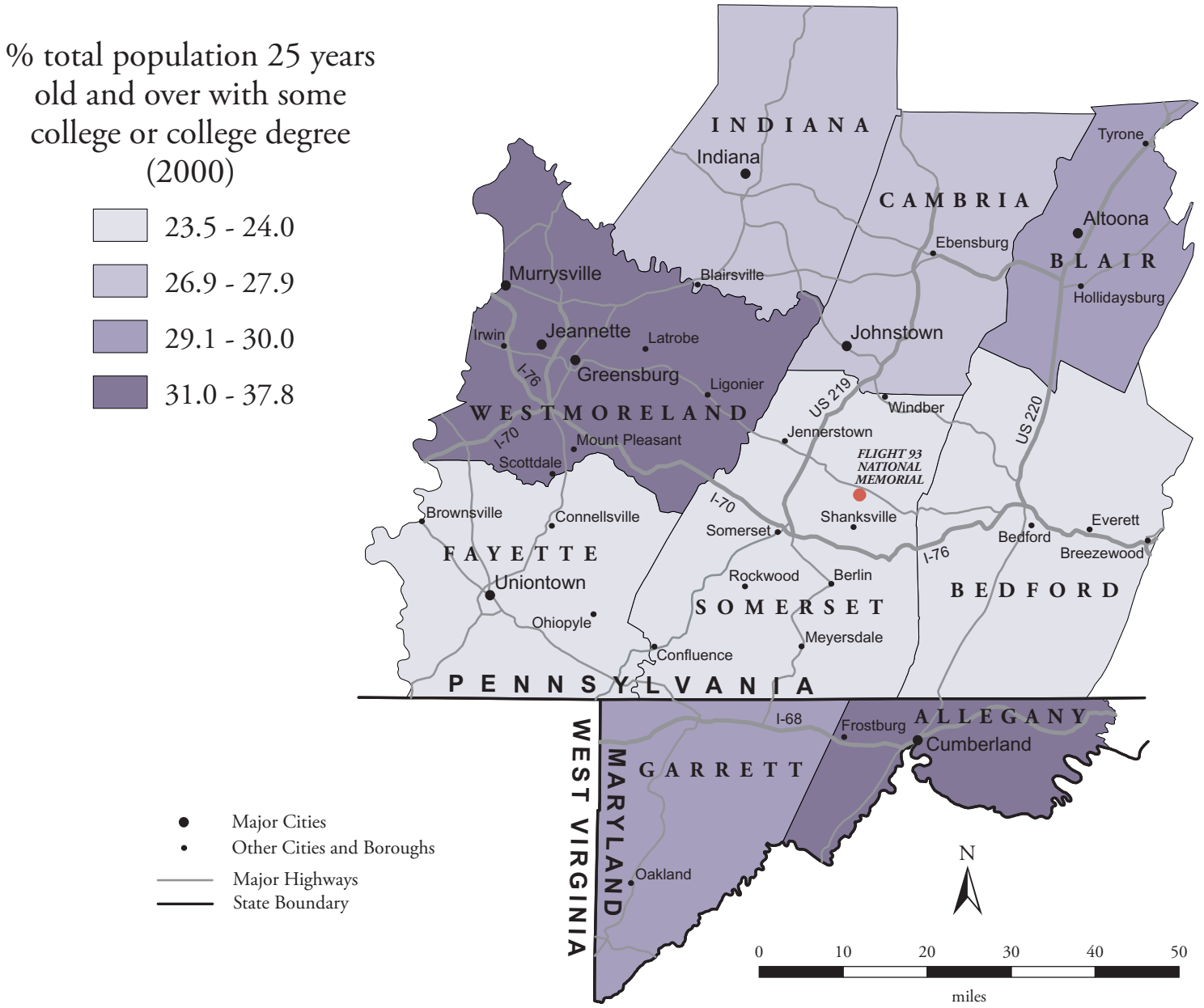
% total population 25 years old and over with some college or college degree (2000)

Somerset	23.5
Fayette	23.9
Bedford	24.0
Indiana	26.9
Cambria	**27.9**
Blair	29.1
Garrett	30.0
Allegany	31.0
Westmoreland	37.8

National = 42.9
Maryland = 43.7
Pennsylvania = 35.4

Data Source: U.S. Census Bureau, Census 2000

Educational Attainment



Data Source: U.S. Census Bureau, Census 2000

Family Structure

Family structure can be measured by examining the presence (or absence) of parents as heads of a household. A family is a group of two or more people who reside together and who are related by birth, marriage, or adoption. Families may include children and other relatives of any age. For families with a single parent head of the household, managing time, finances, activities, and other priorities may produce unique challenges and stresses. Family structure may be an important consideration in the design of interpretive programs and park facilities. Within the Flight 93 National Memorial region, the percentage of families with a single parent head of household (2000) ranges from 15.8% (Bedford) to 24.6% (Fayette).

Number Line
showing distribution of data

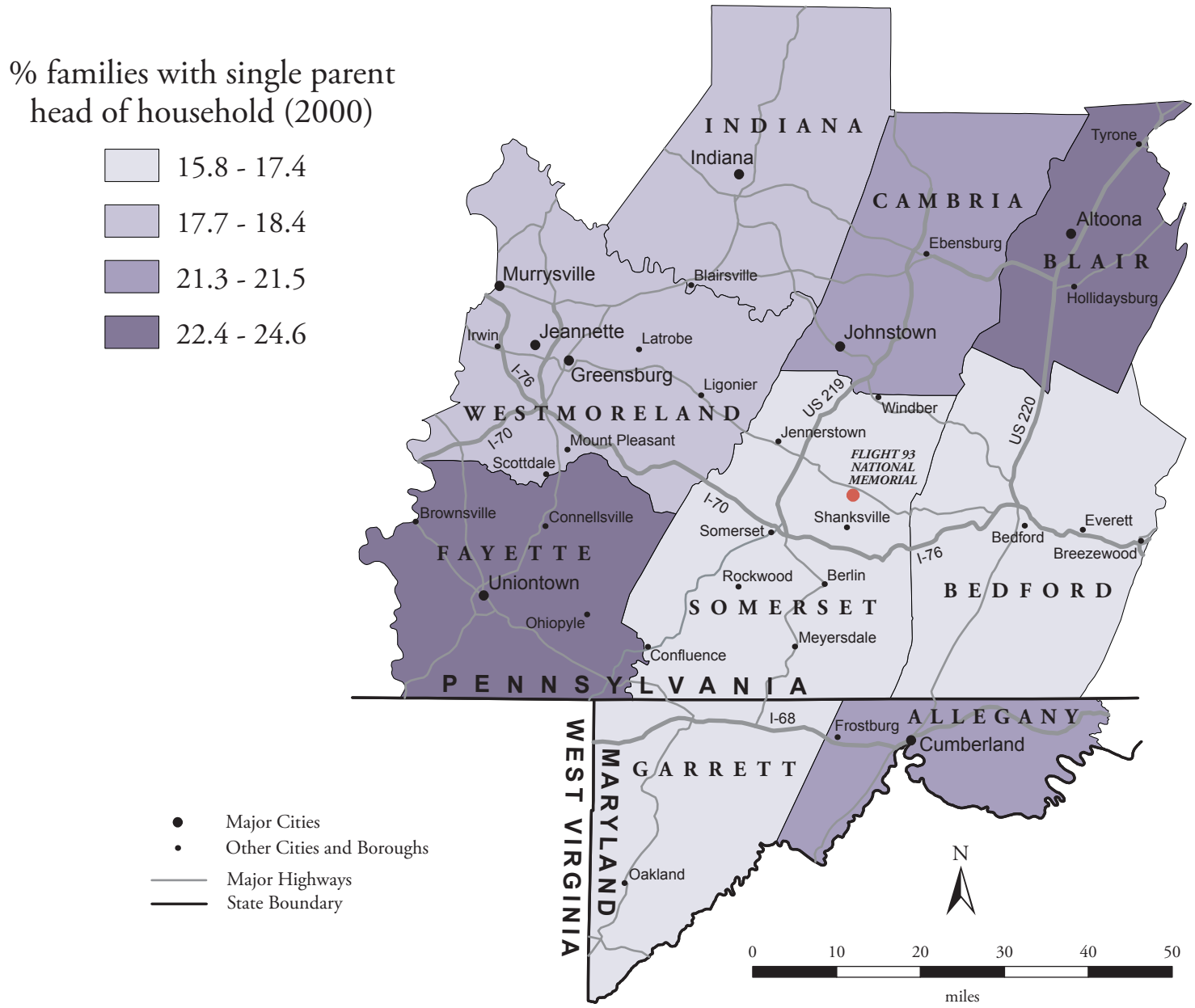
% families with single parent head of household (2000)

Bedford	15.8
Garrett	16.6
Somerset	17.4
Indiana	17.7
Westmoreland	**18.4**
Cambria	21.3
Allegany	21.5
Blair	22.4
Fayette	24.6

National = 24.1
Maryland = 26.8
Pennsylvania = 23.1

Data Source: U.S. Census Bureau, Census 2000

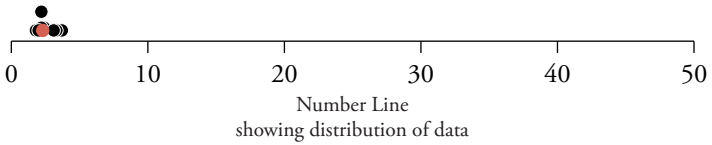
Family Structure



Data Source: U.S. Census Bureau, Census 2000

Recreation/Tourism Establishments

The recreation and tourism industry is measured using two categories: the arts, entertainment and recreation sector (ranging from museums and concerts, to sporting events and amusement parks) and the accommodation subsector of the accommodation and food services sector (ranging from hotels to campsites). The size of these sectors is a broad indicator of a county's economic reliance on recreation and tourism relative to the other sectors of the economy. Recreation and tourism establishments can be proponents of actions that enhance their area's attractiveness as a visitor destination (such as transportation improvements, protection of scenic or cultural landmarks, or marketing campaigns). Recreation and tourism establishments also can be vulnerable to, and thus wary of, actions, policies, or chance events that could affect business, such as visitor use restrictions, fires, or economic downturns. Within the Flight 93 National Memorial region, the percentage of total establishments in arts, entertainment, recreation, and accommodation (2001) ranges from 1.8% (Blair) to 3.7% (Garrett).[10]



Number Line
showing distribution of data

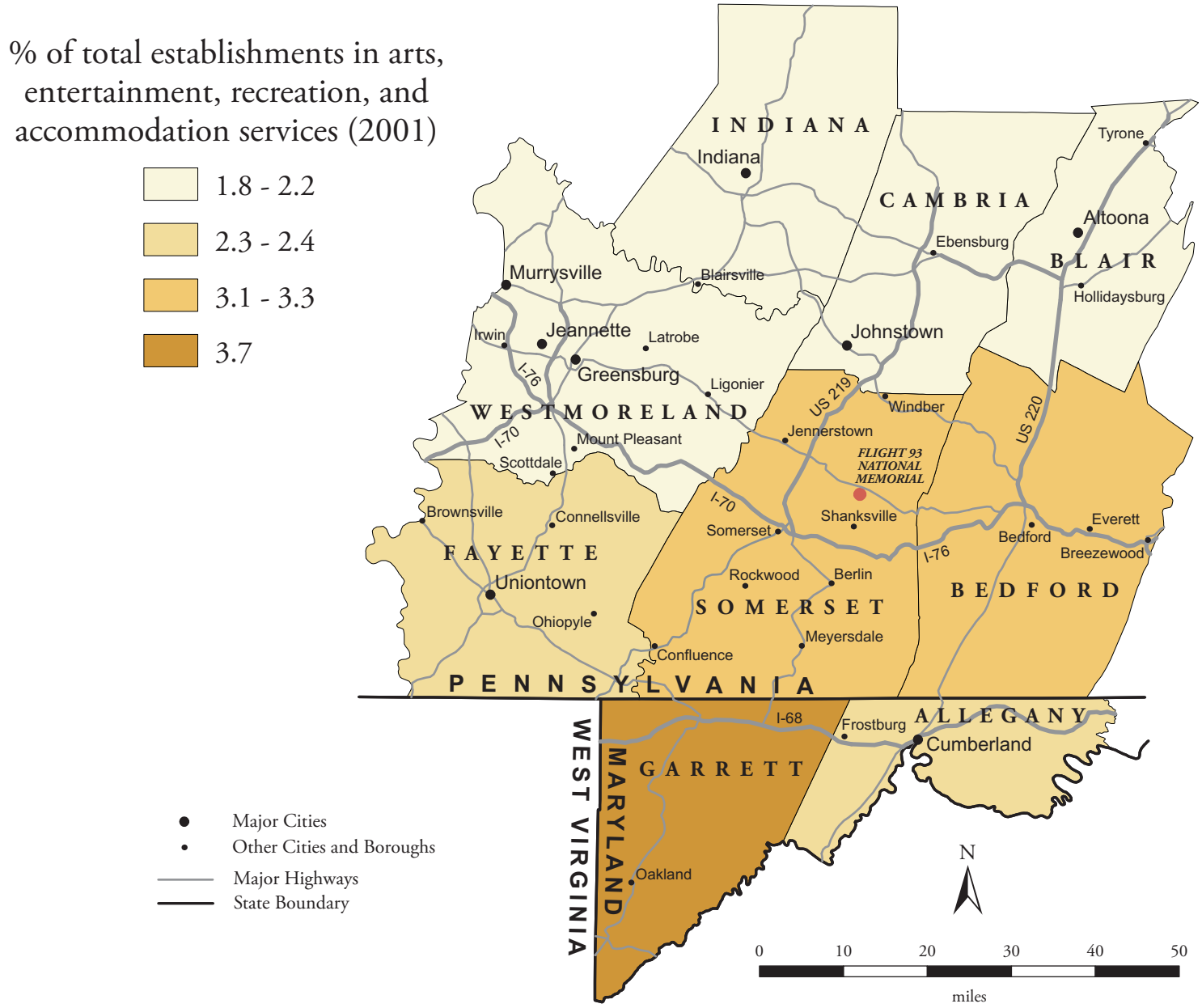
% of total establishments in arts, entertainment, recreation, and accommodation services (2001)

