environmental assessment

general management plan
june 1981

SHENANDOAH

NATIONAL PARK / VIRGINIA

ENVIRONMENTAL ASSESSMENT
For
General Management Plan

June 1981

Shenandoah National Park
Virginia

Prepared By

Denver Service Center
National Park Service
United States Department of the Interior

Approved For Public Review _____ 6/29/81
Regional Director, Mid-Atlantic Region Date

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FOREWORD

The continuing mission of the National Park Service at Shenandoah National Park is to preserve the existing resources for the enjoyment of this and all future generations, and to provide opportunities, necessary facilities, and programs for visitor enjoyment. In its daily activities of protection, maintenance, and administration, the National Park Service operates under the guidance of a general management plan (formerly called a master plan) for each unit in the National Park System. The existing plan for Shenandoah was prepared from data gathered in 1965, and it was approved in 1967. Sufficient changes in activities within the park and in the nature of its surroundings have occurred over the past 15 years, warranting the preparation of a new plan.

Opportunities for public involvement are provided during various stages of the National Park Service planning and decision-making processes. Knowledge of public attitudes helps management arrive at optimal decisions affecting preservation and visitor use of the areas within the National Park System, but it does not nullify the congressionally mandated authority and responsibility of the National Park Service for planning and management.

With the benefit of public input obtained between May 1978 and September 1979 from individual citizens and various groups and agencies, the planning team has prepared this Environmental Assessment (formerly called assessment of alternatives). It presents for public review possible future courses of action for the land base, resource management, visitor use, and development of Shenandoah National Park for the next decade. Included with each choice or alternative is an assessment of the impacts, or consequences, that can be expected if a particular alternative would be selected for implementation. This document does not provide every possible answer for every question or problem; rather, it outlines reasonable solutions that should be attainable within ten years after the general management plan is put into effect.

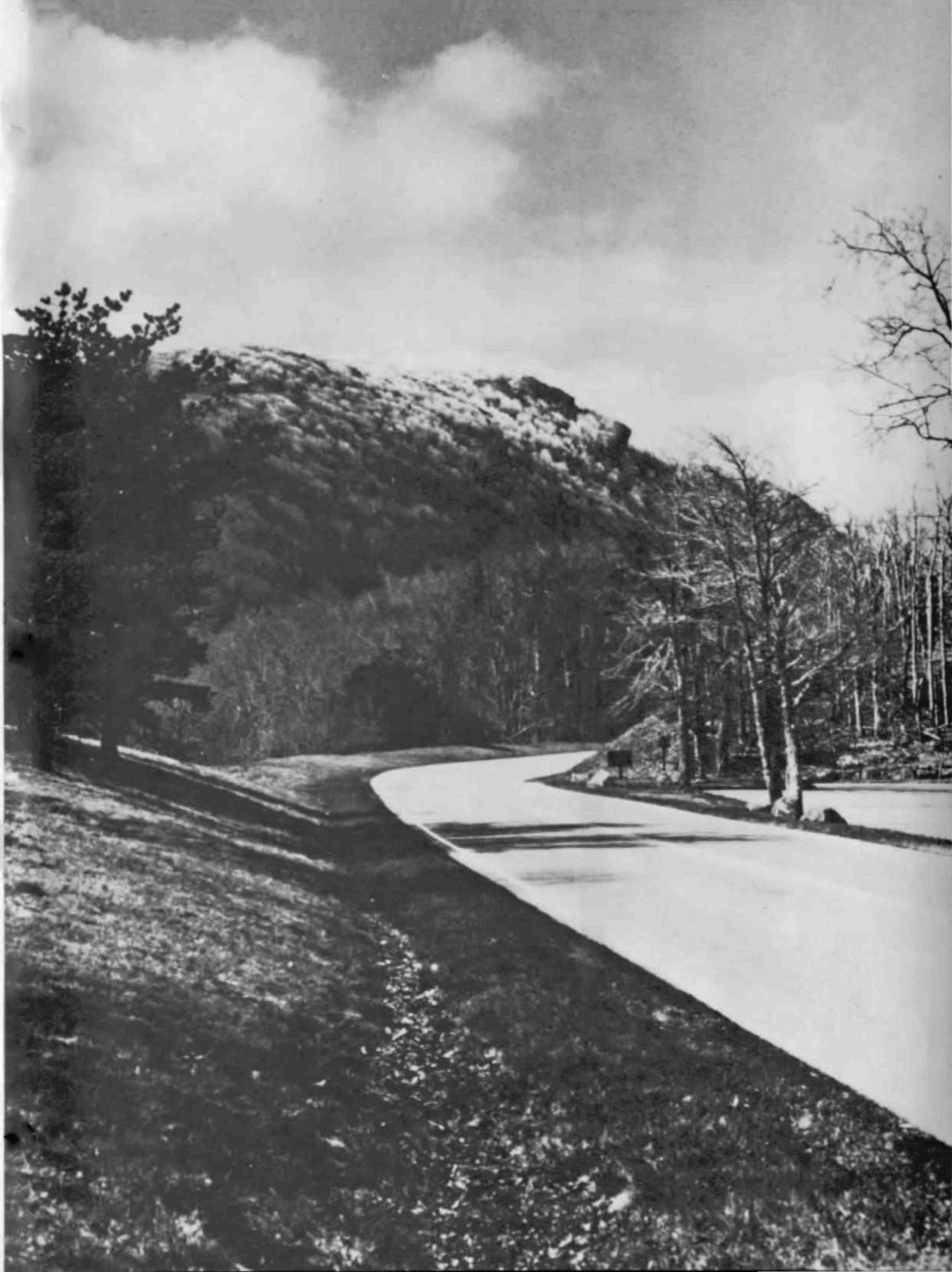
A certain amount of flexibility to allow for further modification and refinement has been retained for several reasons. Since one alternative from each topic must be selected to provide a unified overall general management plan, and since all alternatives are not completely compatible, adjustments may be required. In order to present clear choices for consideration, the alternatives have been prepared to be as distinct as possible, with the full realization that two or more on a particular topic may be combined later. To conserve time, personnel, and funds, each alternative has not been developed in fine detail because further study and consideration will be necessary after this document is reviewed. However, this Environmental Assessment does allow thoughtful discussion for the next decade, or slightly longer, of the future of Shenandoah National Park and the role it should play on the American landscape.

PUBLIC COMMENT IS INVITED. Using the enclosed review worksheet, comments on the alternatives should be mailed to:

Shenandoah Planning Team - TNE
National Park Service - DSC
755 Parfet Street
P.O. Box 25287
Denver, Colorado 80225

After all comments have been carefully considered by the planning team, the regional director of the Mid-Atlantic Region, National Park Service, will re-review this document, and with counsel from his staff, the park superintendent, and the planning team, he will select an alternative(s) from each topic as the basis for a draft general management plan.

The draft plan will describe the purpose of Shenandoah National Park as derived from applicable legislation, National Park Service policy, resource values, and the park's regional context. The plan will provide an overall, unified program for preservation, interpretation, visitor use, development, and administration. Following public review and comment on the draft plan and the accompanying draft environmental statement, revisions will be made, if necessary, and the regional director will approve a final general management plan. If the final plan should contain any proposed actions that cannot be accomplished within existing legislative authorities, it will be necessary to request additional legislative authority from the Congress.



INTRODUCTION

First explored by Europeans in 1669, the Blue Ridge Mountains attracted pioneers who settled in the coves, hollows, and on the few level mountain-tops to operate their farms, mines, and other industries. For 200 years the natural resources of the mountains were used for meager economic gain, and the scenic and recreational benefits were chiefly overlooked. Notable exceptions were the Blackrock Springs Hotel of the mid 19th century and the founding of Stony Man Camp in 1894 by George Freeman Pollock.

Interest in preserving areas in the southern Appalachian Mountains began in the late 19th century. The first official mention of a national park in this area can be found in legislation introduced in the Congress in 1901. Proposed again in 1903, the idea was dropped in favor of forest preserves and concluded in the passage of the Weeks Act in 1911 which provided for national forests in the eastern United States.

The national park idea resurfaced in the 1923 annual report of the National Park Service where Director Mather wrote: "There should be a typical section of the Appalachian range established as a National Park with its native flora and fauna conserved and made accessible for public use and its development undertaken with Federal funds."

In 1924 the Southern Appalachian National Park Committee was appointed by the Secretary of the Interior to investigate the possible existence of sites in the southern Appalachians suitable for the establishment of such a park. The result of the committee's work was an act (43 Stat. 958) passed in February 1925 that directed the Secretary of the Interior to determine the boundaries and areas within the Blue Ridge Mountains of Virginia that could be recommended as Shenandoah National Park and such portion of the Smoky Mountains lying in Tennessee and North Carolina that could be recommended as Smoky Mountains National Park. Within the next year considerable public support developed within the commonwealth of Virginia for a large national park in the Blue Ridge Mountains.

In May 1926, another act (44 Stat. 616) was passed providing for the establishment of Shenandoah National Park. Its major provisions were that the lands could be secured by the United States only by public or private donation, that the tract include approximately 521,000 acres, and that the minimum area to be administered be 250,000 acres. The citizens of the Shenandoah Valley campaigned to raise the money to purchase the necessary land, which consisted of over 4,000 separate tracts. The Virginia General Assembly provided funds and passed a special law for the acquisition of the land to be donated to the National Park Service. The task proved complicated and costly, so Congress reduced the minimum requirements to 160,000 acres. By 1935 the deeds to the land were ready, and the commonwealth of Virginia donated approximately 176,500 acres to the Department of the Interior for the establishment of Shenandoah National Park. On July 3, 1936, President Franklin D. Roosevelt dedicated the park "to the present and future generations of America for the recreation and re-creation which we shall find here."

When conceived and authorized, Shenandoah was envisioned as a substantive area of plant and animal life in precolonial primitive conditions. But in fact, the park bore little resemblance to that vision when it was dedicated. The establishment of the park did, however, offer protection to what remained of the plants and animals, and with favorable climate and inherent vitality, nature began its restorative process. Evidence of the settlement period has faded, and the park is now about 95 percent forested. Many of the animals that had been greatly reduced or extirpated have returned. So complete has been the regeneration in four decades, that in 1976, nearly 80,000 acres were deemed of suitable primitive character to be included in the National Wilderness Preservation System.

While Shenandoah National Park was intended to be a sample of the southern Appalachian portion of primitive America, it was also intended that the available resources would be used and enjoyed, without degradation, by great numbers of visitors each year. In underscoring this point, the Congress appropriated funds to begin the construction of the Skyline Drive in 1931--four years before the establishment of the park on December 26, 1935.

Also started before the establishment of the park was the construction of the Appalachian Trail. The 95-mile portion within Shenandoah National Park was constructed between 1926 and 1936. The entire 2,000-mile trail from Maine to Georgia was designated as the Appalachian National Scenic Trail in 1968.

With no facilities or services, except the 34-mile Skyline Drive, Shenandoah recorded over a half million visitors in 1935. Over the years, visitation has generally increased and now approximately 3 million people visit each year, with nearly two-thirds coming from outside Virginia. This popularity demonstrates that the recreational and re-creational opportunities provided by Shenandoah National Park are valuable to present-day Americans.

Man has been present in the Blue Ridge Mountains of northern Virginia for around 10,000 years, and during this time he has caused many changes in the environment. From the Indians who cleared openings in the forests for hunting, to European settlers and their descendants who removed the trees and wildlife, man has heavily used the land. Starting in the third decade of this century, with the help of man's more gentle hand, this mountain environment began a renewal and regained a primitive character. This did not exclude man's use, but it required his reorientation as to the role that the environment can play in his life. Thus Shenandoah National Park is a tribute to both the vitality of nature and the possibility that man can live in harmony with his environment.

PROBLEM STATEMENT

The uniqueness of Shenandoah National Park is its combination of situation, resources and facilities, and visitors. Located near the large concentrations of population of the eastern United States, Shenandoah is an easily accessible mountain range containing varied flora, fauna, geology, streams, and historic sites and structures. Facilities include over 400 miles of trails, campgrounds, lodges, and the 105-mile-long Skyline Drive, which is one of the most spectacular scenic drives in the world. Visitors of diverse social and economic backgrounds find opportunities for hiking, horseback riding, camping, picnicking, pleasure driving, scenic viewing, learning of nature and human endeavors, change-of-pace retreat, and solitude. Once in a lifetime, once a year, many times--for the day or for several days--visitors come in large numbers for the "recreation and re-creation" they find here, as President Roosevelt envisioned when he dedicated the park.

Shenandoah National Park is a well managed park. Examinations by the National Park Service and public response during preplanning activities indicate a general satisfaction and agreement with the present use, development, and operations of the park; however, certain concerns and problems in the present and future have been perceived which should not be ignored. Rather, serious consideration and foresight should be given to possible improvements and solutions so that Shenandoah National Park will be a contemporary expression of its legacy.