Blair	1.8
Cambria	2.0
Indiana	2.2
Westmoreland	2.2
Allegany	**2.3**
Fayette	2.4
Bedford	3.1
Somerset	3.3
Garrett	3.7

National = 2.3
Maryland = 2.0
Pennsylvania = 2.0

Data Source: U.S. Census Bureau, County Business Patterns 2001

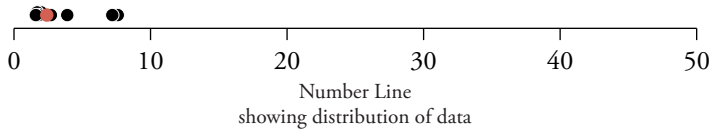
Recreation/Tourism Establishments



Data Source: U.S. Census Bureau, County Business Patterns 2001

Recreation/Tourism Employment

The significance of the recreation/tourism industry to a county economy can be indicated by the percentage of county workers that it employs. Workers counted as recreation and tourism employees include country club managers, blackjack dealers, campground employees, fishing guides, motel attendants, and other providers of recreation services. A high level of recreation/tourism employment may mean that residents have more disposable income or that the area attracts visitors or vacationers. Within the Flight 93 National Memorial region, the percentage of total paid employees in arts, entertainment, recreation, and accommodation services (2001) ranges from 1.6% (Indiana) to 7.6% (Fayette).[11]



Number Line
showing distribution of data

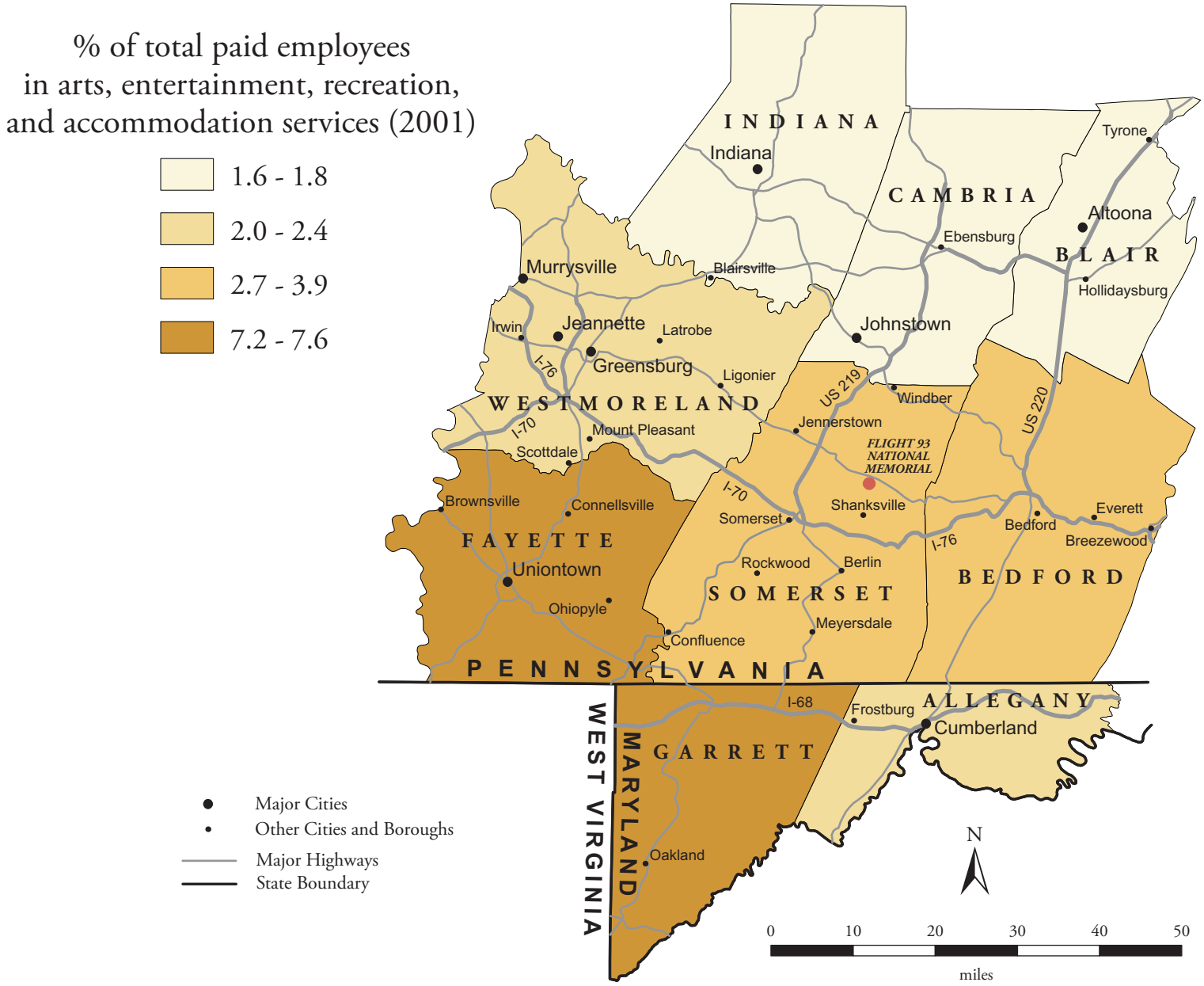
% of total paid employees in arts, entertainment, recreation, and accommodation services (2001)

Indiana	1.6
Blair	1.7
Cambria	1.8
Westmoreland	2.0
Allegany	**2.4**
Somerset	2.7
Bedford	3.9
Garrett	7.2
Fayette	7.6

National = 3.1
Maryland = 2.5
Pennsylvania = 2.3

Data Source: U.S. Census Bureau, County Business Patterns 2001

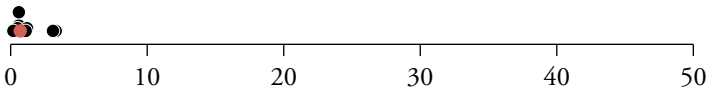
Recreation/Tourism Employment



Data Source: U.S. Census Bureau, County Business Patterns 2001

Recreation/Tourism Revenue

Recreation and tourism revenue is a key indicator of the economic importance of recreation and tourism to a county. Recreation and tourism revenue can be expressed as a percentage of total sales and service receipts. Recreation and tourism establishments can occupy an important position within a county economy because they attract visitor dollars from elsewhere. Secondary economic benefits are realized when these dollars are re-spent within the local economy or deposited in banks, where they provide capital to other businesses. Within the Flight 93 National Memorial region, the percentage of total sales from arts, entertainment, recreation, and accommodation services (1997) ranges from 0.2% (Allegany) to 3.3% (Garrett).[12]



Number Line
showing distribution of data

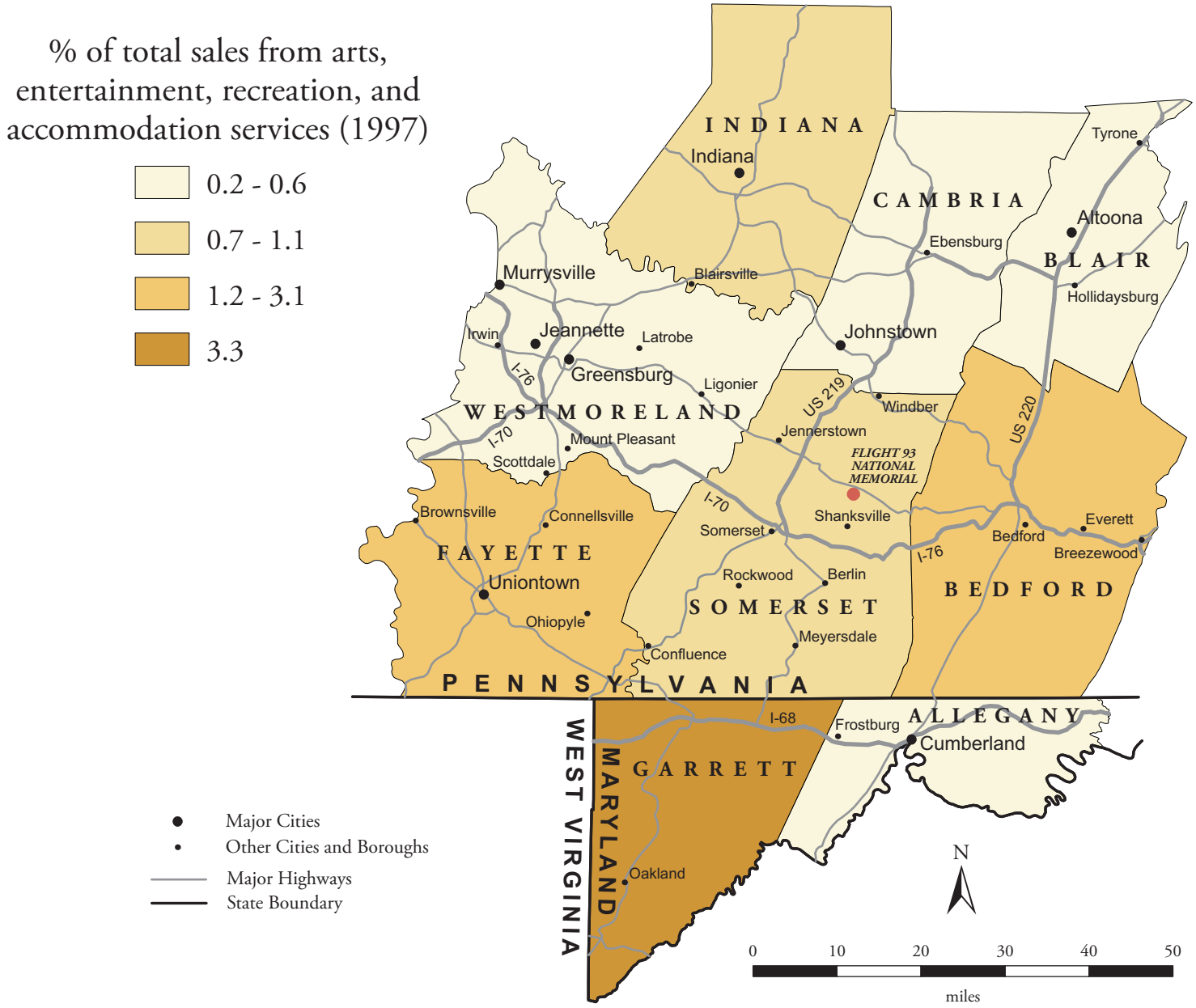
% of total sales from arts, entertainment, recreation, and accommodation services (1997)

Allegany	0.2
Blair	0.5
Cambria	0.6
Westmoreland	0.6
Indiana	**0.7**
Somerset	1.1
Bedford	1.2
Fayette	3.1
Garrett	3.3

National = 1.1
Maryland = 1.2
Pennsylvania = 0.9

Data Source: U.S. Census Bureau, Economic Census 1997

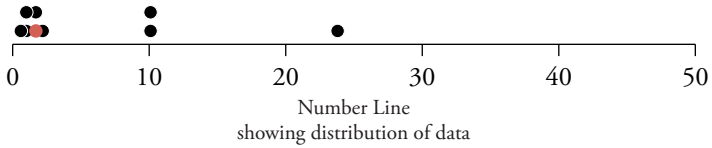
Recreation/Tourism Revenue



Data Source: U.S. Census Bureau, Economic Census 1997

Seasonal Housing

Seasonal, recreational, and occasional use housing units are those intended for occupancy only during certain seasons of the year and are found primarily in or near resort or recreation areas. Seasonal housing may represent a "second-home" for some individuals and/or families. A county with a large number of seasonal housing units can be considered part of a "destination area." Such areas attract people who can travel a considerable distance and spend time in the area. Within the Flight 93 National Memorial region the percentage of total housing units classified for seasonal, recreational, or occasional use (2000) ranges from 0.6% (Blair) to 23.8% (Garrett).[13]