LAND BASE

Shenandoah National Park consists of approximately 195,000 acres, which is less than 38 percent of the size originally authorized by Congress. The park base has a very irregular, sawtoothed shape that is often unrelated to topographic features, natural and recreational resources, and access routes.

Land uses around the park are changing. Idle fields, forests, and marginal agricultural lands are being redirected to country and vacation homes and subdivisions. Unsound development results from the use of very steep land, improper planning of roads and utilities, and the removal of vegetation. Changing land uses and the park's irregularity are causing the loss of traditional accesses, problems in the protection and use of the park, land use conflicts, and threats to the internal and external visual aesthetics of the park and the Blue Ridge Mountains.

The potential to develop additional park perimeter facilities and accesses, improve interior circulation, and protect wildlife and significant ecological units such as watersheds and vegetation types is restricted by the irregularity and limited size of the park. Currently the only means to expand and change the park are through donation and equal value exchange.

RESOURCE MANAGEMENT

Natural Resources

Shenandoah represents one of the nation's most diverse botanical reserves. The documented flora of the park contains nearly 1,400 species of plants. As the natural succession process continues, there is a slow movement towards a mature forest covering almost the entire park. Certain understory plants are being shaded out, which will reduce the diversity of plant species.

As openings in the forest are reduced, wildlife in the park will be affected, especially the larger mammals such as deer and bear. Some animals will congregate at the remaining openings in developed areas, along trails, and along the Skyline Drive. While this provides a great attraction for visitors, it will cause problems of road kills and possible injury to unwary visitors.

Increasing human activity and changing land use around the park will alter habitats and movement of animals in and out of the park. As food, water, and cover are reduced, more animals will either die or migrate into the park.

Cultural Resources

The Antiquities Act of 1906, the Historic Sites Act of 1935, the Historic Preservation Act of 1966 (which established the National Register of Historic Places) and 1980 amendments, and Executive Order 11593 (Protection and Enhancement of the Cultural Environment), as well as National Park Service policies, direct the identification and appropriate protection of cultural resources within parks.

Shenandoah contains hundreds of historic and archeological structures and sites. These include such features as standing structures, ruins, foundations, cemeteries, roads, fences, landscapes, and vegetation from around 10,000 years of human activity.

Identification and evaluation of these resources as to significance and potential for inclusion on the National Register has been undertaken. Choices as to stabilization, restoration, reconstruction, types of use, and levels of maintenance need to be considered in the management.

VISITOR USE AND INTERPRETATION

Heavy use of Shenandoah National Park is in itself neither an indicator of the proper use of resources nor a measure of the quality of the visitor experience. Misuse and overuse can impair and even destroy the attractions and values that warrant initial interest. Certain areas of the park attract more visitors than others, and certain activities during the peak periods occur at, or near, the capacity of the facilities and resources. This can lead to the deterioration of both the resources and the quality of the visitor experience.

Shenandoah attracts visitors who wish to participate in a variety of activities--some are traditional, some are relatively new, and others are not permitted in the park. Occasionally there is competition between different types and styles of users for certain resources and facilities. Visitors may be disappointed when it is not possible to participate in the activities planned. The appropriateness of visitor activities needs to be considered in light of protecting the existing resources and the enjoyment of the park by all.

Poaching, arson, and vandalism are some of the illegal activities within the park While the park's resources must be protected, too much regulation or overzealous enforcement could result in visitor resentment and destroy a relaxed vacation.

Shenandoah National Park has an outstanding interpretive program. However, many visitors limit their park experience to driving the Skyline Drive, and opportunities for other experiences are not utilized. There may be a need for better information and more encouragement so that visitors might broaden their outlook and try other areas of the park.

DEVELOPMENT

The Skyline Drive, campgrounds, lodges, trails, ranger stations, and other facilities enhance visitor use and support resource protection of the park. Certain existing facilities are becoming inadequate due to poor location, original construction, deterioration from old age, and current health and safety standards.

As visitation has increased, so has the demand for recreation facilities. Consideration needs to be given to improving the diversity and quantity of such development as trails, overnight accommodations, handicapped facilities, group picnic areas and campgrounds, horse facilities, perimeter access, development, and information/orientation. Likewise improvements in support facilities, such as maintenance yards, communication systems, ranger stations, and staff housing, need to be considered so as to ensure that the park and its visitors are protected adequately. Care must be exercised to prevent the park's resources and atmosphere from being overshadowed by development.

Increasing visitation has meant more automobile use on the Skyline Drive. Some visitors perceive the heavy traffic on holidays, summer weekends, and fall color weekends as highly undesirable. The problem is not only the number of vehicles but also the slow movement caused by sightseeing, underpowered vehicles, bicycles, wildlife, and motorists unfamilar with mountain driving.

Access to, and circulation within, the park is almost totally dependent on the private automobile. Consideration should be given to choices that may be available to reduce this dependency.

CONCLUSION

It is the purpose of this Environmental Assessment to focus on available choices for the best management of Shenandoah National Park for a ten-year period. The general funding and priorities of the National Park Service will dictate the timing and quantity of funds and personnel that will be available during this period. Interim actions may be required, but thoughtful consideration should be directed to the next decade so that Shenandoah National Park will approach the 21st century as a well managed public preserve, responsive to the needs and aspirations of the next generation of Americans.

DESCRIPTION OF THE ENVIRONMENT

Shenandoah National Park lies nearly midway between Maine and Florida in the Blue Ridge Province of the Appalachian Mountains. It is the northeast corner of a ten-unit sequence of national parks and forests, which cover a distance of nearly 700 miles and an area of 4.8 million acres in the southern Appalachian Mountains. More specifically, Shenandoah National Park is the northern park of three interconnected units of the National Park System--the Great Smoky Mountains National Park, Blue Ridge Parkway, and Shenandoah. These units of the National Park System were initiated between 1925 and 1936 to provide public access and enjoyment of the natural and cultural values of the southern Appalachians.

REGIONAL CONTEXT

During the long passage of years, volcanic episodes, incursions and retreats of the sea, and the granitic base rock determined the geomorphic character of the area. Erosion, uplift, deposition, as well as climatic and biological processes, have produced one of Virginia's most charming and scenic countrysides.

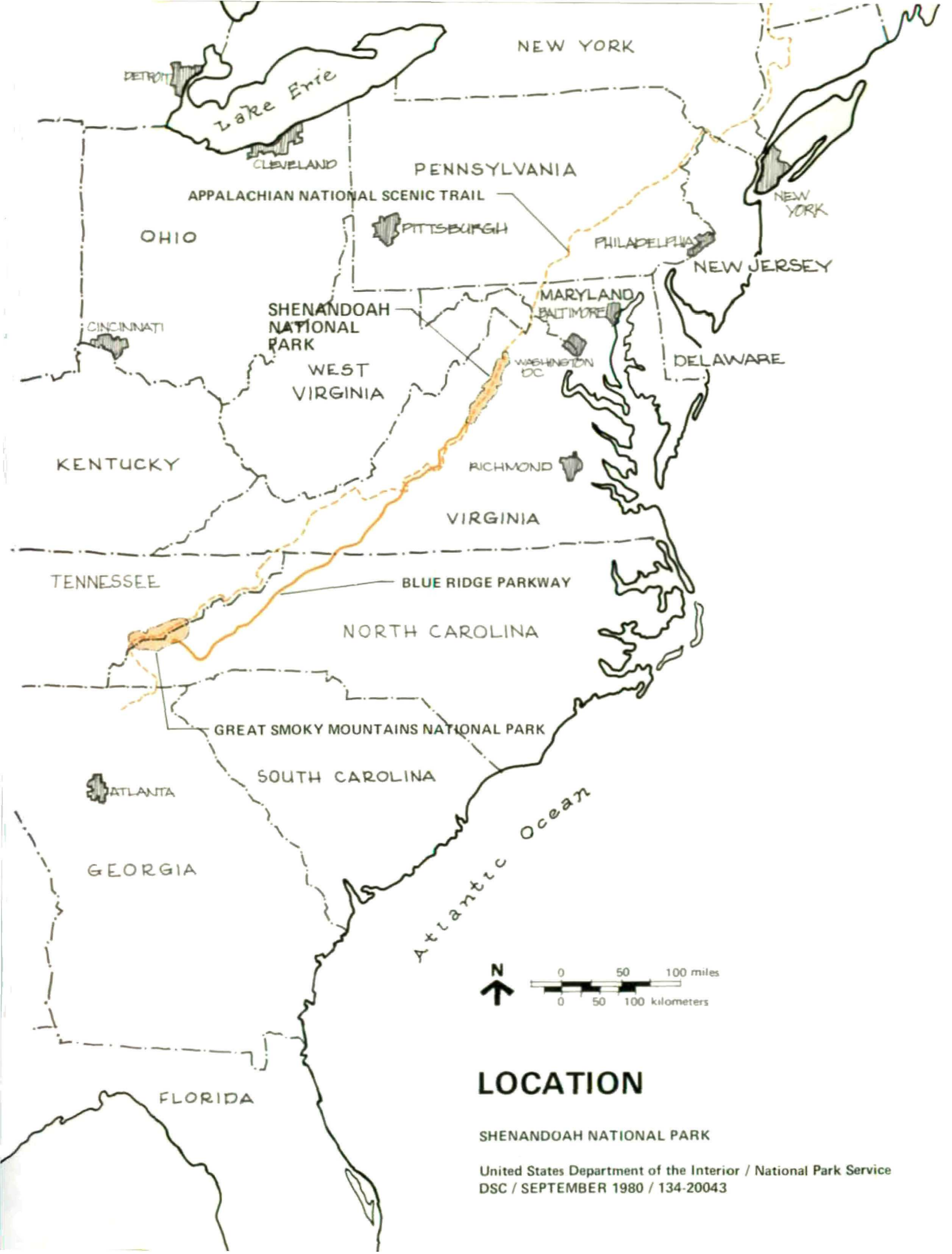
In the north, the Blue Ridge Mountains appear as a modest line of low hills, but to the south, they widen into a broad area of peaks and ridges separated by gaps and hollows. From the ridge, the Piedmont fades eastward to the distant tidewater. To the west, the Shenandoah Valley sprawls to the forested slopes of the Appalachian Mountains.

The Piedmont Plateau is a belt of low rolling hills, valleys, and upper watersheds gently sloping from the Blue Ridge to the coastal plain. The coastal plain is a low, flat plain extending to Chesapeake Bay and the Atlantic Ocean. The Potomac, Rappahannock, and James rivers flowing from the Blue Ridge divide the Piedmont and separate the plain into narrow peninsulas.

The land to the west is more diverse - the Great Valley of Virginia parallels the Blue Ridge and the highlands of the Appalachians from Cumberland Gap to the Potomac River. In this broad valley, the North Fork and the South Fork of the Shenandoah River, separated by the Massanutten Mountain, meander north to join together near Front Royal. From here, the Shenandoah flows north to empty into the Potomac at Harper's Ferry, West Virginia. Beyond the Shenandoah Valley is the Ridge and Valley Province of the Appalachian Mountains and the state of West Virginia.

Paleo-Indians appeared in the region at least 12,000 years ago and hunted and gathered food in the Blue Ridge Mountains. Sporadic occupation and use of the area continued until the mid 18th century when European settlers began moving into the Piedmont and Shenandoah Valley.

By the 1820s, the Shenandoah Valley was a common trade route for cotton, tobacco, and other produce to Harpers Ferry, Baltimore, and



LOCATION

SHENANDOAH NATIONAL PARK

United States Department of the Interior / National Park Service
DSC / SEPTEMBER 1980 / 134-20043

Washington. Turnpikes and roads crossed the mountains, connecting the Piedmont with the Valley. Just prior to the Civil War, farmers began replenishing depleted soils with fertilizers, and the Shenandoah Valley became the major producer of grains for Richmond milling and shipping, and as a prime location for fine grazing land for a growing cattle industry.

Because trade routes to the north and to the south were well established, and because the Shenandoah Valley served as a direct access between the North and the South, control of it was of major importance during the Civil War. Stonewall Jackson kept Washington under constant threat of attack in his campaign of 1862 by controlling all the resources in the Valley. General Sheridan's campaign cleared the Shenandoah Valley of Confederate forces by late fall, 1864.

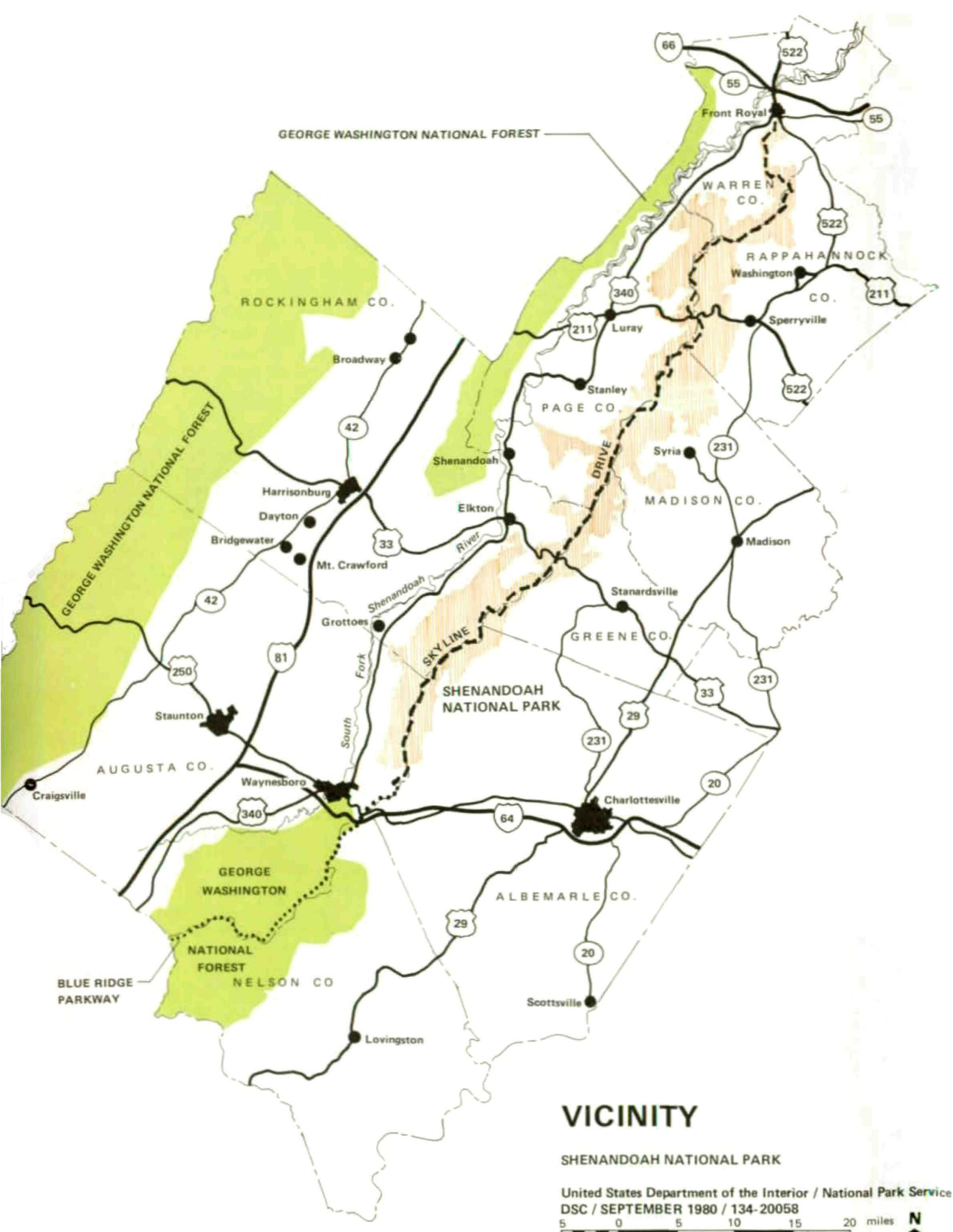
After the war, the rural industries revived. The Valley and the Piedmont were used for farming, orchards, tanning, and support for the logging industries. Life for the mountain people continued on a subsistence basis, isolated from the more complex Valley progress. The tenuous economic security of the mountain people declined with the advent of the railroad in the Valley, a new emphasis on commercial crops and products, and the replacement of the bartering system by cash transactions. Meager mountain resources were exploited and the death blow fell in 1915 when the chestnut blight decimated the trees that were the mainstay of the mountain economy. As the mountains were being worked dry of their resources and residents began exiting, summer mountain resorts were becoming more popular with prosperous urban dwellers. This movement, combined with concerns to establish a national park in the southern Appalachian, resulted in the authorization of Shenandoah National Park in 1926.

Socioeconomic Factors

Shenandoah National Park has been entitled as "a park outside a park." The scenic views from the Skyline Drive and other vistas are one of its most important assets. Since most of the views extend beyond the boundaries, the development and use of the surrounding area have an influence on the character of the scenery. On the other hand, Shenandoah National Park is very popular, and development of tourist-related services in the counties surrounding the park would be affected by the development and management of the park.

The local vicinity of the park consists of four counties in the Shenandoah Valley (Warren, Page, Rockingham, and Augusta counties) and three independent cities (Harrisonburg, Staunton, and Waynesboro). In the Piedmont are five counties (Rappahannock, Madison, Greene, Albemarle, and Nelson) and the independent city of Charlottesville. A number of incorporated towns are located in the counties.

Population. The local region is predominately a rural environment. Table 1 shows that 37 percent of the population lives in urban communities and 63 percent resides in rural areas, which contrasts with the state of Virginia, where 63 percent live in urban areas and 37 percent live in rural areas.



VICINITY

SHENANDOAH NATIONAL PARK

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5 0 5 10 15 20 miles

5 0 5 10 15 20 25 30 kilometers

N

In addition to overall growth, a significant movement of the population occurred during the latter half of the decade between 1960 and 1970. In 1970, of the population five years old or older, only 33 percent of the people living in the Valley were residents of the same county as in 1965, as were only 20 percent of the people living in the Piedmont. These figures reveal much movement of people into and out of the local region. Many leaving were subsistence farmers, who found it difficult to make a living in agriculture.

Most new people came from other areas within the state. Over 80 percent of the Valley residents and 71 percent of the Piedmont residents were born in Virginia. Among new residents of the local region are people who moved from northern Virginia to commute to Washington, D.C., and Richmond. These "exurbanites" moved into scenic and low-density rural areas to escape the congestion and pressures of the metropolitan areas.

Economy. The resources of the region are essentially the land and vegetation it supports. Initially, settlers were attracted by the fertile soils of the Valley, while the lands to the east of the Blue Ridge had limited capacity for cropland, encouraging the raising of livestock. In the last 40 years, the status of farming has diminished. Since 1940, the number of farms and the proportion of land under cultivation has declined, reflecting the increased costs of land, equipment and labor, higher taxes due to land speculation and development, and a declining interest in farming as an occupation for young people. At the same time, the size of farms and the value of farm products have increased.

Over 600 square miles, or 13.7 percent, of the nine-county region is in federal ownership. In 1979, over $1,330,000 of federal funds were distributed in the form of payments in lieu of taxes. Shenandoah's portion was over $120,000, or 9.2 percent of the total federal payment.

Mining and the processing of products from fields, forests, and quarries were formerly the main sources of employment. Other jobs provided services for farmers, miners, and manufacturers. Through the early part of this century, manufacturing was still closely tied to local products. In recent years, the economy has become more balanced, with new industry attracted by available labor, water supply, and improved transportation to markets in the major metropolitan areas.

The economy of the Valley counties is a balanced combination of agriculture, industry, and scenic attractions. Agricultural products include poultry, cattle, and fruit. Light industry produces furniture, clothing, air conditioning equipment, chemicals, plastics, synthetic textiles, and other items.

The economy of the Piedmont counties is more uncertain. Charlottesville and its vicinity will continue as the principal educational, cultural, and population center of the area. In Greene, Madison, and Rappahannock counties, there is opportunity to develop light industry. Subsistence farming has declined, and this trend is destined to continue.

Table 1. Selected Population Characteristics

Counties	1980 Total Population	Population Change 1970 to 1980(%)	1980 Density (per sq mi)	1970 Urban Population (%)	1970 Rural Population Farm (%)	1970 Rural Population Nonfarm (%)
Albemarle	50,689	34	68	0	5.3	94.7
Augusta	53,732	22	55	0	15.3	84.7
Greene	7,625	45	50	0	10.2	89.8
Madison	10,232	18	31	0	15.4	84.6
Nelson	12,204	4	26	0	12.0	88.0
Page	19,401	17	61	22.6	6.4	71.0
Rappahannock	6,093	17	23	0	13.4	86.6
Rockingham	57,038	19	65	7.0	16.0	77.0
Warren	21,200	19	97	5.3	39.1	3.3
Subtotal	238,214					
Cities						
Charlottesville	45,010	16	4,328	100	0	0
Harrisonburg	19,671	35	3,279	100	0	0
Staunton	21,857	-13	2,456	100	0	0
Waynesboro	15,329	-9	2,044	100	0	0
Subtotal	101,867					
TOTAL	340,081	18	77	37.4	7.6	55.0

Land previously under farm protection has been developed for people who commute to metropolitan areas and other urban communities where employment is available. According to the 1970 census, approximately 60 percent of employed persons work in their own counties, indicating a high rate of commuting. This rate increases as the number of exurbanites moving into rural sections increases.

One important sector of the local regional economy is the travel industry. Table 2 was drawn from an analysis of the travel industry in Virginia and shows that the Shenandoah region has over 10,000 owners and workers employed, and nearly 1,700 firms active in travel-related business.

Spending by travelers in the local region amounted to close to $113 million, accounting for about 9 percent of the retail business. In addition, the region's travel-related businesses, which serve local customers as well as travelers, reported sales of $261 million that contributed about 20 percent of the area's retail business. The benefits to the local region from travel expenditures do not end with the dollar spent by travelers in travel-related businesses. Instead, the travel dollar is passed on to other persons and businesses where it generates two or three dollars more through the multiplier effect.

Shenandoah National Park visitors and concessioner and park operations are an important part of the local region's tourist industry. Annual visits to the park have increased over the years. During 1980, visitors to Shenandoah spent over $930,000 for entrance and camping fees. This money is deposited in the Land and Water Conservation Fund of the U.S. Treasury to provide federal assistance to the states for acquiring, planning, and developing recreation areas, and for federal acquisition of land for public recreation or preservation of threatened fish and wildlife. Therefore, visitors to the park provide benefits for the nation as well as the local region.

The park concessioner, ARA Virginia Sky-Line Company, Inc., is an important contributor to the local regional travel business. During fiscal year 1980 sales were over $5.6 million. Moreover, the company employs around 50 persons year-round, over 250 during the shoulder months of April through June and September, and almost 300 during the peak months of July, August, and October. Approximately 90 percent of the seasonal employees are from communities surrounding the park.

National Park Service employment and operations at Shenandoah National Park also contribute to the local as well as the national economy. Shenandoah usually employs around 90 persons full-time and around another 160 part-time and seasonally. About 50 percent of the part-time and seasonal workers are from the local region.

The scenic and historic countryside, especially that associated with Shenandoah National Park, is an important resource to the local regional economy. Outdoor recreation and tourist-related services appear to be an increasingly important activity in the local region.

Table 2. Travel Expenditures, Firms and Employees, 1977

	Expenditures by All Travelers[a]		Travel-Related Business Total Sales[b]			
	Amount in $1,000	Percent of Retail Business[c]	Amount in $1,000	Percent of Retail Business[c]	Owners and Workers Employed[d]	Active Firms[e]
Counties						
Albemarle	$ 8,177	6.2	$ 18,298	13.8	950	80
Augusta	11,340	9.3	31,307	25.8	845	190
Greene	1,030	12.5	3,578	43.4	129	41
Madison	1,334	6.7	6,099	30.5	112	32
Nelson	1,636	9.6	4,838	28.3	124	44
Page	5,886	10.8	15,818	29.0	702	115
Rappahannock	512	6.4	1,580	19.6	81	27
Rockingham	9,832	8.3	25,668	21.6	904	193
Warren	7,063	8.9	16,154	20.4	541	120
Cities						
Charlottesville	35,323	11.4	63,012	20.3	3,083	346
Harrisonburg	11,770	6.7	30,999	17.7	1,563	184
Staunton	9,732	7.6	22,922	17.8	814	184
Waynesboro	9,179	9.3	21,245	21.5	738	123
Total	112,814	8.7	261,518	20.5	10,586	1,679
State of Virginia	$1,880,000	9.0	$4,371,800	21.0	187,160	25,250

[a]Expenditures by all travelers for cost of living away from home were estimated on the basis of data in the Virginia Visitor Travel Survey (1974), national travel surveys, state tourist surveys, transportation reports, highway traffic counts and vehicle miles traveled, vehicle classification data, ratios and averages of travel expenditures from surveys of travelers, studies of family spending for travel, and sales in travel-related businesses.

[b]Total sales to all customers in the major travel-related businesses were estimated on the basis of the Census of Business and Virginia sales tax reports; included are lodging, eating, and recreation services, and gasoline, accessories, and auto services. The statewide operations of passenger transportation utilities are not included in the county data.

[c]Retail business includes retail sales and selected services.