Number Line
showing distribution of data

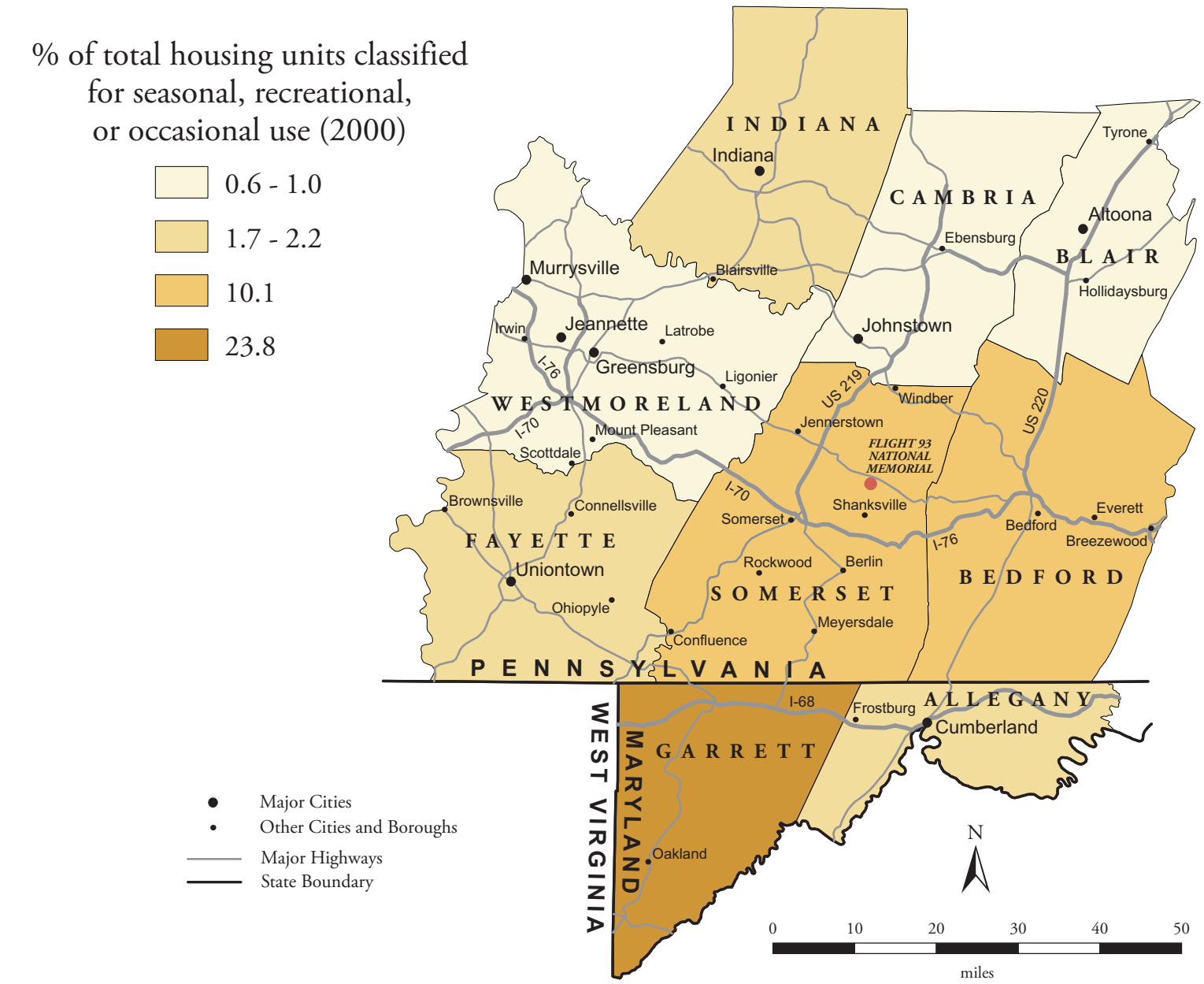
% of total housing units classified for seasonal, recreational, or occasional use (2000)

Blair	0.6
Cambria	1.0
Westmoreland	1.0
Allegany	**1.7**
Indiana	**1.7**
Fayette	2.2
Somerset	10.1
Bedford	10.1
Garrett	23.8

National = 3.1
Maryland = 1.8
Pennsylvania = 2.8

Data Source: U.S. Census Bureau, Census 2000

Seasonal Housing



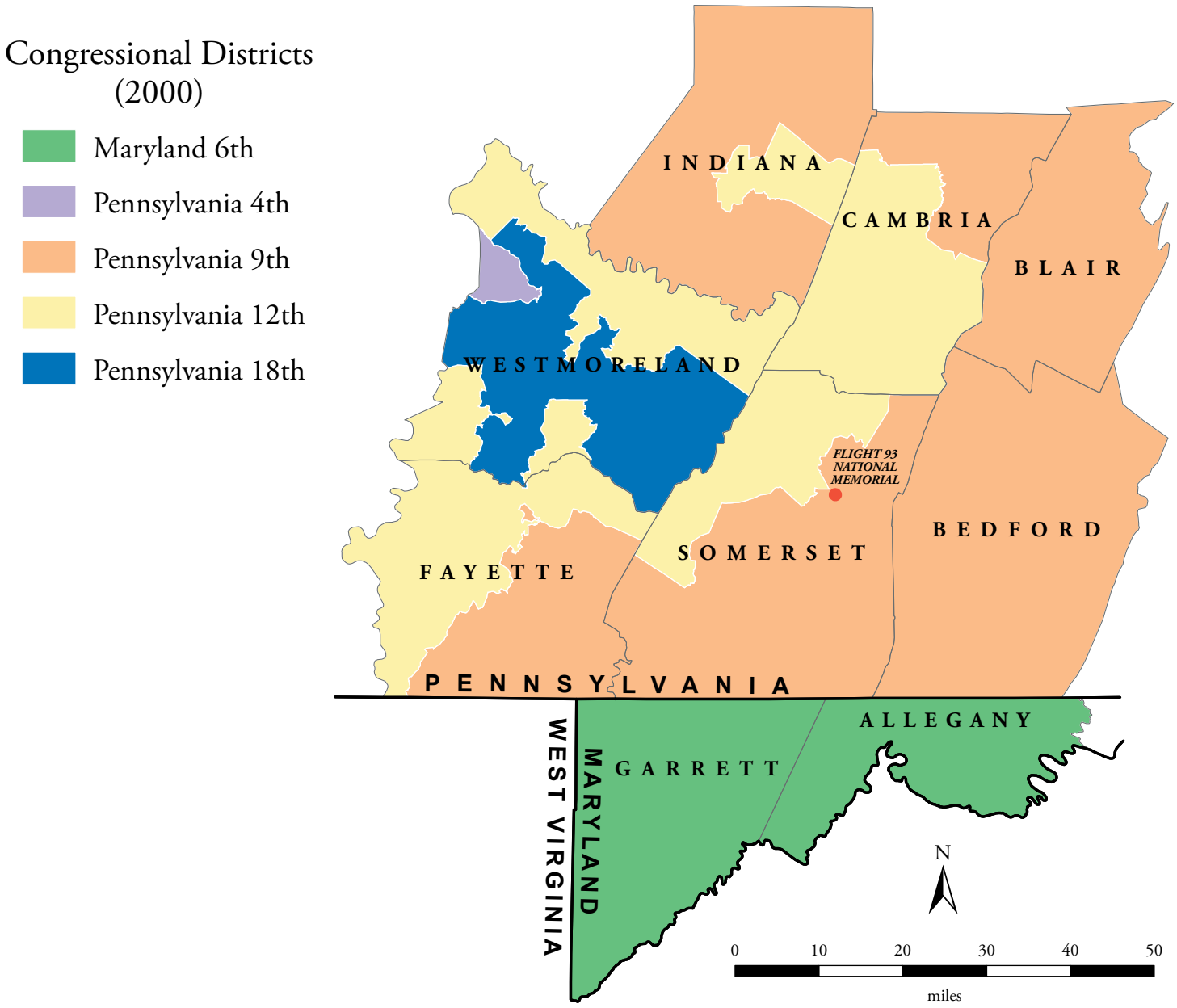
Data Source: U.S. Census Bureau, Census 2000

Congressional Districts

Congressional districts form a key layer in the political structure of a region of interest for a park. These districts, roughly equivalent in population, are defined by state legislatures based on the national census and redrawn every ten years. Members of Congress are key points of access for citizens seeking to influence federal-level policies and programs, including those related to federal lands such as national parks and national forests. The Flight 93 National Memorial region includes all or portions of five Congressional districts, four of which are in Pennsylvania. These districts are based on Census 2000.

Data Source: U.S. Geological Survey, National Atlas of the United States

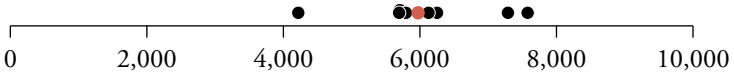
Congressional Districts



Data Source: U.S. Geological Survey, National Atlas of the United States

Federal Expenditures

The importance of the federal government to a county economy can be indicated by the amount of federal expenditures per person. These expenditures can be a key source of dollars flowing into the county economy (in contrast, taxes and fees are an outflow of dollars). Federal spending can influence the park region through such wide-ranging initiatives as agricultural subsidies, social programs, military bases, and national parks. Within the Flight 93 National Memorial region, federal expenditures per person (2002) range from $4,218 (Garrett) to $7,578 (Cambria).[14]



Number Line
showing distribution of data

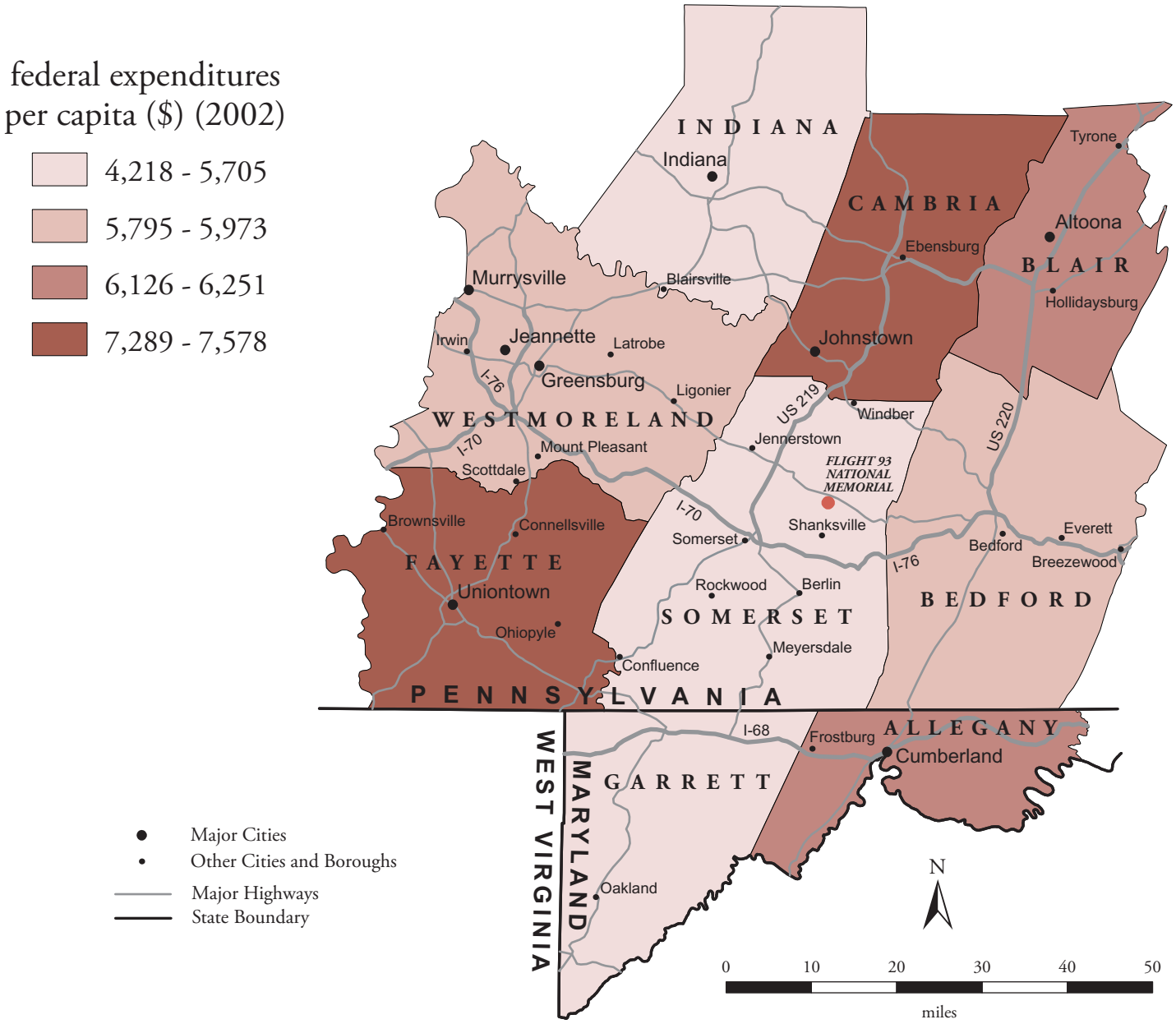
federal expenditures per capita ($) (2002)

Garrett	4,218
Indiana	5,695
Somerset	5,705
Westmoreland	5,795
Bedford	**5,973**
Blair	6,126
Allegany	6,251
Fayette	7,289
Cambria	7,578

National = 6,650
Maryland = 9,076
Pennsylvania = 6,940

Data Source: U.S. Census Bureau, Census of Governments 2002

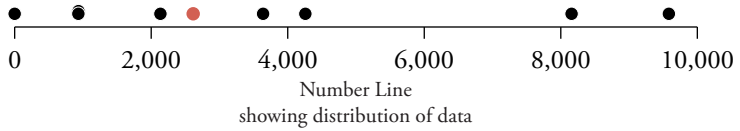
Federal Expenditures



Data Source: U.S. Census Bureau, Census of Governments 2002

Payments in Lieu of Taxes

Payments in lieu of taxes are measured as the total dollars transferred to counties by the federal government as part of the PILT Program (Payments-In-Lieu-of-Taxes) administered by the Bureau of Land Management. PILT payments are calculated according to a formula that includes population and the amount of federal land within an affected county. They have a direct impact on the park region as revenue for county governments. As counties use this revenue for capital projects or service provisions, the tax burden on local residents is effectively reduced. Indirectly, PILT payments are an indication of the federal government's presence, visibility, and perhaps influence within counties in the park region. Within the Flight 93 National Memorial region, payments in lieu of taxes (2004) range from $0 (Bedford) to $9,583 (Indiana).