[d]The number of active owners and hired workers was based on the Census of Business and County Business Patterns.

[e]The number of firms was based on the Census of Business, supplemented by Virginia Health Department Inspection records of lodging and eating places and by data on tax paying firms.

SOURCE: Copeland, Lewis C., Travel in Virginia 1977, An Economic Analysis, Virginia Travel Service, Richmond, VA.

Land Use

Except for George Washington National Forest, Blue Ridge Parkway, Smithsonian Conservation and Research Park, and a few regional parks and state game lands, the local region of Shenandoah National Park is privately owned. Existing land uses are residential, farming and idle open fields, forests, and commercial and industrial sites (see the Generalized Land Use map). Table 3 indicates the distribution of developed and open-space areas. Less than one-third of the open space is used for agriculture, varying from 42 percent in Augusta County to less than 10 percent in Nelson County, excluding the independent cities where this land use is rare.

Forests, including the trees in Shenandoah National Park, cover over 60 percent of the local region. Of the approximately 2,680 square miles of forestland, the U.S. Forest Service has classified nearly 89 percent as commercial, that is, land producing or capable of producing industrial wood and land that has not been withdrawn from timber utilization by statute (such as forestland in the park). Ownership of commercial forestland is divided between private individuals, farmers, national forests, forest industries, and miscellaneous state, county, municipal, and federal owners, in order of declining ownership.

Some of the forests, idle fields, and agricultural lands are being directed to a new use--vacation homes. Access from the metropolitan areas of Washington, D.C., and Richmond make the Shenandoah National Park vicinity readily useful for this purpose. The attractiveness of the area is beyond question. For example, the Soil Conservation Service in 1968 prepared an appraisal of Albemarle County's suitability for outdoor recreational development. Twelve recreation elements were studied and scored as they were affected by climate, scenery, soils, landownership, and the like. The appraisal ranked vacation homes, cottages, and homesites second highest. Vacation ranches ranked third. The potential of the county as a scenic area was ranked first. Currently, a relatively small number of recreational subdivisions exist; however, proliferation can be expected because of the demand that exists and the demand that is created. Increasing subdivisions could change the character of the local region, especially in the vicinity of the park. Studies and reports by the Central Atlantic Environment Center for Warren, Page, Shenandoah, and Rockingham counties in 1974, and by the USDA Economic Research Service for Rappahannock County in 1975, point to potential problems of soil erosion, water pollution, landownership shifts, disappearance of agricultural land, and scenic blight.

Only a few subdivisions can be seen from within the national park. However, clearing of vegetation and construction scars disrupt the visual continuity and impressiveness of the Blue Ridge Mountains and their foothills as seen from the Piedmont and Shenandoah Valley. Views of, and from, Shenandoah National Park are particularly sensitive to land use changes that could occur in its region.

The quality and quantity of change in local regional land use will be mostly influenced by the degree and enforcement undertaken by regional, county, and municipal governments. The nine counties in the local region

Table 3. Existing Land Use

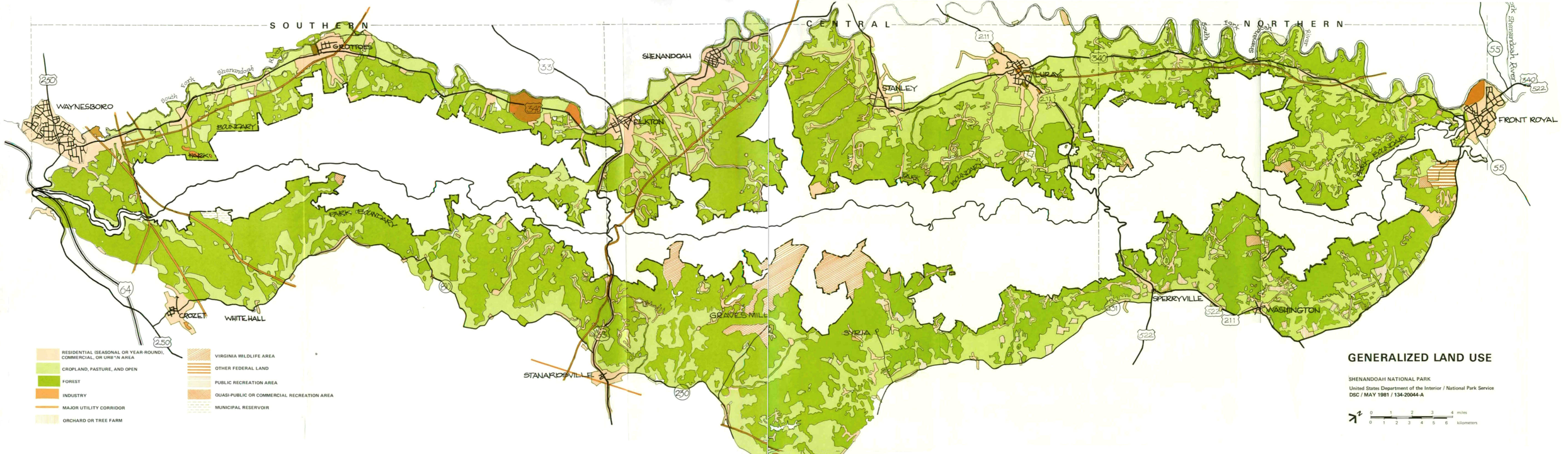
Counties	Total Area (sq. mile)	Developed Area (sq. mile)				Open Space Area (sq. miles)					Shenandoah National Park Area	
		Residential	Nonresidential[a]	Total	Percent	Agriculture	Forests[b]	Other	Total	Percent	(sq. miles)	Percent[c]
Albemarle	740.0	22.7	20.0	42.7	5.8	121.5	501.0	74.8	697.3	94.2	23.1	3.1
Augusta	985.0	15.8	1.8	17.6	1.8	415.7	551.3	0.4	967.4	98.2	18.7	1.9
Greene	153.0	2.5	1.6	4.1	3.1	18.7	104.3	25.9	148.9	97.9	23.3	15.2
Madison	327.0	2.1	5.3	7.4	2.3	117.0	194.5	8.1	319.6	97.8	50.6	15.5
Nelson	471.0	5.4	7.7	13.1	2.8	45.6	374.1	38.2	457.9	97.2	-	-
Page	316.0	3.2	6.5	9.7	3.0	97.9	183.7	24.7	306.3	97.0	58.2	18.4
Rappahannock	267.0	1.4	4.0	5.4	2.0	92.5	152.5	16.6	261.6	98.0	49.6	18.6
Rockingham	871.0	23.4	11.7	35.1	4.0	348.4	486.7	0.8	835.9	96.0	59.4	6.8
Warren	219.0	2.3	12.6	14.9	6.8	72.8	128.8	2.5	204.1	93.2	21.9	10.0
Cities												
Charlottesville	10.4	4.5	4.3	8.8	84.6	-	-	1.6	1.6	15.4	-	-
Harrisonburg	6.0	NA	NA	4.7	78.2	-	-	1.3	1.3	21.8	-	-
Staunton	8.9	2.5	4.3	6.8	76.4	0.9	-	1.2	2.1	23.6	-	-
Waynesboro	7.5	2.2	3.8	6.0	80.0	-	-	1.5	1.5	1.5	-	-
Total	4,381.8	-	-	176.3	4.0	1,331.0	2,676.9	197.6	4,205.5	96.0	304.9	7.0

[a]includes local parks

[b]includes federal and state forests, parks, gamelands, and Shenandoah National Park

[c]percent of park land to total county area

SOURCES: Rappahannock-Rapidan Planning District Commission, District Comprehensive Plan.
Lord Fairfax Planning District Commission, District Comprehensive Plan.
Rockingham County Planning District Commission, Land Use Plan.
Greene County Planning District Commission, District Comprehensive Plan.
Thomas Jefferson Planning District Commission, District Comprehensive Plan.
U.S. Department of Agriculture, Forest Statistics for the Northern Piedmont of Virginia.
U.S. Department of Agriculture, Forest Statistics for the Northern Mountain Region of Virginia.
U.S. Department of Commerce, Census of Agriculture.
Augusta County Planning District Commission, District Comprehensive Plan.
Central Shenandoah Planning District, Land Use Survey.


SOUTHERN
CENTRAL
NORTHERN
WAYNESBORO
GROTTOES
SHENANDOAH
ELKTON
STANLEY
LURAY
FRONT ROYAL
SPERRYVILLE
WASHINGTON
SYRIA
GRAVELS MILL
STANARDSVILLE
CROZET
WHITE HALL
PARK BOUNDARY
South Fork Shenandoah River
RESIDENTIAL (SEASONAL OR YEAR-ROUND), COMMERCIAL, OR URBAN AREA
CROPLAND, PASTURE, AND OPEN
FOREST
INDUSTRY
MAJOR UTILITY CORRIDOR
ORCHARD OR TREE FARM
VIRGINIA WILDLIFE AREA
OTHER FEDERAL LAND
PUBLIC RECREATION AREA
QUASI-PUBLIC OR COMMERCIAL RECREATION AREA
MUNICIPAL REservoir
GENERALIZED LAND USE
SHENANDOAH NATIONAL PARK
United States Department of the Interior / National Park Service
DSC / MAY 1981 / 134-20044-A
0 1 2 3 4 miles
0 1 2 3 4 5 6 kilometers

are members of four regional planning commissions. These commissions assist the counties with planning and grants-in-aid programs, but they have no planning authority except as may have been derived from their member counties. County planning commissions, as an arm of their respective county boards of supervisors, retain their responsibility for planning and zoning. Virginia's General Assembly enacted legislation (H.B. 1304) in 1975 which requires every governing body of every county and municipality to "adopt a comprehensive plan for the territory under its jurisdiction by July 1, 1980."

Zoning ordinances and subdivision regulations are the existing means of land use controls. The following table clearly indicates that all the counties and independent cities and almost all of the incorporated towns have developed both controls.

Table 4. Existing Status of Land Use Controls

County/Incorporated Town Independent City	Zoning Ordinance	Subdivision Regulations	Under Consideration
Albemarle	Yes	Yes	-
Scottsville	Yes	Yes	-
Augusta	Yes	Yes	-
Craigsville	Yes	No	Subdivision
Greene	Yes	Yes	-
Stanardsville	No	No	-
Madison	Yes	Yes	-
Madison	Yes	Yes	-
Nelson	Yes	Yes	-
Page	No	Yes	-
Luray	Yes	Yes	-
Shenandoah	Yes	Yes	-
Stanley	Yes	Yes	-
Rappahannock	Yes	Yes	-
Washington	Yes	Yes	-
Rockingham	Yes	Yes	-
Bridgewater	Yes	Yes	-
Broadway	Yes	Yes	-
Dayton	Yes	No	Subdivision
Elkton	Yes	Yes	-
Grottoes	Yes	No	Subdivision
Mount Crawford	Yes	No	-
Timberville	Yes	Yes	-
Warren	Yes	Yes	-
Front Royal	Yes	Yes	-
Cities			
Charlottesville	Yes	Yes	-
Harrisonburg	Yes	Yes	-
Staunton	Yes	Yes	-
Waynesboro	Yes	Yes	-

In 1972, the Virginia Division of State Planning and Community Affairs prepared a study of critical environmental areas in the state--approximately 14 in the nine counties surrounding the park. The division was dissolved in the process of state government reorganization, and the recommendations were never implemented. However, many of the areas identified were incorporated into county and planning district commission plans as well as the Virginia Outdoor Plan (Commonwealth of Virginia, Commission of Outdoor Recreation 1979).

Through the efforts of the U.S. Departments of Agriculture and Commerce, on behalf of several organizations and agencies, the Virginia General Assembly passed the Agricultural and Forestal Districts Act, which became effective July 1, 1977. The purpose of the act is to encourage the development and improvement of these lands for production of food, crops, and forest products, and to conserve these same lands as natural, visual, and ecological resources. Forest and agricultural lands are to be protected and enhanced as a viable segment of the state's economy and a significant environmental resource. The authority to enact ordinances for these districts is given to local governing bodies, although the program depends upon the voluntary application of landowners. The incentive for the owners is that their land will qualify for an agricultural or forestal value assessment. A property owner may withdraw his land from a district subject to a few conditions. Real estate withdrawn is subject to roll-back taxes.

The Clean Air Act, as amended in August 1977 (42 U.S.C. 1857 et seq.), extends the influence and authority of the National Park Service beyond the boundary of Shenandoah in order to protect the park's air quality and air quality related values from an unacceptable level of externally produced air pollutants. The park status as a Class I air quality area limits the number and type of industrial developments with a potential for air pollution that may be constructed within the vicinity of the park.