Number Line
showing distribution of data

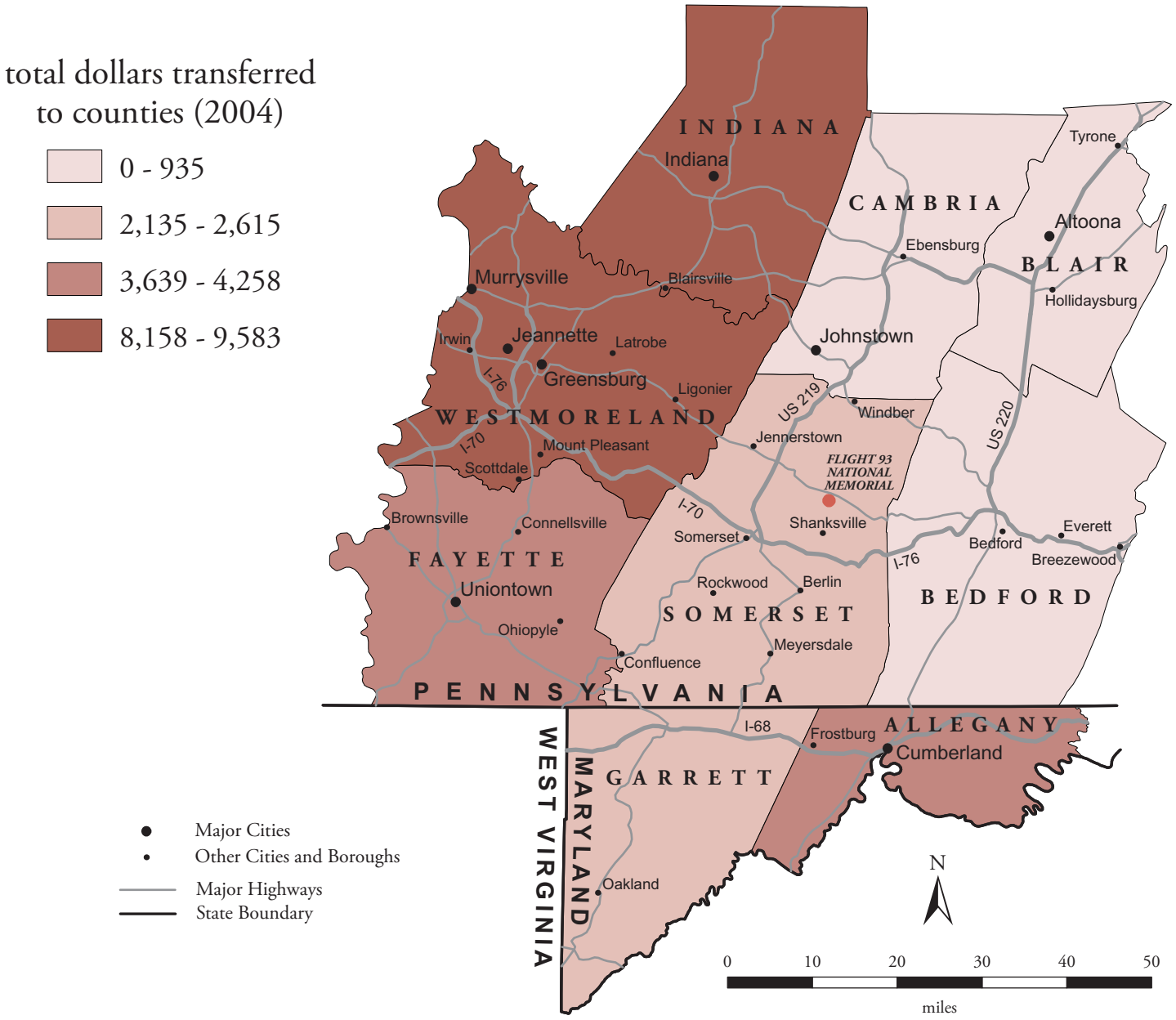
total dollars transferred to counties (2004)

Bedford	0
Blair	933
Cambria	935
Somerset	2,135
Garrett	**2,615**
Fayette	3,639
Allegany	4,258
Westmoreland	8,158
Indiana	9,583

National = 224,301,697
Maryland = 85,384
Pennsylvania = 461,048

Data Source: Bureau of Land Management 2004

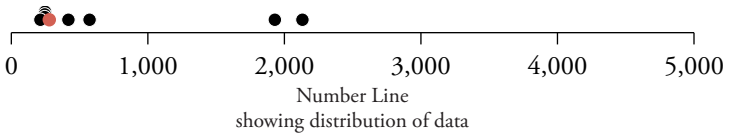
Payments in Lieu of Taxes



Data Source: Bureau of Land Management 2004

Local Government Expenditures

The level of activity of local government can be indicated by measuring local government expenditures per person. As the principal means of collective decision-making at the local scale, local governments commit resources to state and federally mandated services (such as schools and police protection) as well as other optional or non-essential services (such as garbage collection and recreation). Local governments vary in terms of the range of programs they administer and the resources available for programs. Within the Flight 93 National Memorial region, local government expenditures per person (1997) range from $213 (Bedford) to $2,132 (Garrett).



Number Line
showing distribution of data

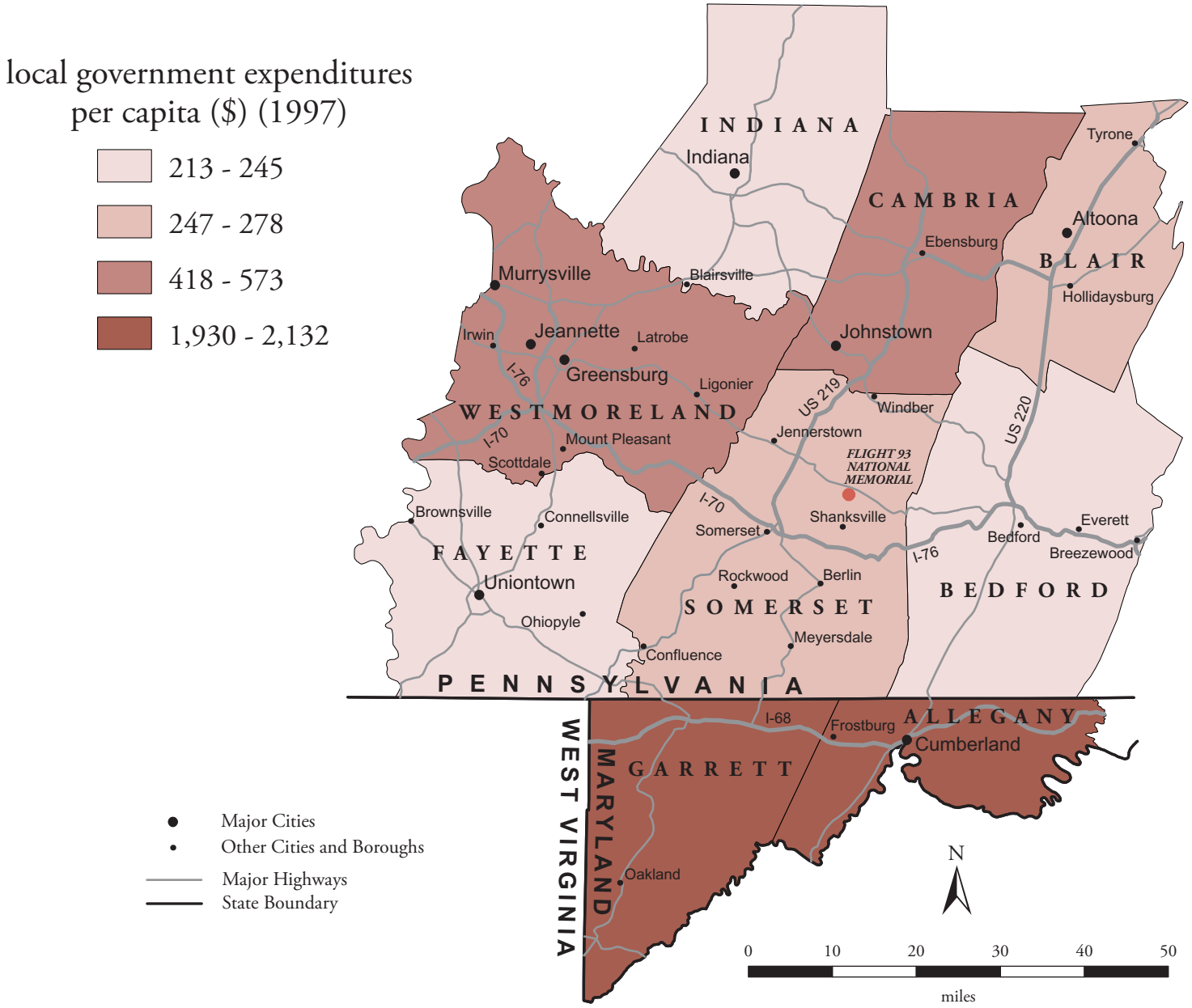
local government expenditures per capita ($) (1997)

Bedford	213
Fayette	244
Indiana	245
Somerset	247
Blair	**278**
Westmoreland	418
Cambria	573
Allegany	1,930
Garrett	2,132

National = 823
Maryland = 2,416
Pennsylvania = 452

Data Source: U.S. Census Bureau, Census of Governments 1997

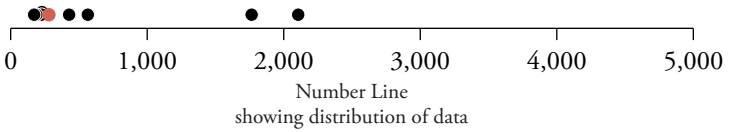
Local Government Expenditures



Data Source: U.S. Census Bureau, Census of Governments 1997

Local Government Revenue

Local government revenue, in the form of county taxes, state and federal fiscal aid, and other miscellaneous county service charges, may indicate the degree of local government activity that a county's residents demand or are willing to support. Sources of such state or federal fiscal aid, also known as intergovernmental revenue, can include grants-in-aid, reimbursements for established services such as the care of prisoners or contractual research, and payments in lieu of taxes. Residents of a county with high local government revenue may tend to be more accustomed to government taking an active role in a broad range of programs, whereas residents of a county with low local government revenue may be accustomed to government providing only essential services. Such expectations about the role of government can shape local and regional responses to resource management challenges. Within the Flight 93 National Memorial region, local government revenue per person (1997) ranges from $172 (Bedford) to $2,106 (Garrett).



Number Line
showing distribution of data

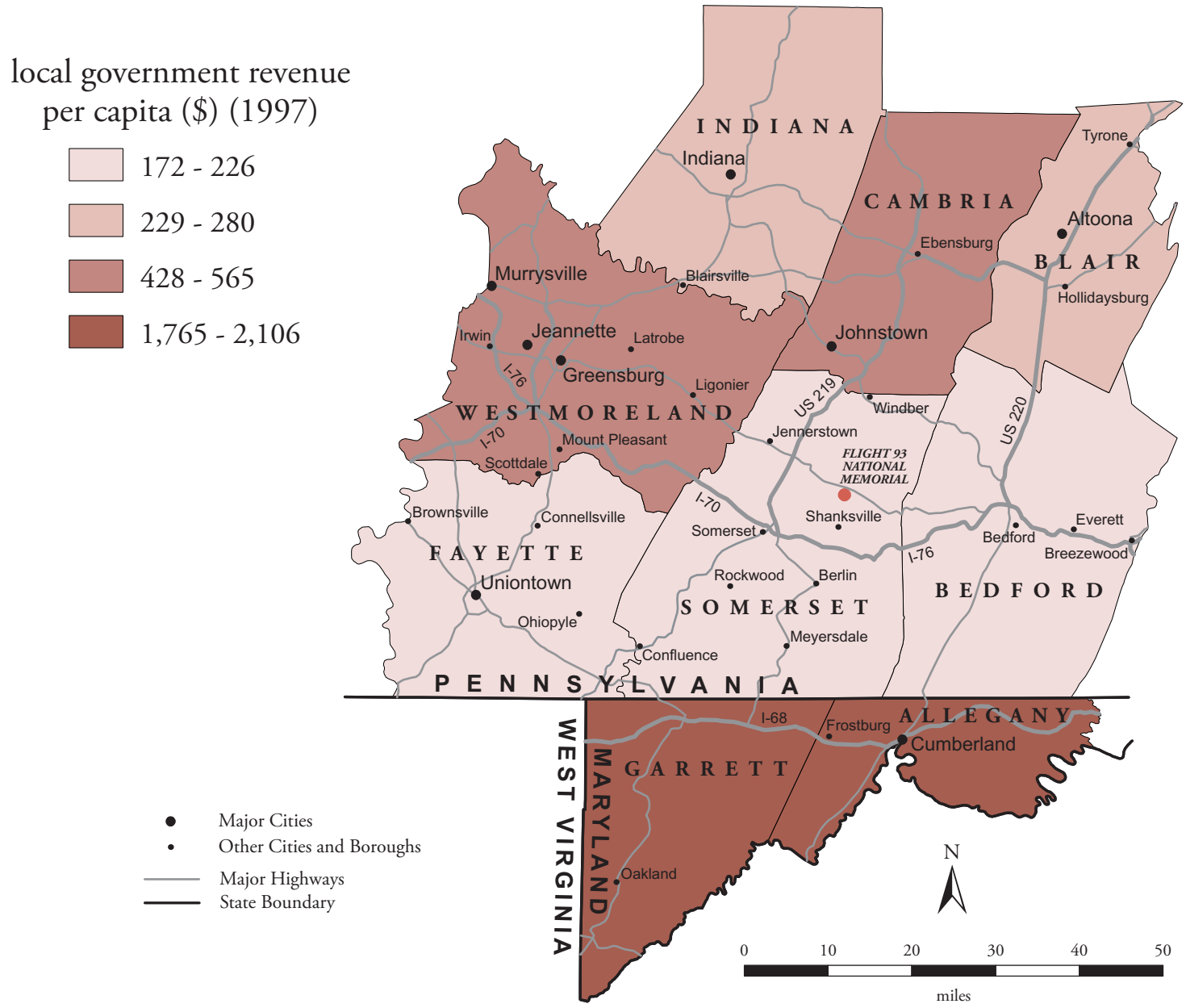
local government revenue per capita ($) (1997)