The preceding factors offer only limited encouragement at this time for broad, regional planning; they suggest that the goals and objectives between adjoining jurisdictions are not always compatible, and that cooperative problem solving is not always possible. The separate plans and land use control measures of the local municipalities cannot be expected to control change in the region as a whole. What can be expected, in at least the near future, is that local planning and enforcement will focus on the prevention of incompatible and environmentally degrading land uses rather than the encouragement of desirable patterns of change for the entire region.

Transportation

The primary mode of travel to Shenandoah National Park is by private automobile. By way of an extensive interstate highway system, most of the eastern United States is within a two-day drive to the park. Connected with this network are U.S. and state routes which provide the final links to the park. The Blue Ridge Parkway connects the south end of the Skyline Drive to the Great Smoky Mountains National Park, 470 miles away. Except for certain dreary spots along old main routes spoiled by commercialism, the roads around the park offer pleasurable driving.

CLEVELAND

PENNSYLVANIA

NEW YORK

NEW

PITTSBURGH

JOHNSTOWN

HARRISBURG

PHILADELPHIA

JERSEY

BALTIMORE

DELAWARE

WASHINGTON

SHENANDOAH NATIONAL PARK

WEST VIRGINIA

CHARLESTON

Staunton

Culpeper

Charlottesville

RICHMOND

Petersburg

LYNCHBURG

ROANOKE

BLUE RIDGE PARKWAY

NORFOLK

NORTH CAROLINA

Atlantic Ocean

Chesapeake Bay

76 70 76 81 76 95 70 270 340 66 211 29 95 33 64 64 64 95 85 33

PASSENGER RAILROAD AND STOP

COMMERCIAL AIRPORT

NONCOMMERCIAL

N

0 25 50 75 miles

0 40 80 120 kilometers

REGIONAL TRANSPORTATION

SHENANDOAH NATIONAL PARK

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They thread through woodlands and fertile valleys, over ridges and rivers, past lakes, and through a pastoral landscape.

Scheduled public bus service in the vicinity of the park is available through Trailways, Inc. Between Washington, D.C., and Luray, Virginia, there is one trip a day (Monday through Friday) in each direction. Between Washington and Charlottesville, there are 12 trips in each direction daily. There are seven trips daily between Richmond and Charlottesville/Waynesboro, six on Sundays and holidays. Charter buses for group tours also provide service in and to the park.

Although there are four railroad lines in the local region, passenger service is extremely limited. The nearest passenger service to the park is available in Culpepper, Charlottesville, and Staunton.

Daily air service is available in Charlottesville and at the Shenandoah Valley Airport near Staunton. Piedmont Airlines flights run between Charlottesville and Washington, D.C., Roanoke, Atlanta, and New York, as well as between Shenandoah Valley Airport and Roanoke, Washington, D.C., and Bluefield, West Virginia. In addition, five small airports in the local region provide runways for private recreation, business, and charter flights.

Recreation

Areas for recreational opportunities in Virginia are diverse, ranging from the Atlantic Ocean to the Appalachian Mountains. There are national, state, theme, and regional parks; there are also historic and battlefield sites, caverns, beaches, marinas, ski slopes, forests, and rivers under public and private operation.

The National Park Service administers many areas in Virginia, as shown on the Recreation Opportunities in Virginia map. They are primarily historic sites of the Revolution and Civil War, but they also include the Blue Ridge Parkway, Assateague Island National Seashore, Wolf Trap Farm Park for the Performing Arts, and the Appalachian National Scenic Trail.

The Blue Ridge Parkway, which is directly connected to Shenandoah National Park, has a scenic drive with overlooks, picnic areas, campgrounds, visitor centers, restaurants, and lodges. For the most part this parkway is no wider than the right-of-way, and the emphasis is therefore on pleasure driving and scenic viewing.

The U.S. Forest Service administers 1,600,000 acres of land in the George Washington and Jefferson national forests in Virginia. This amounts to 47 percent of all public land in the state, which is managed under the multiple use-sustained yield concept, balancing timber production, forage, water, wildlife, and recreational opportunities.

Mount Rogers National Recreation Area is a portion of Jefferson National Forest where timber is produced, livestock are grazed, and fishing streams are stocked, while the natural areas, cultural resources, and scenic values are preserved.

IELAND

PENNSYLVANIA

PITTSBURGH

JOHNSTOWN

HARRISBURG

APPALACHIAN NATIONAL SCENIC TRAIL

NEW YORK

NEW

PHILADELPHIA

JERSEY

CHESAPEAKE & OHIO CANAL NHP

BALTIMORE

MARYLAND

DELAWARE

BIG BLUE TRAIL

WASHINGTON

EST

SHENANDOAH NATIONAL PARK

RGINIA

RLESTON

Culpeper

Staunton

Charlottesville

Chesapeake Bay

RICHMOND

VIRGINIA

LYNCHBURG

Petersburg

ROANOKE

Atlantic Ocean

NORFOLK

BLUE RIDGE PARKWAY

NORTH CAROLINA

* NPS AREA

GEORGE WASHINGTON N.F.

JEFFERSON N.F.

× NATIONAL FOREST RECREATION AREA

○ STATE PARK AND STATE FOREST

● HISTORIC SITE

◯ REGIONAL PARK

BIG BLUE TRAIL

△ THEME PARK

⊙ CAVE

■ OTHER ATTRACTION

N

0 25 50 75 miles

0 40 80 120 kilometers

RECREATION OPPORTUNITIES IN VIRGINIA

SHENANDOAH NATIONAL PARK

United States Department of the Interior / National Park Service
DSC / MAY 1981 / 134-20046-A

The Massanutten Mountain of the George Washington National Forest is 12 miles west of Shenandoah National Park. This mountain provides hiking, family camping, backcountry camping, horseback riding, cross-country skiing, sightseeing, environmental education, and historic site interpretation. Canoeing, with access to both forks of the Shenandoah River, and fishing, hunting, and timber production are also offered in the national forest. Most roads and trails are open to off-road vehicles, trail bikes, and snowmobiles.

Within 30 miles of Shenandoah National Park are many other public and private attractions. Seven large caverns and numerous historic sites, such as Monticello in Charlottesville and the New Market Battlefield, attract many visitors. Nearby recreational opportunities include golfing, skiing, and camping. (See table 5 for a summary of recreation facilities.)

The primary purpose of state parks in Virginia is to provide recreation, while state forests are managed for timber and wildlife protection and recreation (including hunting). Wildlife management areas are managed for public access for hunting and fishing (which includes provisions for boat launches). Natural areas are designated by the state, but actual protection and use of the site is determined by the state, local, or private agency managing the land.

Camping is popular, as evidenced by nearly 3,000 individual campsites located within a 30-mile radius of Shenandoah National Park. Public campgrounds are generally oriented toward a back-to-nature experience, while commercial campgrounds tend to provide the sites and utility hook-ups required by recreation vehicles (RV). Around 20 percent of the sites have been designated for exclusive tent use, 23 percent for exclusive RV use, and the remaining sites for either. Commercial campground owners will probably expand their facilities to meet demand, as in the past.

Table 5. Recreation Facilities in Shendandoah National Park Vicinity

Name (or type) of facility	Distance from park 0-10 mi.	11-20 mi.	21-30 mi.
George Washington National Forest recreation areas	1	4	1
State managed areas			
State parks		1	
State forests		1	2
Natural areas		4	1
Wildlife management areas	3	2	4
Regional and county parks	2	1	1
Public and private sites			
Caverns	3	4	
Canoe launch areas	4	4	
Boating areas	10	4	1
Horseback riding	2	2	1
Golf courses	4	6	6
Ski areas	1	2	2
Historic homes, mills, taverns	4	12	11
Historic forts	1	3	
Historic iron furnaces	2	2	1
Campgrounds Total (sites)	22 (1,180)	17 (1,094)	12 (660)
Public (sites)	4 (57)	3 (90)	4 (135)
Private (sites)	18 (1,123)	14 (1,004)	8 (525)

Recreation is continuously evolving, subject to values and trends of the times. As people's lifestyles change, attitudes about recreation and leisure also change. Colonial Virginians participated in activities originally necessary to survival, such as horseback riding, hunting, and fishing. To settlers in the Blue Ridge Mountains in the early 18th century, the mountains were their livelihood, not their leisure. Hunting was a solitary, ordinary occupation. Their recreation included target practice, muscling rocks (who could lift the heaviest rock), and drinking. In the early 20th century, the recreational value of these mountains was advertised because of its health benefits of pure water, grand and magnificent scenery, and recreational activities that included campfires, guitar playing, dancing, and "tramping parties", which attracted primarily urban visitors. President Herbert Hoover searched for a retreat within 100 miles of Washington D.C., which was at least 2,500 feet in elevation and had a trout stream. He built his camp in 1929 on the Rapidan River within the area that became Shenandoah National Park.

Today, interests and pursuits are for outdoor recreation and re-creation--backcountry camping has increased; tent campers share campgrounds with trailers, vans, and motor homes; and there is a surge of enthusiasm for bicycling and cross-country skiing. The users of new equipment such as hang gliders and off-road vehicles demand recognition. Growing numbers of urban people seek retreats, as Herbert Hoover did, and are building second homes in the local region of Shenandoah National Park. The style and intensity of recreation will continue to evolve as trends in values, technology, and affluence change.

The Virginia Commission on Outdoor Recreation inventoried the supply and demand of outdoor recreation for the eleven regions of the state. The two state recreation regions (6 and 7) that encompass Shenandoah have an excess amount of federal and state lands for the existing population. This surplus goes a long way towards satisfying the needs of the recreation regions encompassing the Richmond and northeastern Virginia metropolitan areas, which are lacking in outdoor recreation space. However, regions 6 and 7 are lacking in local and regional park acreage and facility-oriented activities. According to the draft Virginia Outdoors Plan - 1979, there is a lack of approximately 20,000 acres of local recreation space, the provision of which is the responsibility of cities, towns, and counties. Close-to-home recreation activities that are needed are picnic areas, baseball diamonds, playfields, and bicycling trails. There is also a need to provide water-based recreation facilities and access.

Conclusion

The above material provides a general portrayal of the characteristics of the setting in which Shenandoah National Park is located. Obviously it is difficult to draw hard and fast conclusions about the local region's future. Change will occur--its rapidity and degree depending upon the external pressures from the Washington, D.C., and Richmond metropolitan areas, and its quality, on the planning and adherence to those plans by all government levels, especially at the county and state level. The presence of George Washington National Forest and Shenandoah National Park, dedicated to managed preservation and use, will ensure that some of the natural and topographic beauty of the area will always be protected and that some of the need for outdoor recreational opportunities in spacious natural settings will be satisfied. As the third largest national park in the eastern United States, Shenandoah will continue to serve not only the eastern seaboard but the nation as well. Thus, Shenandoah National Park will also contribute to the economic well-being of the nine surrounding counties and of the state of Virginia.

THE PARK

Unlike earlier units of the National Park System which were carved from the great reservoir of public lands in the west, Shenandoah was one of the pioneers in a movement to create large parks from populated private lands in the eastern United States. It took a decade to overcome the obstacles that stood in the way of creating this large preserve. Today

Shenandoah National Park, with its diversity of flora and fauna, remains of bygone days, variety of recreational facilities, and millions of visitors, realizes, in part, the visions, dreams, diligence and perserverence of over half a century.

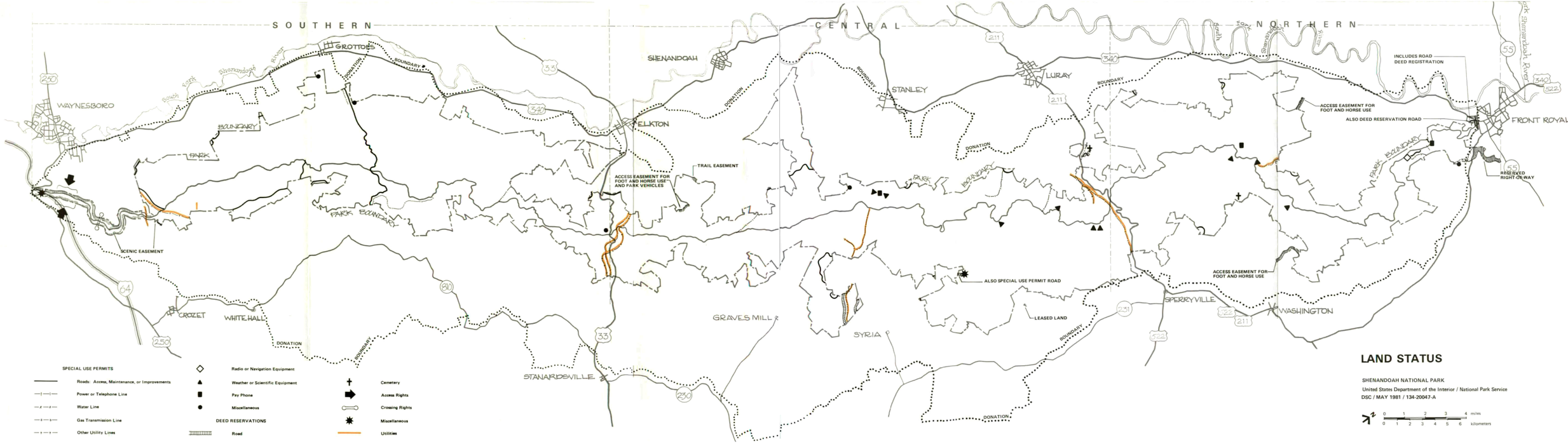
The Land

In May 1926 the Congress passed legislation establishing Shenandoah National Park, provided that the lands secured by the United States be acquired only by public or private donation, that the tract include approximately 521,000 acres, and that the minimum area to be administered would be 250,000 acres. The same year the General Assembly of Virginia enacted a law creating a State Commission on Conservation and Development to examine and acquire land in the Blue Ridge Mountains. In 1928, $1 million was appropriated by the commonwealth to add to the $1 million raised in citizen campaigns so as to allow the purchase of land where it could not be obtained through private donation. Subsequently the General Assembly enacted a law providing for the condemnation of land for the park. However, the tasks proved difficult because funds were not sufficient, people needed to be relocated, and large areas of cultivated lands were within the 521,000-acre boundary. Congress, in 1932, approved the bill reducing the minimum area to 160,000 acres.

During the period of acquisition, nearly 4,000 separate tracts of land were located, surveyed, and mapped. In order to acquire desirable tracts, it was necessary in some cases for the commonwealth to resort to condemnation procedures. Court litigation arose over the right of a state to condemn private land for donation to the federal government. A test case was brought before the United States Supreme Court in November 1935, and a decision was rendered in favor of the commonwealth.

The commission assembled a jigsaw of mostly low-value tracts that would make a contiguous whole which would be acceptable as a national park. Sawtoothing (leaving deep incursions into the whole so as to avoid acquiring more expensive hollow lands, farms, and populated areas) was used to bring Shenandoah to birth. On December 26, 1935, the Secretary of the Interior accepted deeds from the commonwealth of Virginia conveying 176,430 acres of land, and the national park was established. While the basic skeleton was set, hope was strong that more land would be added in the future so that the park would become more encompassing and the problems of sawtoothing ameliorated.

Through the years lands have primarily been added by transfers from other federal agencies. Notwithstanding, the lack of federal purchase authority in the authorizing legislation of 1926, one parcel was purchased utilizing authority under other legislation. Donations and exchanges were also used to modify Shenandoah's land base. The following table describes additions to the park between 1936 and 1978.



LAND STATUS

SHENANDOAH NATIONAL PARK
United States Department of the Interior / National Park Service
DSC / MAY 1981 / 134-20047-A

0 1 2 3 4 miles
0 1 2 3 4 5 6 kilometers

Table 6. Land Additions to Shenandoah National Park

Date	Description	Acreage
1939	Transfer of lands from the Front Royal Quartermaster Depot Military Reservation (act of June 13, 1939)	977
1940	Donation of land from Albemarle County (formerly lands of the city of Charlottesville)	428
1942	Disposition of lands from Recreation Demonstration Projects (56 Stat. 327)	10,294
1961	Transfer of section 1A of the Blue Ridge Parkway (75 Stat. 192)	
	fee lands	268
	scenic easement lands	710
1962	Purchase of lands near Dickey Ridge Visitor Center under the authority of subparagraph (g) of the act of August 7, 1946 (60 Stat. 806, 16 USC, section 17, j-2)	201
1975	Disposition of lands from USDA, Beef Agricultural Research Station	
	fee lands	469
	reservation for future rights-of-way	330
	Subtotal	13,677
1936-1978	Various small private and local/ state government donations, exchanges, and leases	5,026
	TOTAL	18,703

NOTE: Figures are rounded to the nearest acre

Total expansion of the park's land base from December 1935 is 10.6 percent. The average yearly increase over 43 years is 435 acres, or 0.25 percent. If the federal land transfers and the one federal purchase are discounted, park expansion contributed by private and local/ state government donation is 5,454 acres, or 3.1 percent, which is an average yearly growth of 127 acres, or 0.07 percent. The gross land base of Shenandoah National Park today is 195,133 acres.

As can be readily noted, the growth of the park's land base has been very small. Conceived as being 521,000 acres, the park is only 37.5 percent of that originally intended. The zigzagged, sawtoothed perimeter

of federal holdings has caused problems of administration, misuse of park resources, protection, access, visitor trespass on private lands, and neighbor relations for all superintendents and their staffs. The vision of a park encompassing more land, providing more room for visitors, and protecting more of the Blue Ridge Mountain landscape has dimmed.

The following table shows that 99.5 percent of the park is in federal ownership. The majority of easement acreage is in Albemarle and Augusta counties along the section of the park from Jarmans Gap to Rockfish Gap, which was formerly part of the Blue Ridge Parkway. Private development on these easements is restricted to residential and farm purposes. Private roads and drives may be constructed with the consent of the government. Also, removal and modification of existing vegetation beyond usual farm practice and residential maintenance can only be undertaken with the consent of the United States.

Table 7. Land Status Acreage - 1980 Shenandoah National Park

County	Fee	Easement	Reserved Rights-of-Way	Lease	Totals
Albemarle	14,600	221	-	-	14,821
Augusta	11,491	489	-	-	11,980
Greene	14,919	-	-	-	14,919
Madison	32,382	-	-	2	32,384
Page	37,256	-	-	-	37,256
Rappahannock	31,763	3	-	-	31,766
Rockingham	37,980	6	-	-	37,986
Warren	13,687	4	330	-	14,021
TOTALS	194,078	723	330	2	195,133

NOTE: Totals are rounded to nearest whole acre

The easements in Rappahannock, Rockingham, and Warren counties provide pedestrian and equestrian visitor access into the park.

Through a memorandum of understanding with the Smithsonian Institution, National Zoological Park, Conservation and Research Center, a right-of-way has been reserved between U.S. 522 and Virginia 55 for an alternate north entrance road on land the Smithsonian acquired by transfer. In order to alleviate parking problems for visitors climbing Old Rag Mountain, the National Park Service has been leasing land in Weakley Hollow since 1974.

Public Law 94-565 (90 Stat. 2662), Payments in Lieu of Taxes, was enacted in 1976 to provide compensation to counties, or other local governmental units, for certain federal lands. In 1978, Public Law 95-469 (92 Stat. 1319), amended the definition of entitlement lands to allow certain state donated lands to be eligible. Payment is calculated under sections 1 and 2 either at 75 cents per entitlement acre, which can be reduced by certain other federal payments to the county, or at 10 cents per acre. The greater calculation is paid subject to a limitation based on population. In addition, payments are made under a 1 percent of fair market value formula for the first five years any land is acquired (section 3). The following table indicates payments made; the total for Shenandoah is 9.2 percent of the total federal payments in lieu of taxes to the commonwealth of Virginia.

Table 8. 1978 Payments In Lieu of Taxes for Shenandoah National Park (payment made September 30, 1979)

County	Eligible Acreage	Payment Under PL 94-565[a]
Albemarle	14,172	$ 9,319
Augusta	11,491	6,780
Greene	14,919	9,908
Madison	32,383	21,367
Page	37,256	23,369
Rappahannock	31,761	20,885
Rockingham	37,980	22,833
Warren	13,686	8,696
Totals	193,648	$123,157

[a]Total payment for Sections 1 and 3; in counties where other federal lands are entitled, amount indicates Shenandoah's proportion of payment.

As land was acquired and donated for Shenandoah National Park, some of the deeds contained reservations allowing existing uses to continue. As shown on the Land Status map, such uses include roads, utilities, cemeteries, and the like. As the years have gone by, various level governmental agencies and regional utility concerns have found no feasible alternative but to use and cross the Blue Ridge Mountains. Through special use permits these needs have been accommodated in the park.

The land base of Shenandoah National Park is not considered ideal for a public park committed to protecting a mountain environment. Today, certain areas lack visual and ecological integrity, and in many places the perimeter of federal holdings and interests remain unrelated to topographic features, natural and recreational resources, and visitor access routes. While highly significant property is within United States protection, other important properties, often surrounded by park holdings, are not.

THE LAND

Lack of visual integrity

Perimeter access problems for hikers

Park boundary

Similarly, the configuration of the park's land base causes difficulties involving suitable land use. For example, the sizes and shapes of park protrusions limit their existing and potential ability to support recreation. At the same time, these protrusions can interfere with private land uses occurring outside the park, such as park forest dividing private pastures.

Natural Resources

The quiet beauty of Shenandoah National Park with its forested ridges and rocky escarpments creates an impression of permanence that belies the existence of a tumultuous past which began possibly 1.3 billion years ago. The central core of the Blue Ridge Mountains was formed far below the earth's surface by the formation of granitic base rock. Uplifting of the base rock and erosion of the overlying strata ultimately exposed the granites in jagged hills and deep valleys. Periods of volcanic activity followed, during which time basalt (greenstone) lavas filled the valleys and covered the peaks, creating a vast lava plain.

A gradual subsidence of the plain formed a seabed on which sediments were deposited to a thickness of over 30,000 feet. During the long passage of years, periods of deformation alternated with periods of slow subsidence. Occasional volcanic episodes occurred, as well as a succession of incursions and retreats of the sea. Approximately 300 million years ago compression from the east produced a series of long parallel folds that formed the Appalachian Range. The significant difference between the Blue Ridge Mountains and the remainder of the Appalachians is that the former is composed of igneous rocks and the majority of the latter is composed of sedimentary rocks.

The park provides considerable evidence of the geological processes that created the mountains and the climatic and biological elements that influenced their appearance. Granite and granodiorite comprise a massive erosion-resistant substrate which has maintained the physiographic relief and upon which all other rock formations have been deposited. Outcrops of these rocks exist throughout the park. Many primary volcanic evidences can be found throughout the park. As lava cooled, it often cracked into distinctive polygonal columns, called columnar jointing. These columns range in length to 20 feet and are about a foot in diameter; particularly good examples are at Compton Peak and Franklin Cliffs. Most obvious and spectacular are the dikes of greenstone which cut through the granitic basement rock. Several dikes, one of them 50 feet thick, are found near the summit of Old Rag Mountain. Minor deposits of native copper are found in certain greenstone lava flows.

Wind, rain, gravity, frost riving, and other weathering agents have shaped the present contour of the land along the lines of differential rock resistance to erosion. The Shenandoah part of the Blue Ridge Mountains is a single crest of rounded peaks and lower ridges situated in a general northeast-southwest direction. Elevations along the ridge range from 4,049 feet atop Hawksbill Mountain to a low of 478 feet at Front Royal. Within the park are more than two dozen peaks over 3,000 feet high.

The same weathering agents that shaped the contour of the land continue the process of transforming bare rocks into organic soil. The process begins on the mountain slopes and ridges and ends in the lowland valleys and alluvial plains. The soils of Shenandoah National Park are generally rocky, deep, rapidly drained, and well-suited to woodlands and wildlife. These characteristics are determined by the underlying parent material, either rock or unconsolidated beds of transported material. The Soil Suitability map shows conditions as they relate to the agriculture, pasture and orchard, and forest. The suitability zones include one or more soil associations that differ in response to slope, depth, stoniness, and natural drainage.

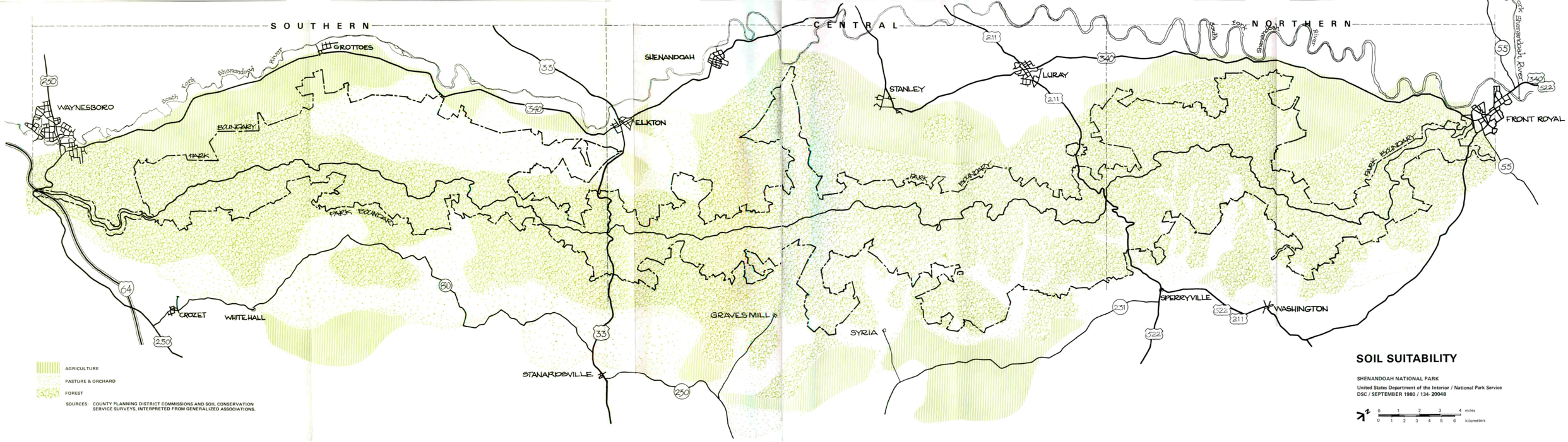
The map combines different sources and levels of data ranging from multi-county planning district soil association maps to Soil Conservation Service (SCS) surveys. A consistent format of data is not available, as SCS surveys are published only for Rappahannock and Madison counties, and planning district soil association maps aggregate similar soil types into larger categories which vary between districts. The USDA Land Use Committee for Virginia has designated certain soil types as prime and important farmlands for Augusta, Rappahannock, and Madison counties. Any association in those counties which includes one or more of the specially designated soil types is mapped as suitable for agriculture.