Bedford	172
Somerset	188
Fayette	226
Indiana	229
Blair	**280**
Westmoreland	428
Cambria	565
Allegany	1,765
Garrett	2,106

National = 838
Maryland = 2,508
Pennsylvania = 431

Data Source: U.S. Census Bureau, Census of Governments 1997

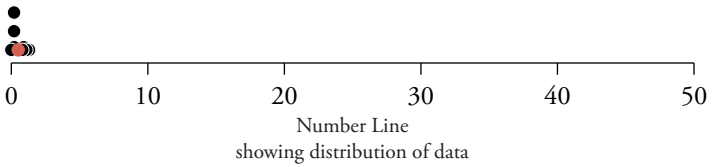
Local Government Revenue



Data Source: U.S. Census Bureau, Census of Governments 1997

Federal Land Management

One indicator of the federal government's role in regional resource management is the amount of land under federal management. This amount can be measured as a percentage of the total land area in each county. Stewardship of private land is carried out through a combination of regulation, market forces, and voluntary action. In contrast, stewardship of public land is carried out through direct implementation of agency policies. Thus the variation in public versus private land ownership across the park region can significantly influence the design and implementation of resource protection strategies. Within the Flight 93 National Memorial region, land under federal management (2004) ranges from 0.0% (Bedford) to 1.3% (Indiana).[15]



Number Line
showing distribution of data

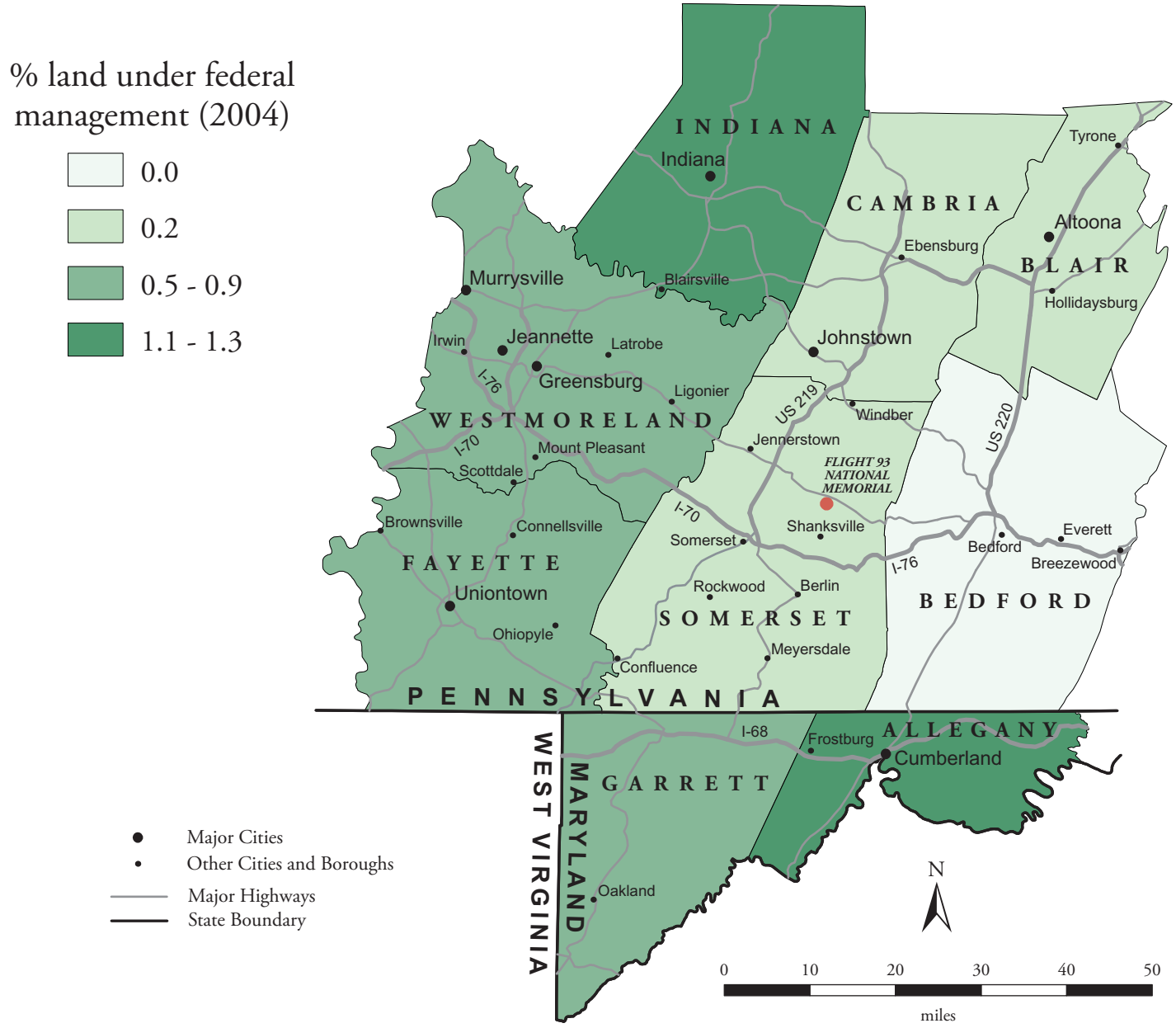
% land under federal management (2004)

Bedford	0.0
Blair	0.2
Cambria	0.2
Somerset	0.2
Fayette	**0.5**
Garrett	0.8
Westmoreland	0.9
Allegany	1.1
Indiana	1.3

National = 27.2
Maryland = 0.7
Pennsylvania = 2.3

Data Source: Bureau of Land Management 2004

Federal Land Management



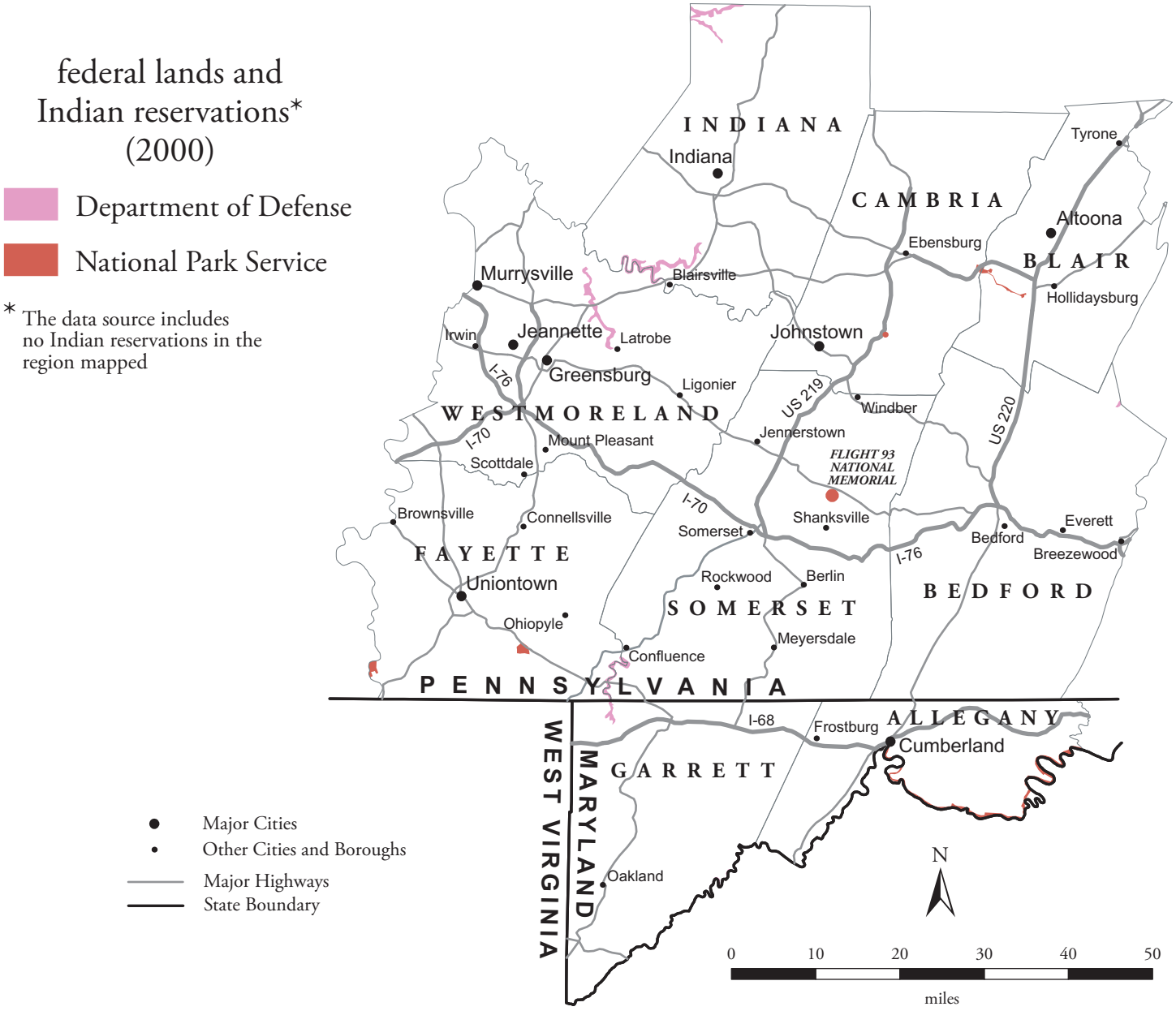
Data Source: Bureau of Land Management 2004

Federal Lands and Indian Reservations

National park units, administered by the National Park Service, are part of a larger system of public lands. Other federal agencies that administer public lands include the Bureau of Land Management, Bureau of Reclamation, Department of Defense, U.S. Fish and Wildlife Service, and U.S. Forest Service. Indian reservations are also an important part of the landscape. Public land managed by one federal agency may share boundaries with land managed by a different federal agency or with an Indian reservation. Understanding the location and pattern of federal lands (by agency) and Indian reservations can help park managers and others in the region cooperate on resource protection and planning issues.[16]

Data Source: U.S. Geological Survey, National Atlas of the United States

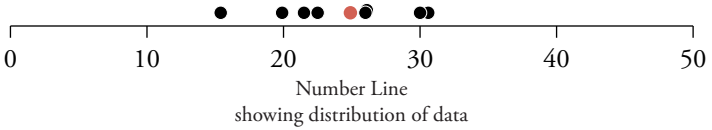
Federal Lands and Indian Reservations



Data Source: U.S. Geological Survey, National Atlas of the United States

Farmland

The relative importance of farming within a county can be indicated by the percentage of the county's total land area that is classified as farmland. Farming includes crop cultivation as well as pasturing and grazing of livestock. Because damaged or degraded natural resources present a long-term threat to the health and profitability of farming, farm operators are potentially key partners in local and regional resource protection issues. Park management can require close coordination with area farmers on many issues, such as control of non-native species, species reintroduction, preservation of scenic values, allocation of scarce water supplies, or management of agricultural runoff. Within the Flight 93 National Memorial region, the percentage of total county land area classified as farmland (1997) ranges from 15.4% (Allegany) to 30.6% (Bedford).[17]