The agriculture suitability zone is located at the base of and fingering into the Blue Ridge Mountains, and its present use is mainly for cultivated crops. Generally there are dark, medium-textured surface soils with reddish clayey subsoils. Soils of the bottomlands consist of waterborne material in poorly defined layers, and they have limited use for development because of flooding.

The pasture and orchard suitability zone is located in the foothills of the Blue Ridge Mountains. This zone includes several soil associations. The soils in colluvial sites formed from deposits accumulated from higher slopes and have brownish surface soils and subsoils with little or no clay. Soils in the terraces between streamcourses consist of waterborne sediments but are located where they are no longer subject to flooding. They are brownish to reddish, medium-textured surface soils with clay subsoils. Soils along streams are medium-textured of recently deposited sediments, including rock fragments of varying size and soil material from upstream. This zone is best suited to pasture and orchards with moderate to severe limitations for agriculture and development because of slope and soil permeability. Along streams, severe limitations exist because of flooding.

Soils of the forest suitability zone are predominantly rockland and very rocky land with moderately deep and deep soils that are well drained and excessively drained, and that are high in organic matter content and fertility. They are located on mountain ridges and slopes, varying from gentle to steep, and they have severe to moderate limitations for development and agriculture because of slope.

Lateral ridges protruding from the main ridge and the deep interior valleys (popularly called hollows) are the most distinctive features of the Shenandoah landscape. Moisture falling on the side slopes seeps down to



SOIL SUITABILITY

SHENANDOAH NATIONAL PARK

United States Department of the Interior / National Park Service
DSC / SEPTEMBER 1980 / 134- 20048

0 1 2 3 4 miles
0 1 2 3 4 5 6 kilometers

form the small streams, creeks, runs, branches, forks, prongs, and rivers which flow to the park edge. The streams often drop over ledges, creating waterfalls up to 93 feet high. The Hydrology map shows 42 watershed basins on the west side of the park. These are relatively short and straight, emptying directly into the south fork of the Shenandoah River. The 28 watershed basins on the east side of the park make a more branching or dendritic pattern and eventually flow into the Rappahannock River or James River. Most of the streams of Shenandoah have brook trout and support fishing.

Water quality of park streams is well above state standards. The Virginia State Water Control Board has placed park streams into four major classes, as shown in appendix B. Tributaries to the Rappahannock and James rivers are classified as free flowing streams (Class III), except those specifically classed as put-and-take trout waters (Class V) or natural trout waters (Class VI). Streams flowing into the South Fork of the Shenandoah River are classified as mountainous zone streams (Class IV), except those specifically classed as put-and-take trout waters or natural trout waters. None of the streams of the park are known to be polluted; however, instances of pollutants may occur with local effects.

Executive Order 11988 (Floodplain Management) requires the National Park Service to determine the location of floodplains to avoid the adverse consequences of occupancy and modification by proposed development. The only flood prone areas that would affect the park, as delineated by the U.S. Geological Survey, are segments of the South Fork of the Shenandoah River.

There are no water impoundments within the existing park lands; however, a number of ponds and reservoirs are located nearby, including the municipal water supply reservoirs for the communities of Luray and Charlottesville.

Shenandoah National Park is included within the most floristically diverse region of the United States and represents one of the nation's most valuable botanical areas. The documented flora of the park numbers nearly 1,400 species of plants. Many species have limited distribution and are restricted to the central and southern parts of the Appalachian Highlands. Some southern plant species such as shortleaf pink, catawba rhododendron, and southern saxifrage are found no farther north in the Appalachian Mountains. Some northern plant species--bunchcherry, northern bedstraw, three-toothed cinquefoil, and gray and white birch--are not found farther south.

The plant diversity is due largely to the particular geological and climatological history of the region. About 1.5 million years ago a period of climatic cooling became great enough to permit formation of extensive continental glaciers which effectively reduced the Arcto-tertiary forests of Europe, west and central Asia, and most of North America. Protected areas in the Appalachian Highlands, possibly including local areas in the park, are believed to have served as refuges for Arcto-tertiary plant communities. Although greater plant diversity occurs in the southern Blue Ridge and Great Smoky mountains, the park is sufficiently close to these areas to also be considered a refuge.

A remarkable similarity exists between the flora of central China, Japan, and the Appalachian region of North America. These three areas contain many common plant genera that characterize the former Arcto-tertiary forests. In this context, the park and other protected areas in the southern Appalachians have an ecological value of international importance.

From the 1720s to the establishment of the park, this area was cleared for farms and pasture, trees were cut for timber and tanbark, and through carelessness or design, the forests were burned, leaving little of the original vegetation. A significant gap in the forest cover also occurred when the chestnut blight eliminated the American chestnut (Castanea dentata). The establishment of the park in 1936 ended man-caused destruction of the forest.

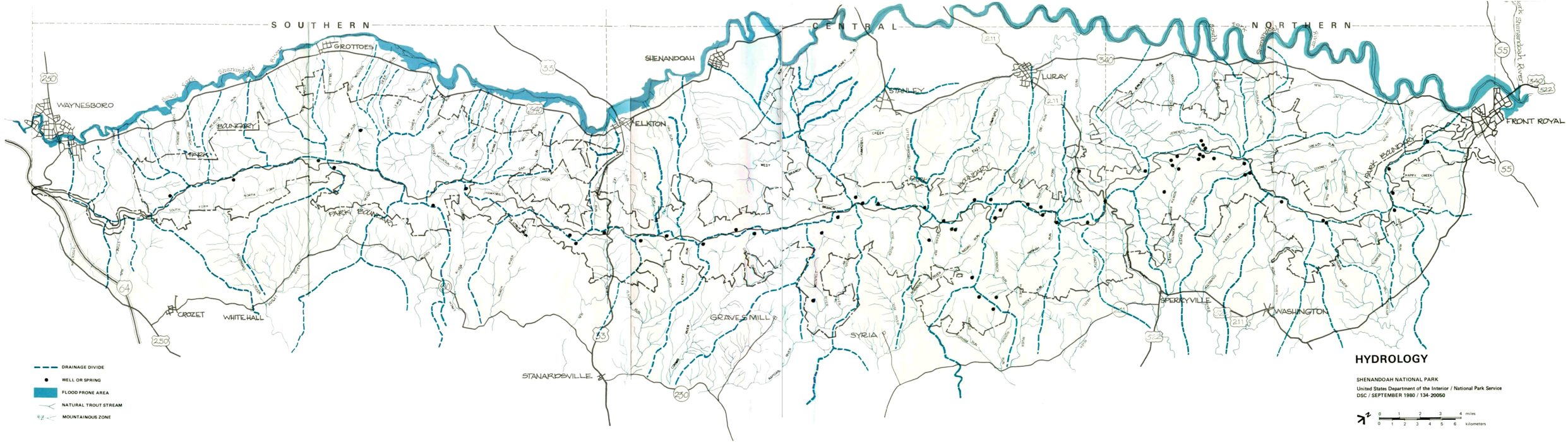
For over 40 years the natural process of succession, aided in a few spots by Civilian Conservation Corps revegetation projects, has transformed the area. Today, approximately 95 percent of the park is forested. Areas in the earlier successional stages contain a wide variety of species, including black locust, black birch, Virginia pine, pitch pine, sassafrass, and staghorn and smooth sumacs. Also found in disturbed sites are three exotic but widely naturalized species -- tree-of-Heaven, princess-tree, and japanese honeysuckle. These are three of many exotic plants introduced in the area prior to the establishment of the park, but they are the only ones which are widespread and potentially disruptive to forest ecosystems.

Mature forests have distinct overstory, understory, shrub, and herbaceous layers; however, dry sites have less canopy height and an indistinct understory. Of the many plants which constitute a forest, trees are the most evident members of the association and their dominance names the forest vegetation types. Chesnut oak, red oak, bear oak, or white pine predominate in upland areas, which have not been disturbed in the recent past. Eastern hemlock, scarlet oak, gray birch, or cove hardwood types predominate in streamside sites. Lowland sites support tulip poplars and sycamores.

There are a few remnants of original vegetation left in scattered, untouched pockets. A community of about 100 trees, called Limberlost, contains an eastern hemlock tree over 420 years old, the oldest known tree in the park.

The continuing process of succession will eventually produce a mature forest throughout the park, interrupted only by small areas of successional stages maintained by seral conditions, disease and insect infestations, and other disturbances. Approximately 80,000 acres of this revitalized forest have been included into the National Wilderness Preservation System.

Infestations of the park's forest occur in several ways. Diseases that attack certain species include white pine blister rust (which has an alternate host of gooseberry species), oak wilt, locust rust, foliage disease of mountain laurel, oak-leaf blight, and chestnut blight (which continues to attack young sprouts of previously killed trees). Insect


SOUTHERN
CENTRAL
NORTHERN
WAYNESBORO
GROTTOES
SHENANDOAH
ELKTON
STANLEY
LURAY
FRONT ROYAL
PARK BOUNDARY
CROZET
WHITE HALL
GRAVES MILL
SYRIA
STANARDSVILLE
SPERRYVILLE
WASHINGTON
DRAINAGE DIVIDE
WELL OR SPRING
FLOOD PRONE AREA
NATURAL TROUT STREAM
MOUNTAINOUS ZONE
HYDROLOGY
SHENANDOAH NATIONAL PARK
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miles
kilometers

infestations include fall webworm, fall cankerworm, southern pine beetle, balsam wooly aphid, and tent caterpillar. Only in a few instances have insects and diseases had more than a minimal impact on park vegetation. In accordance with National Park Service policy, these are monitored and no current control measures are undertaken unless such infestations pose a threat to visitor health and welfare, or adjacent property.

Similarly, it is the policy not to manipulate the park native vegetation except in certain instances, primarily for visitor use and safety. Old and decaying hazard trees and noxious plants such as poison ivy are removed in campgrounds, picnic areas, and other places of high visitor use. Road shoulders and vistas along the Skyline Drive, as well as sites in the major park developments, are maintained in grass or other low vegetation to provide visitor safety and aesthetic experiences. Park vegetation may also be controlled in order to maintain historical landscapes, such as Big Meadows, which is kept open by controlled fire.

Since it is thought that few exotic species have the ability to successfully compete with native successional species, no control measures are undertaken except for the purposes of public health, recreational enjoyment, or when an exotic threatens the perpetuation of a native species or a significant scientific feature.

About 85 percent of the forest fires in the park are caused by man; the remainder are caused by lightning. An average of seven fires a year occur, burning an average of 200 acres total. Forest fires within the park are mostly surface fires that burn the dried leaves and other litter on the forest floor. The two primary fire seasons are the spring season before new plant growth appears and before tree leaves shade the forest floor, and the autumn when annuals have died and hardwood leaves have dropped. Inasmuch as Shenandoah is a ridgetop park, most fires burn toward the interior, that is, uphill. Currently all wildfires are extinguished in a manner that causes the least amount of damage.