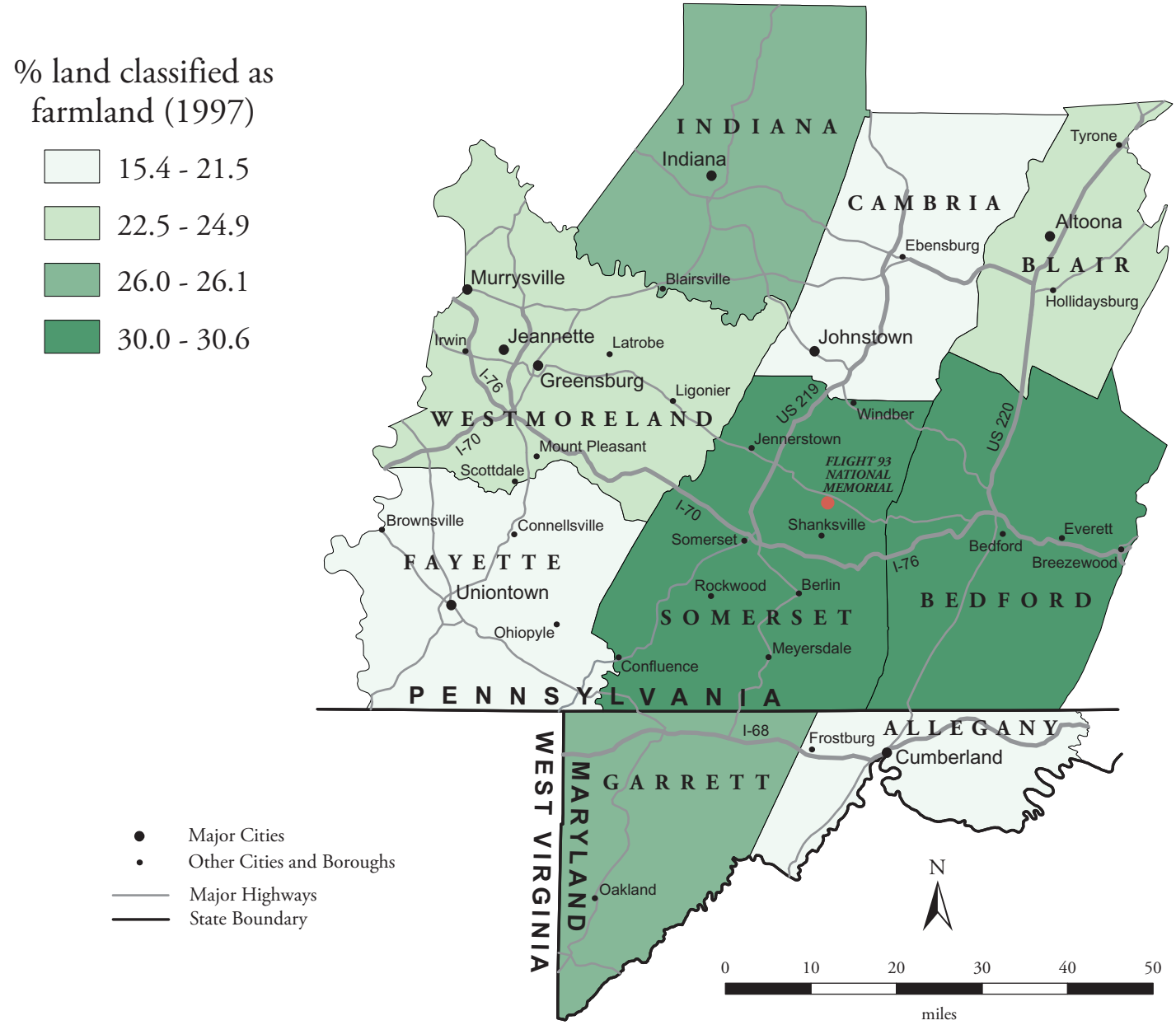
Number Line
showing distribution of data

% land classified as farmland (1997)	
Allegany	15.4
Cambria	19.9
Fayette	21.5
Westmoreland	22.5
Blair	**24.9**
Garrett	26.0
Indiana	26.1
Somerset	30.0
Bedford	30.6

National = 41.2
Maryland = 34.4
Pennsylvania = 25.0

Data Source: National Agricultural Statistics Service, Census of Agriculture 1997

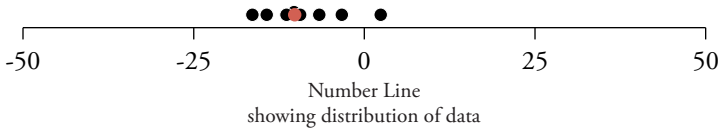
Farmland



Data Source: National Agricultural Statistics Service, Census of Agriculture 1997

Change in Farmland

Changes in the amount of farmland provide an indication of economic and land use trends among counties in the park region. Land can be converted to farming because of increased demand for agricultural products or because new technology, business practices, or government programs make farming profitable. Land can be taken out of farming due to soil depletion, competition from growers elsewhere, loss of labor, or conversion of land to other (often urban) uses. Within the Flight 93 National Memorial region (1987 - 1997), the change ranged from a decrease of 16.4% (Indiana) to an increase of 2.4% (Cambria).[18]



Number Line
showing distribution of data

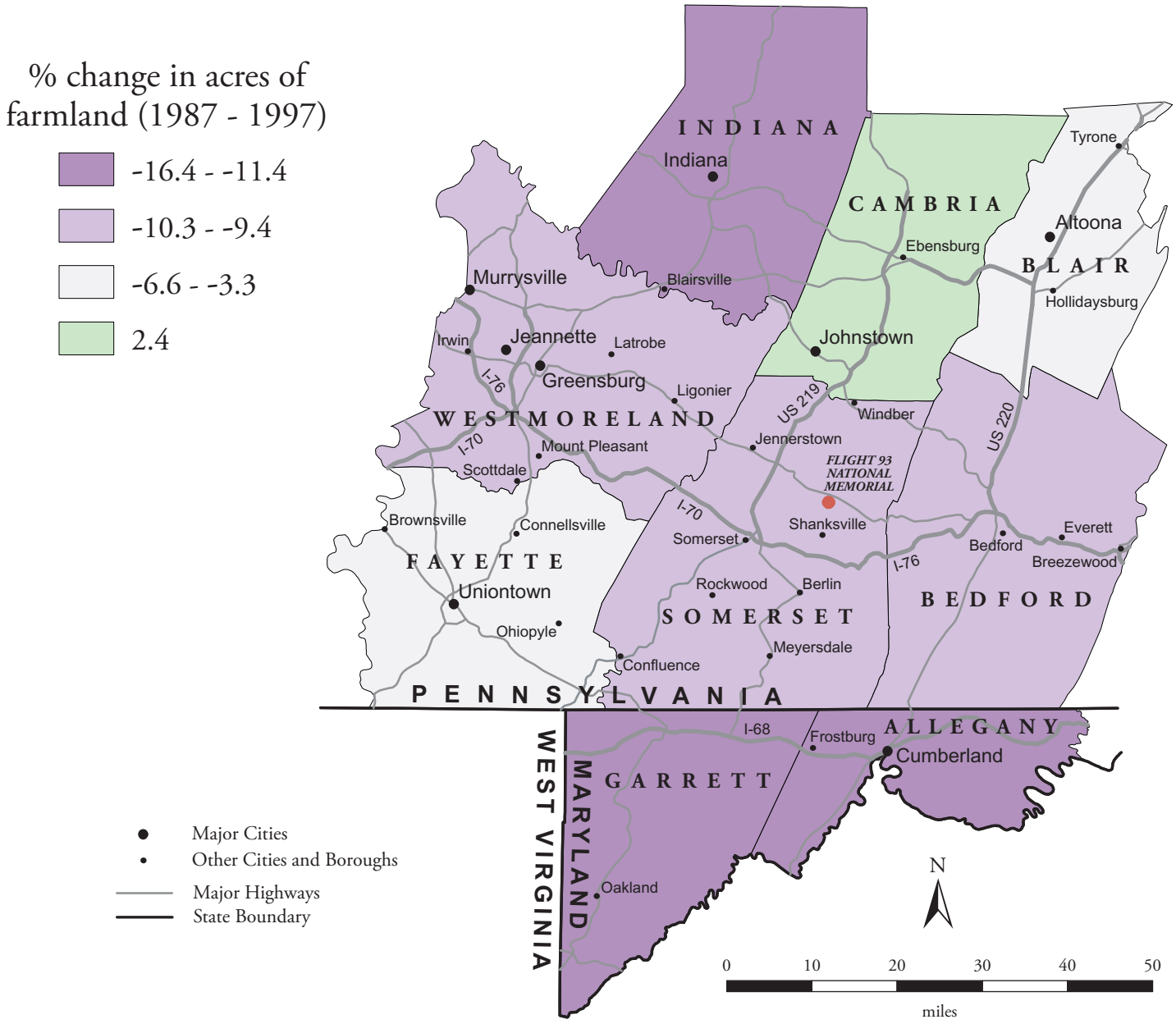
% change in acres of farmland (1987 – 1997)

Indiana	-16.4
Allegany	-14.3
Garrett	-11.4
Westmoreland	-10.3
Bedford	**-10.2**
Somerset	-9.4
Fayette	-6.6
Blair	-3.3
Cambria	2.4

National = -3.4
Maryland = -10.1
Pennsylvania = -8.9

Data Source: National Agricultural Statistics Service, Census of Agriculture 1987, 1997

Change in Farmland



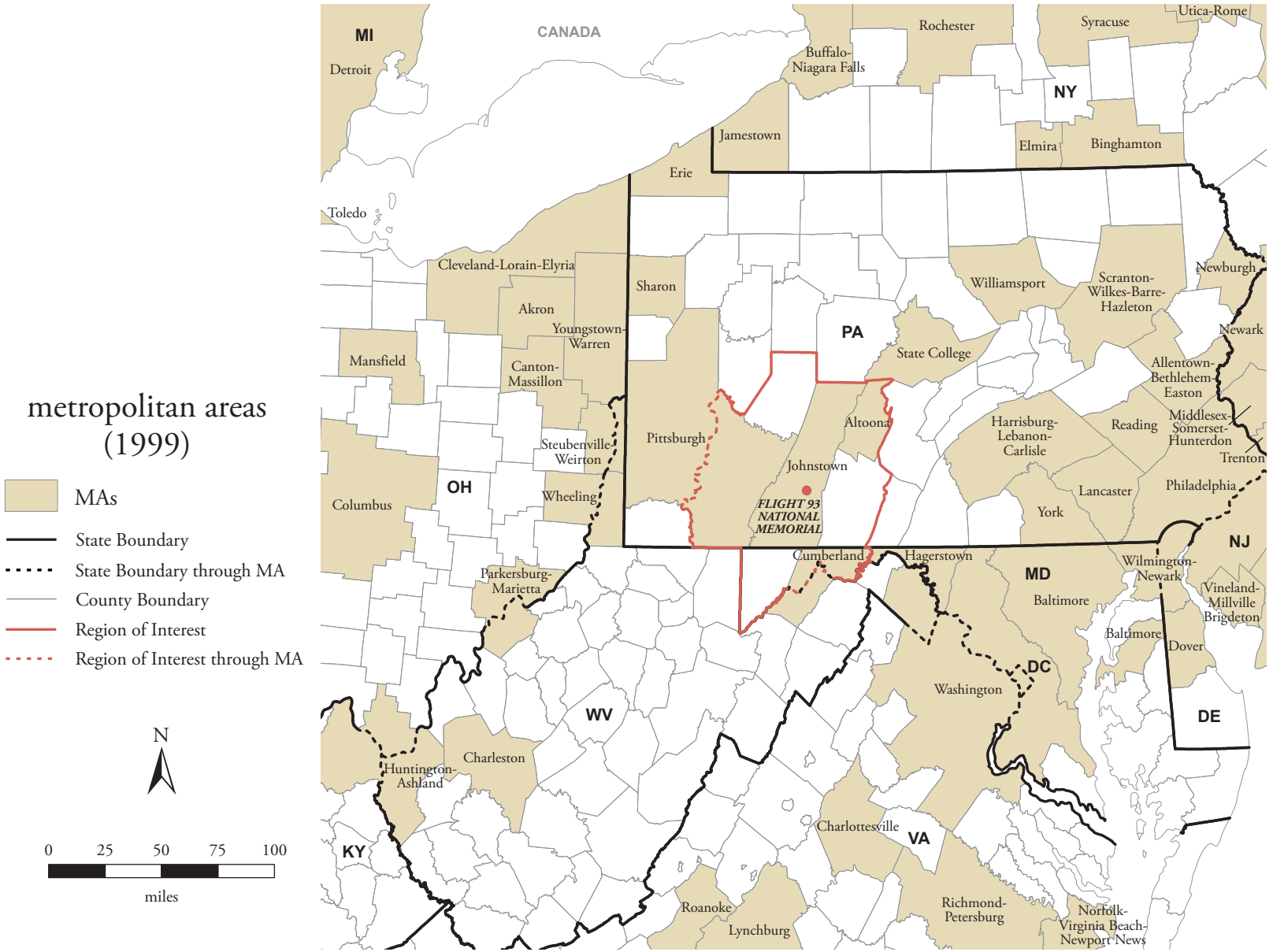
Data Source: National Agricultural Statistics Service, Census of Agriculture 1987, 1997

Metropolitan Areas

Maps of metropolitan areas show park managers densely populated urban areas that are near national park units. The Census Bureau defines a metropolitan area (MA) as having a large population nucleus, together with adjacent communities that have a high degree of economic and social integration with that nucleus. MAs are single counties or aggregations of counties. Most counties in MAs include both urban and rural land uses. For this map, a larger region around Flight 93 National Memorial is provided to show the extent of nearby MAs.[19]

Data Source: U.S. Census Bureau, Geography Division

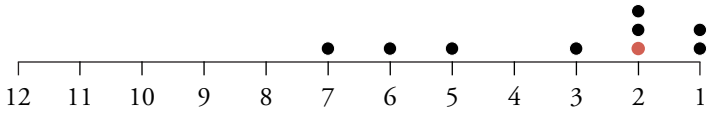
Metropolitan Areas



Data Source: U.S. Census Bureau, Geography Division

Urbanization

Urbanization is a measure of the degree to which counties are associated with metropolitan areas based on population and commuting patterns. The political and economic priorities of more urbanized counties tend to differ from those of less urbanized counties. The concentration of people in towns, cities, and large metropolitan areas creates opportunities for cooperative efforts (such as municipal water systems, public transportation, and a host of non-governmental organizations) but also can increase the incidence of problems such as congestion, air pollution, and habitat fragmentation. The Economic Research Service classifies counties' degree of urbanization along a continuum ranging from completely rural (not near metro area and small population size) to large metropolitan. Within the Flight 93 National Memorial region (2003), five of the nine counties are classified as metropolitan.[20]

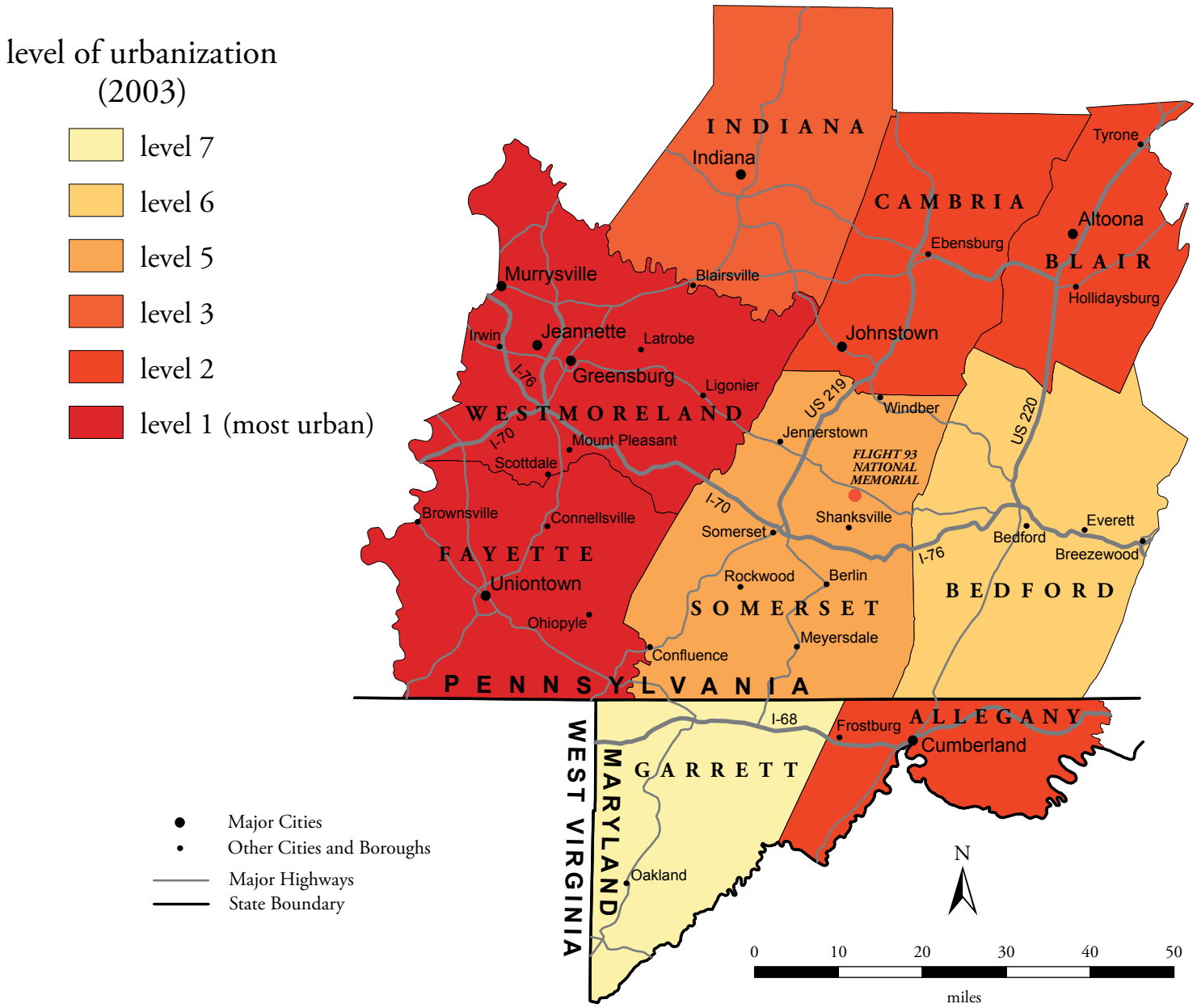


Number Line
showing distribution of data

level of urbanization (2003)	
Garrett	7
Bedford	6
Somerset	5
Indiana	3
Allegany	**2**
Blair	**2**
Cambria	**2**
Fayette	1
Westmoreland	1

Data Source: Economic Research Service

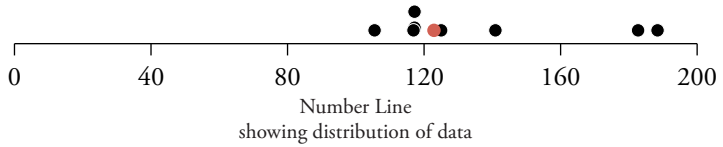
Urbanization



Data Source: Economic Research Service

Domestic Water Use

Domestic water use can be measured in gallons per day per person. The rate of domestic water consumption can be indicative of local consumption patterns, attitudes toward conservation, the cost of water, or the amount of regulatory control over water use. Higher rates of domestic water use may be associated with a more active tourism industry or with a greater prevalence of water-intensive landscaping, swimming pools, and so forth. Relatively low rates of domestic water use may indicate the presence of higher water costs or stricter water conservation guidelines. Among the counties of the Flight 93 National Memorial region, domestic water use per person (1995) ranges from 105.5 gallons/day (Indiana) to 188.4 gallons/day (Allegany).



Number Line
showing distribution of data

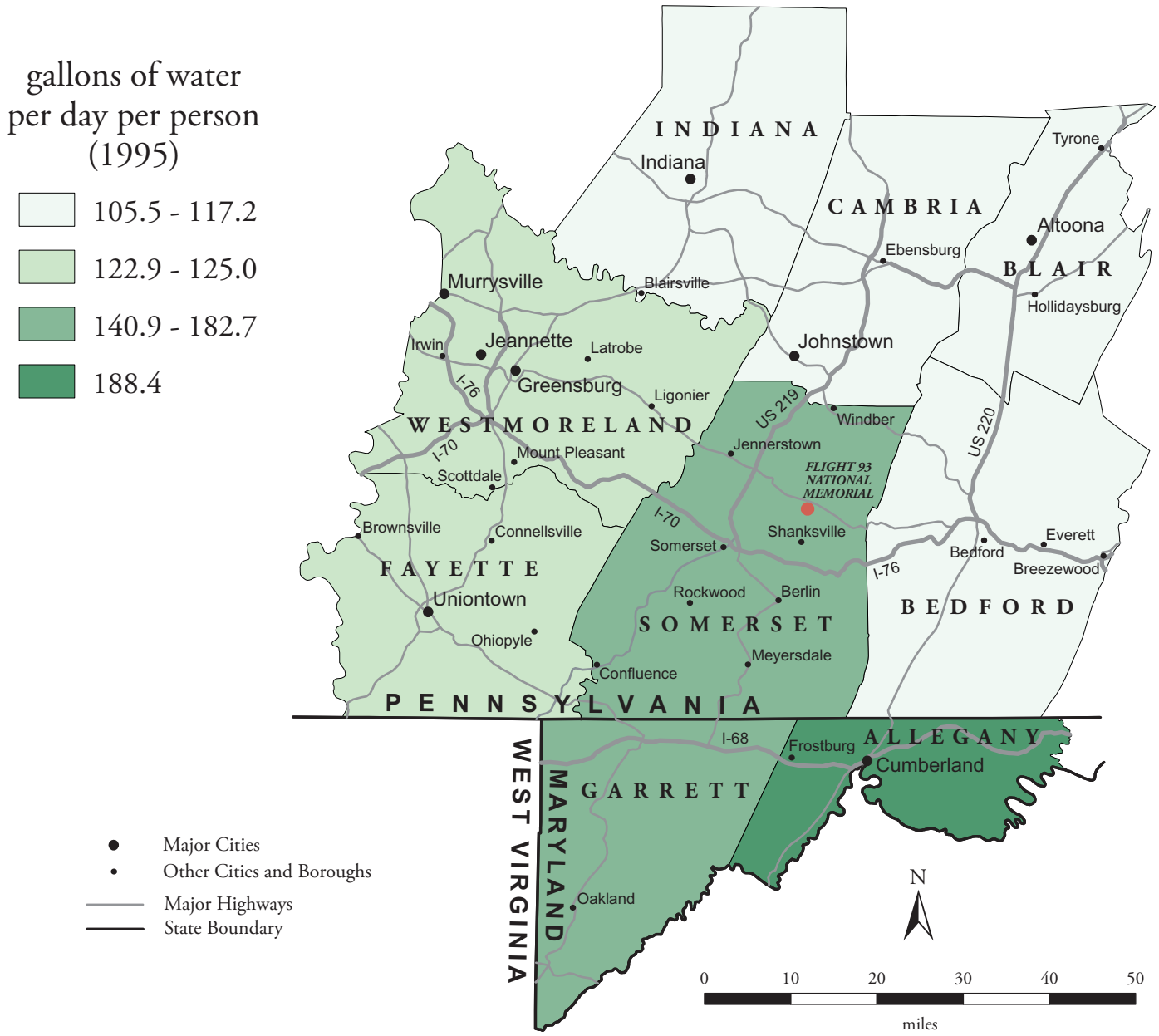
gallons of water per day per person (1995)

Indiana	105.5
Cambria	116.9
Bedford	117.2
Blair	117.2
Fayette	**122.9**
Westmoreland	125.0
Somerset	140.9
Garrett	182.7
Allegany	188.4

National = 181.9
Maryland = 187.0
Pennsylvania = 121.8

Data Source: U.S. Geological Survey, Water Resources Discipline

Domestic Water Use



Data Source: U.S. Geological Survey, Water Resources Discipline

Conclusion: Using This Atlas for Park Management

A national park functions as part of a regional human ecosystem. A natural ecosystem can be understood in terms of factors such as flora, fauna, rainfall, temperature, elevation, and soil. Similarly, a human ecosystem can be understood in terms of factors such as population, commerce, social and cultural practices, politics, and land-use patterns.

The regional human ecosystem, like the natural ecosystem, strongly influences the long-term health of the park's natural and cultural resources. Just as a park may be concerned with upstream activities outside its boundaries yet inside its watershed, parks are also concerned with human activities taking place outside their boundaries yet inside their region. Thus, knowledge of natural and human conditions external to a park is as essential to park management as knowledge of internal natural and cultural conditions.

This atlas focuses on human activities and features in the region surrounding Flight 93 National Memorial. Five primary applications for this atlas as a tool for park management are:

- monitoring activities and analyzing trends that could have short- or long-term impacts on the park;
- making comparative studies, both within the region and between regions;
- assessing potential social impacts of management decisions;
- supporting collaborative decision-making and public participation; and
- educating park staff and other stakeholders about regional socioeconomic trends.

Monitoring activities and analyzing trends. The standardized data sources and presentation format of this atlas allow it to serve as a baseline for long-term monitoring of human conditions and trends that impact the park, such as immigration or economic shifts. These human conditions and trends can have significant implications for park planning and management. For example, the atlas can be consulted to determine trends in educational attainment among regional residents. This information could be helpful in designing interpretive and public participation programs and materials that can increase access to and understanding of the role of the park in the region. The atlas can be used to gain knowledge about the overall structure of and local variations in the regional economy. This information could be important to developing a strong collaborative working relationship with regional business leaders. The atlas can be examined to recognize trends in land use. This information could support proactive planning to mitigate potential impacts of development such as habitat fragmentation, degradation of air or water quality, or intrusions upon historic settings and/or scenic values.

Comparative studies. This atlas can support comparative studies of two kinds. First, the atlas can be used to compare counties within the region. By displaying the range of values for a particular indicator or a set of indicators, the atlas can help identify specific counties where it may be desirable to take (or avoid taking) certain management actions because of the potential impact on the human ecosystem. Second, the atlas can be used to make comparisons with other park regions. Potential management actions can be evaluated in terms of how effective they have been for another park unit where similar regional socioeconomic factors are involved.

Social impact assessment. Federal law and NPS planning directives require that park managers evaluate the social impacts of potential management actions. The socioeconomic indicators displayed in this atlas can make an important contribution to such social impact assessments. For example, the maps displayed here could be used to help understand the impacts of various park management plans and provide context for assessments at smaller scales, such as local communities.

Collaborative decision making. In developing general management plans, park staff are directed to "consider the park holistically … as part of the surrounding region" and to conduct planning "as part of cooperative regional planning whenever possible" (Director's Order 1998-2, par. 3.3.1.2). Tools such as this atlas can support the goal of applying a regional perspective to park planning and management. Distribution of this atlas to citizens, elected officials, educators, business and service groups, resource managers, and others can strengthen their ability to effectively participate in park management activities and decision-making. Maps that present facts in a standardized format can be particularly helpful for establishing common ground on which to decide upon management priorities, especially for decisions that affect both the park and the adjacent region.

Education and orientation. The atlas can be used to orient new park staff, as well as central office staff, to some of the basic facts about human activities in the park's region of interest. It can also serve as a tool for sharing information about socioeconomic trends with the public, gateway communities, media, and Congress.

In conclusion, effective park management requires a clear understanding of human activities in the surrounding region that can impact park resources and operations. By providing the "basic facts" about such activities, this atlas can help managers, citizens, and others better provide for the preservation and appreciation of Flight 93 National Memorial.

Appendices

Appendix 1: Data Sources for Indicators

The data sources used to obtain the measures for the socioeconomic indicators are listed below. The indicators listed on the left correspond to the titles of the maps in the atlas. The measure corresponds to captions for the legends used in the maps and the ranked data.

INDICATOR	MEASURE	DATA SOURCE
General Population		
*Total Population	total number of people (2003)	U.S. Department of Commerce, Census Bureau, http://eire.census.gov/popest/estimates_dataset.php
*Recent Population Change	% change in total number of people (1990 - 2000)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/population/cen2000/atlas/all_00.xls
*Projected Population Change	projected % change in total number of people (2000 - 2020)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
Median Age	median age of total population (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Table P13
Elderly Population	% total population 65 years old and over (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Table P12
Projected Elderly Population	projected % total population 65 years old and over (2020)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
Economy and Commerce		
*Earnings by Industry	% total earnings by industrial category (1999)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
*Employment by Industry	% employment by industrial category (1999)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
*Poverty	% total population in poverty (1999)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/hhes/poverty/2000census/poppvstat00.html
Unemployment	% of civilian labor force unemployed (1999)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 3 (SF3) Sample Data, Table PCT35
Home-Based Employment	% employed labor force working at home (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 3 (SF3) Sample Data, Table QT P-23
Median Household Income	median household income ($) (1999)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 3 (SF3) Sample Data, Table P53
Personal Income	average personal income per capita ($) (1999)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 3 (SF3) Sample Data, Table P82

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
Social and Cultural Characteristics		
*Racial Diversity	% total population belonging to minority race groups (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Table P7
*Educational Attainment	% total population 25 years old and over with some college or college degree (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 3 (SF3) Sample Data, Table P37
Family Structure	% families with single parent head of household (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Table P34
Recreation and Tourism		
Recreation/Tourism Establishments	% of total establishments in arts, entertainment, recreation, and accommodation services (2001)	U.S. Department of Commerce, Census Bureau, http://censtats.census.gov/cbpnaic/cbpnaic.shtml
*Recreation/Tourism Employment	% of total paid employees in arts, entertainment, recreation, and accommodation services (2001)	U.S. Department of Commerce, Census Bureau, http://censtats.census.gov/cbpnaic/cbpnaic.shtml
*Recreation/Tourism Revenue	% of total sales from arts, entertainment, recreation, and accommodation services (1997)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/epcd/www/econ97.html
Seasonal Housing	% of total housing units classified for seasonal, recreational, or occasional use (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Tables H3, H5
Administration and Government		
*Congressional Districts	Congressional Districts (2000)	U.S. Department of the Interior, U.S. Geological Survey, http://nationalatlas.gov/cgd108m.html

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
*Federal Expenditures	federal expenditures per capita ($) (2002)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/prod/www/abs/cffr.html
Payments in Lieu of Taxes	total dollars transferred to counties (2004)	U.S. Department of the Interior, Bureau of Land Management, http://www.blm.gov/pilt/search.html
Local Government Expenditures	local government expenditures per capita ($) (1997)	U.S. Department of Commerce, Census Bureau. Vol. 4, No. 3, Finances of County Governments; http://www.census.gov/govs/www/cog.html
Local Government Revenue	local government revenue per capita ($) (1997)	U.S. Department of Commerce, Census Bureau. Vol. 4, No. 3, Finances of County Governments; http://www.census.gov/govs/www/cog.html
Land Use		
*Federal Land Management	% land under federal management (2004)	1) U.S. Department of the Interior, Bureau of Land Management. Payment in Lieu of Taxes, Fiscal Year 2004. Washington, DC. http://www.blm.gov/pilt/search.html *(federal land in acres)* 2) U.S. Department of Commerce, Census Bureau http://www.census.gov/population/cen2000/atlas/all_00.xls *(county square mile data to convert into acres)*
*Federal Lands and Indian Reservations	federal lands and Indian reservations (2000)	U.S. Department of the Interior, U.S. Geological Survey, http://nationalatlas.gov/atlasftp.html
Farmland	% land classified as farmland (1997)	U.S. Department of Agriculture, National Agricultural Statistics Service, http://www.nass.usda.gov/census/
*Change in Farmland	% change in acres of farmland (1987 - 1997)	U.S. Department of Agriculture, National Agricultural Statistics Service, http://www.nass.usda.gov/census/
*Metropolitan Areas	metropolitan areas (1999)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/geo/www/cob/ma1999.html#shp

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
*Urbanization	level of urbanization (2003)	U.S. Department of Agriculture, Economic Research Service, http://www.ers.usda.gov/Data/UrbanInfluenceCodes/
Domestic Water Use	gallons of water per day per person (1995)	U.S. Department of the Interior, U.S. Geological Survey, http://water.usgs.gov/watuse/spread95/usco95.txt

** Denotes a core indicator, common to all atlases in this series. Additional indicators were selected by park managers to include information specific to their particular management needs.*

Appendix 2: Technical Notes on Map Design

Selection of Base Map Data – The regional base map used to map socioeconomic indicators in this atlas includes state and county boundaries, some of the major roads, major cities, and a few other selected cities and towns. The roads, cities, and towns are included to provide readers with a few familiar points of reference. It should be emphasized that this is not a general purpose atlas of the region, for it focuses only on socioeconomic indicators.

Choropleth Mapping – For most of the maps, data are grouped by quartiles which vary in shading from light to dark (for low to high values). This shading technique, known as choropleth mapping, is usually applied to ratio data; population density, infant deaths per 1,000 live births, and median income are examples. Maps that display total amounts (such as total population) often use other approaches, such as proportional symbols. For clarity, ease of use, and consistent design, choropleth mapping is used for most of the social indicator data.

Quartile Classification – The choice of a *quartile* classification of the data means that for most maps, counties were divided into four classes. Rather than focusing on the actual numerical value of the indicator for each county, the quartile approach emphasizes the rankings of data values among counties. The legend accompanying the map allows the reader to see the range of values among counties within a class. Quartiles make it easy for the reader to make intuitive comparisons among counties; the darkest shaded counties are in the "top quarter," the lightest shaded counties are in the "bottom quarter," and so forth. Quartiles also facilitate comparisons between maps in the atlas ("this county ranks in the bottom quartile on all three of these indicators").

Two notes: (1) Whenever the number of counties cannot be evenly divided by four, the convention for this atlas series is to reduce the size of the highest quartile first, then the next quartile if needed, then the third quartile if needed. Hence thirteen counties would be divided into groups of 4, 3, 3, and 3, with the last group of 3 having the highest data values/ darkest shading. (2) Counties with identical data values are grouped in the same quartile, even if this results in quartiles of unequal size.

Note on Political Boundaries – The regional base map depicts the formally defined political boundaries of states and counties.

Map Sources – The regional map on the cover and at the beginning of the atlas was generated from the North American HYDRO1k dataset (http://edcdaac.usgs.gov/ gtopo30/hydro/) developed at the U.S. Geological Survey's EROS Data Center. The standard region of interest map used throughout the atlas was generated from U.S. Geological Survey shapefiles. Contextual information (roads and cities) was also obtained from the U.S. Geological Survey (http://www.nationalatlas.gov).

Production – Indicator data for the atlas were compiled in Microsoft Excel 2000. These were linked to U.S. Geological Survey shapefiles using ESRI ArcMap GIS 8.3. The GIS files were imported into Adobe Illustrator 10.0 for final map

design. Text was prepared in Microsoft Word 2000. The final atlas layout (text, maps, graphics) was completed using Adobe InDesign 2.0.

Text Sources – Additional web resources used to prepare park and regional descriptions are:

- Public Law 107-226
- National Park Service: http://www.nps.gov/flni
- U.S. Census Bureau FactFinder: http://factfinder.census.gov
- Science Daily: http://www.sciencedaily.com/encyclopedia
- Pennsylvania Farm Bureau: http://www.pfb.com

Appendix 3: Technical Notes on Measurement of Selected Indicators

[1] Persons enumerated in the census were counted as inhabitants of their usual place of residence, which generally means the place where a person lives and sleeps most of the time. This place is not necessarily the same as the legal residence, voting residence, or domicile. In the vast majority of cases, however, the use of these different bases of classification would produce substantially the same statistics, although appreciable differences may exist for a few areas.

[2] For an explanation of Woods & Poole's projection methods see page 11 in the Woods and Poole Technical Documentation manual.

[3] Economic activity is categorized as belonging to one of four **industry categories**: agriculture/natural resources, construction/manufacturing, sales/services, and government. Individual workers, regardless of their specific job responsibilities, are classified according to the category their overall company or organization belongs to. Thus, while accounting is considered a "service" activity, an accountant for a mining company would be counted as working in "agriculture/natural resources." "Government" includes all federal government workers and all state/local employees, such as teachers, police, firefighters, etc. Even though government jobs may involve construction, natural resource management, or provision of services, they are still counted as belonging to the "government" category.

[4] See note above on industry categories.

[5] **Poverty** is measured as the percentage of the total population living below the poverty level. The poverty level is defined as earnings of $17,029 or less for a family of four persons (1999). Poverty thresholds are applied on a national basis and are not adjusted for regional, state, or local variations in the cost of living.

[6] **Unemployed** persons include civilians 16 years old and over who had no employment during the reference week, made specific efforts to find a job within the previous four weeks, and were available for work during that week, except for temporary illness. Persons laid off and expecting recall to a job also are classified as unemployed. All other civilian persons, 16 years old and over, are "not in the labor force." The reference week is the full calendar week (Sunday through Saturday) preceeding the date each respondent completed their Census 2000 questionnaire. This calendar week is not the same for all people since the enumeration was not completed in one week.

[7] **Personal income** is measured as the average per capita income. This is obtained by dividing the total personal income of county residents by the total population of the county.

[8] **Racial diversity** is defined for this measure as the percentage of the population classified as being non-White. Diversity by this definition does not necessarily measure the degree of "variety" in the population. For example, a hypothetical county with a 90% Asian population would be considered more "diverse" than a county in which each of the six major race groups constituted 10% of the population (in the latter case, diversity would be measured as 60%). The Hispanic or Latino origin category was not included in this measure because persons of Hispanic or Latino origin may be of any race (including White).

[9] For the census, persons are classified according to the highest level of school completed or the highest degree received.

[10] **Recreation and Tourism** is composed of the arts, entertainment, and recreation sector and the accommodation subsector, both a part of the North American Industry Classification System (NAICS). The arts, entertainment, and recreation sector includes museums, historical sites, gambling and recreation industries, golf courses and country clubs, fitness and recreational sports centers, and all other amusement industries. The accommodation subsector is comprised of establishments including hotels, motels, bed and breakfasts, RV parks, recreational camps, and vacation camps. For a complete definition of these NAICS categories please consult http://www.census.gov/epcd/www/naics.html.

[11] See note above on Recreation/Tourism.

[12] See note above on Recreation/Tourism.

[13] Housing unit is a house, apartment, mobile home or trailer, group of rooms, or single room occupied or, if vacant, intended for occupancy as separate living quarters. Seasonal, recreational, or occasional use refers to vacant units used, or intended for use, only in certain seasons or for weekend or other occasional use throughout the year. A housing unit is vacant if no one is living in it at the time of enumeration, unless its occupants are only temporarily absent. Units temporarily occupied at the time of enumeration entirely

by persons who have a usual residence elsewhere are also classified as vacant.

[14] **Federal expenditures** include expenditures, or obligation for, direct payments for individuals, procurement, grants, salaries and wages, direct loans, and guaranteed loans and insurance. Grant awards are reported by county of the initial recipient; thus if the initial recipient is the state government, the county in which the state capital is located is reported as having "received' that "pass-through" grant, even though the monies are subsequently distributed to other local governments.

[15] **Federal lands** include all tax-exempt federal lands administered by the Bureau of Land Management (BLM), the National Park Service, the U.S. Fish and Wildlife Service, the U.S. Forest Service, federal water projects, and some military installations (tribal lands are not included). The BLM calculates the amount of federal land within counties in order to administer the federal government's payments-in-lieu-of-taxes (PILT) program.

[16] The U.S. Geological Survey produces the **Federal Lands and Indian Reservations** map layer. This map layer does not include any federally and Indian held land that has an areal extent smaller than 640 acres. For more information and metadata, consult http://www.nationalatlas.gov/fedlandsm.html.

[17] **Farmland** consists primarily of agricultural land used for crops, pasture, or grazing. Also included is woodland and wasteland not actually under cultivation or used for pasture or grazing, provided it was part of the farm operator's total operation. Farmland includes acres in the Conservation Reserve, Wetlands Reserve Programs, or other governmental programs. Farmland includes land owned and operated as well as land rented from others. Land used rent-free is included as land rented from others. All grazing land, except land used under government permits on a per-head basis, is included as farmland provided it is part of a farm or ranch. Land under the exclusive use of a grazing association is reported by the grazing association and included as farmland. All land in American Indian reservations used for growing crops or grazing livestock is included as farmland. Land in reservations not reported by individual American Indians or non-Native Americans is reported in the name of the cooperative group that used the land.

[18] See note above on farmland.

[19] Certain **MAs** are defined around two or more nuclei. Each MA must contain either a place with a minimum population of 50,000 or a U.S. Census Bureau-defined urbanized area and a total MA population of at least 100,000. For a complete definition, consult http://www.census.gov/geo/www/cob/ma_metadata.html.

[20] The Economic Research Service classifies counties according to their level of **urbanization**. The classification consists of twelve mutually-exclusive codes:

METROPOLITAN COUNTIES
1) In large metro area of greater than 1 million residents
2) In small metro area of less than 1 million residents

NONMETROPOLITAN COUNTIES

3) Micropolitan adjacent to large metro
4) Noncore adjacent to large metro
5) Micropolitan adjacent to small metro
6) Noncore adjacent to small metro with own town
7) Noncore adjacent to small metro no own town
8) Micropolitan not adjacent to a metro area
9) Noncore adjacent to micro with own town
10) Noncore adjacent to micro with no own town
11) Noncore not adjacent to metro or micro with own town
12) Noncore not adjacent to metro or micro with no own town

For more information, contact:

Dr. Jean E. McKendry
National Park Service
1849 C Street, NW (MIB 3130)
Washington, D.C. 20240
E-mail: jean_mckendry@partner.nps.gov

Final Version Date: 1/2005

NATIONAL
PARK
SERVICE