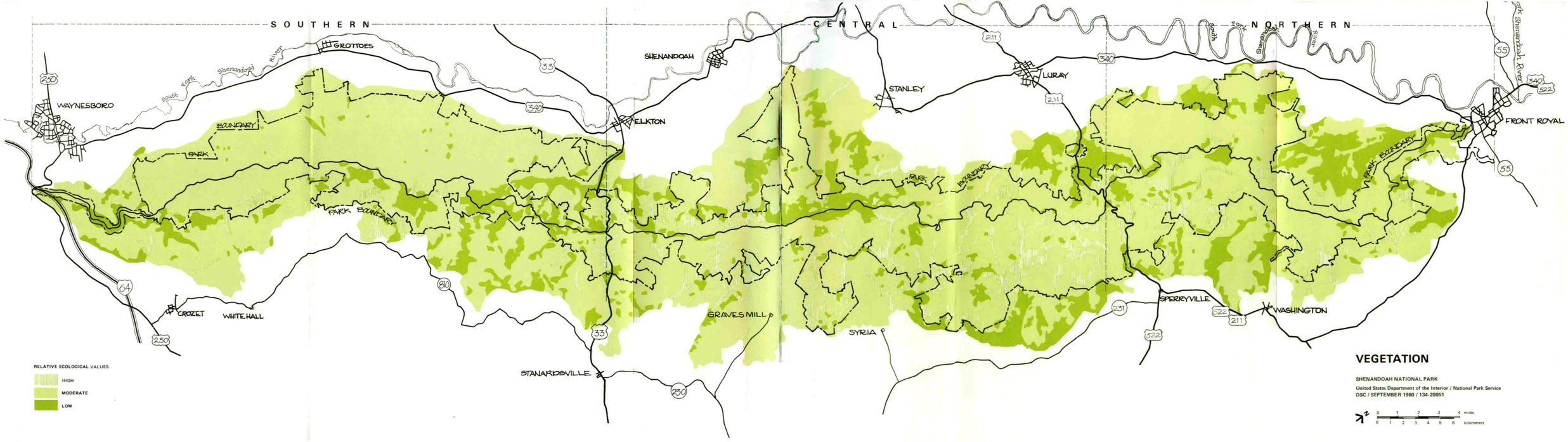
Vegetation was surveyed in 1941 by Berg and Moore, who identified and mapped 12 forest types in the park. Dr. Hanawalt of the University of Virginia used this data in a 1973 field study where he expanded the area mapped, and he refined, combined, and slightly expanded the classification of forest types. Shenandoah has been the site of a National Park Service study because of the usefulness of lands at satellite imagery for collecting vegetation data. Lists of ferns, trees and shrubs, and interesting flowering herbaceous plants and their habitats, can be found in Napier Shelton's The Nature of Shenandoah (USDI, NPS 1975).

Table 9 shows the characteristics of 13 vegetation types based on the descriptive information of Berg and More (1941) and Hanawalt (1973). The relative ecological value provided by Gregg, National Park Service (1974), gives a comparative rating between the vegetation types. High species diversity, regionally rare species, and/or relatively late successional position are rated highest, and early successional vegetation without unusual floristic elements is ranked lowest. The Vegetation map indicates the distribution of vegetation throughout the park by relative ecological value.

The Endangered Species Act of 1973 (PL 93-205) provides regulatory and statutory authority regarding the protection of endangered or threatened plant and animal species. There are no known endangered or threatened species of plants endemic to the park (50 CFR 17, rev. 12/15/80); however, several species, which include Virginia quillwort (Isoetes virginica), wolf's milk spurge (Euphorbia purpurea), cliff green (Pachystima canbyi), Buckley's phlox (Phlox buckleyi), and Pseudotaenidia montana) are in review category 2 by the Office of Endangered Species, U.S. Fish and Wildlife Service. These are plants for which there is not sufficient information available to determine their status.

Surveys have not been done to determine their location or abundance, and no special provisions are set up for their protection. They are protected, as is all vegetation, by section 2.20 of the Code of Federal Regulations, wherein the destroying, digging, removing, or possessing of any tree, shrub, or other plant in the park is prohibited.

The commonwealth of Virginia maintains a similar classification, including species endangered, threatened, of special concern, status undetermined, and extinct in Virginia. Of the plant species found in the park, leather grapefern (Botrychium multifidum) is classified as endangered, and American ginseng (Panax quinquefolius), fir clubmoss (Lycopodium selago var. appressum), one-flowered rush (Juncus trifidus var. monanthos), three-toothed cinquefoil (Potentilla tridentata), and corral-root orchid (Corallorhiza trifida) are classified as threatened. The commonwealth has classified 18 other plant species as species of special concern or undetermined status.



VEGETATION

SHENANDOAH NATIONAL PARK

United States Department of the Interior / National Park Service
DSC / SEPTEMBER 1980 / 134-20051

0 1 2 3 4 miles
0 1 2 3 4 5 6 kilometers

Geological and climatic processes have transformed the physiography of the Blue Ridge Mountains, and change continues as vegetative succession and man-caused alterations continue. Over time mosaics of habitat change have affected the numbers and distribution of wildlife populations. The first European explorers of the Blue Ridge Mountains and the Shenandoah Valley found abundant wildlife. Bison grazed in the valleys and foothills, elk occurred throughout the region, and deer and bear were plentiful. Writings about the Shenandoah Valley of that time described the area as an extensive grassland providing pasture for buffalo, elk, deer, and bear. The region abounded in panthers, wildcats, wolf, fox, beaver, otter, and other animals and wildfowl common to forest areas.

The clearing of land by settlers changed the type of vegetation on the ridge, and thus wildlife habitats were changed. The settlers depended on animals for food and clothing, and the area was a rich source of skins and furs through the 18th century; these activities affected the area considerably. The last native bison in Virginia was recorded in 1798, the last known native elk was killed in 1855, and deer and bear were almost eliminated. Mountain lions may have persisted until 1911, and wolves were last seen in 1912. Overtrapping completely destroyed the beaver, and the fisher, which may have occurred here, probably disappeared in the late 1800s. Changes in habitat resulting from 200 years of human use probably had a more profound effect on most species than the actual killing or trapping.

However, the establishment of the park reversed the trend of habitat alteration. Hunting and trapping were prohibited, and all wildlife were protected and encouraged. Animal numbers responded to this protection. White-tailed deer were reintroduced in 1934 and have increased to where they are commonly observed along the Skyline Drive. Black bear are no longer considered rare; by the 1970s, state game officials estimated the park's bear population at 300. Rabbits, gray squirrels, chipmunks, and woodchucks frequent areas along the Skyline Drive. Bobcats, gray fox, skunks, and raccoons are common in the forest. The lesser, inconspicuous animals, such as mice and shrews, inhabit the meadows and woodlands. The park also includes a diverse population of birds, fish, reptiles, amphibians, and insects.

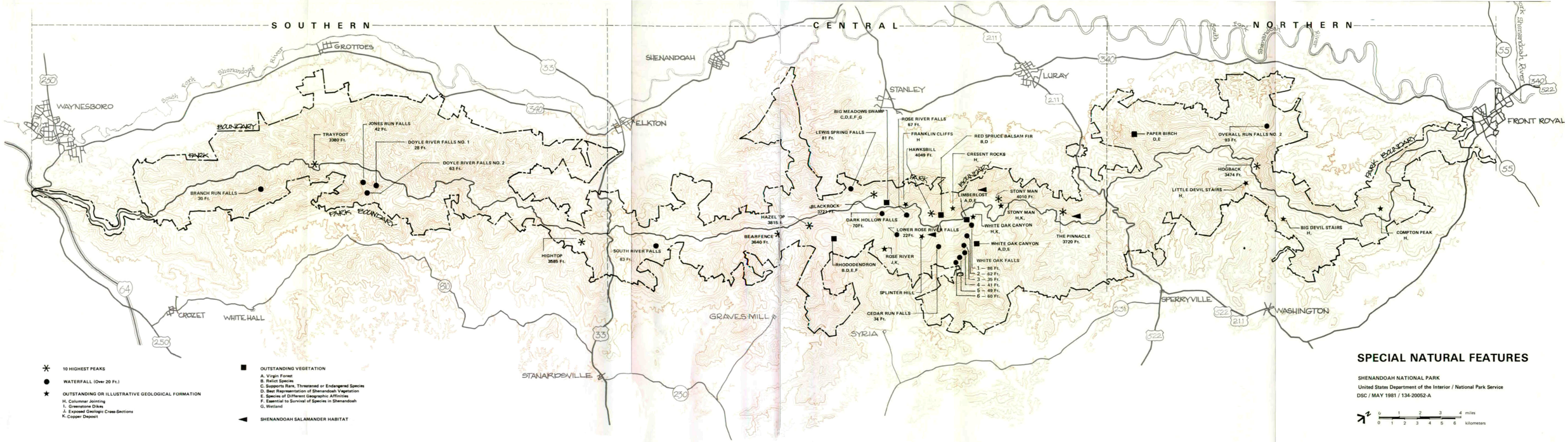
Shenandoah National Park has the characteristically diverse avian fauna of the eastern deciduous forest. Variation of ridge and slope provide for further diversity, with some typical northern species occurring at higher elevations. At least 200 species of birds have been observed, including 104 species that breed here. Twenty different birds of prey have been recorded. Also seven species of woodpeckers and 35 species of warblers indicate the advanced stages of forest succession within the park. Excessive hunting and habitat modification has reduced the turkey population, but protection afforded by the park allowed the reintroduction and increase of these indigenous birds.

Over 52 species of amphibians and reptiles are found within the park. One particular species, the Shenandoah salamander, is rare, occurring only in a few rockslide habitats within the park. Consideration is being given to placing this species on the federal threatened or endangered list.

Table 9. Vegetation Types of Shenandoah National Park

		Chestnut Oak Forest	Red Oak Forest	Scarlet Oak Forest	Cove Hardwoods Forest	Pitch Pine/Bear Oak Woodland	Black Locust Thicket	White Pine Forest	Virginia Pine Woodland	Gray Birch Woodland	Open, Early Successional Woodlands (restocking)	Tulip Poplar Forest	Sycamore Forest	Unvegetated Barrens
Canopy	Open					X	X		X	X	X			X
	Discontinuous	X		X				X				X		
	Closed		X		X								X	
Habitat Type	Xeric (dry)	X				X		X						
	Dry Mesic		X											
	Mesic (moist)			X	X					X		X	X	
	Wet Mesic													
	Variable						X		X		X			
Substrate	Granodiorite	X	X									X		
	Greenstone		X									X		
	Limestone			X		X								
	Quartzite	X		X		X								X
	Shale			X										X
	Variable					X	X	X	X	X	X		X	
Relative Ecological Value[a]		2	2	2	1	2	3	2	3	1	3	2	1	3

[a] 1 - high
2 - moderate
3 - low



SPECIAL NATURAL FEATURES

SHENANDOAH NATIONAL PARK
United States Department of the Interior / National Park Service
DSC / MAY 1981 / 134-20052-A

0 1 2 3 4 miles
0 1 2 3 4 5 6 kilometers

There are 22 known species of fish in park streams; however, the native brook trout is the most important to the visitor. Fishing is a traditional activity in Shenandoah, and specific management objectives are to maintain native brook trout streams while providing quality angling.

Lists of mammals, birds, reptiles, amphibians, and fish found in the park, and their habitat and occurrence, can be found in The Nature of Shenandoah (USDI, NPS 1975).

Shenandoah supports a population of West Virginia white butterflies (Pieris virginiensis) thought to be rare throughout their range because of habitat destruction. This species would be on the federal endangered list if it was not found within the park.

No animal species on the federal list of threatened or endangered species (50 CFR 17.2, rev. 1/17/79) are known to be endemic to the park. However, three species on the list had previously inhabited the park, and further research may lead to the documentation of their use of the park for critical habitat. Sightings of the eastern cougar (Felis concolor cougar) have been reported since 1941 by park personnel, tourists, and others; however, none have been substantiated with photographs or track casts. The eastern population of peregrine falcons (Falco peregrinus anatum) has succumbed to the effects of pesticides. They were listed as park residents in 1950 (List of Birds of Shenandoah National Park, Wetmore 1950) and one or more pairs nested in the park. However, reintroduction of other subspecies (tundrius) in nearby areas may result in peregrine falcons using the park as resting areas. The bald eagle (Haliaeetus leucocephalus) has also been affected by loss of habitat and pesticide poisoning. The bird has never been known to nest in Shenandoah National Park but has been seen during spring and fall migration flights.

The commonwealth of Virginia does not have a separate list of threatened or endangered animal species at this time.

Most of the diverse park fauna go unnoticed by visitors and are little affected by existing development and use. However, the larger, more conspicuous species may be encountered by visitors or have their habitat or behavior patterns disturbed by human activities. For example, deer browse along the edges of forest openings which are primarily the developed areas and the Skyline Drive. In campgrounds and picnic areas, deer occasionally beg from visitors. Along the Skyline Drive, deer create traffic hazards, resulting in approximately 65 car accidents per year.

Due to the lack of complete information on deer herds and their habitat, no management actions have been undertaken except for programs to discourage the begging of food by deer. These problem deer are relocated to remote areas of the park. A visitor education program emphasizes the problems caused by visitors feeding deer, which is a violation of park regulations. No programs are in effect to manage the size or distribution of the herds; however, a deer population study was begun in 1979 and may provide population indexes for nine identified herds.

Incidents between bears and people often cause property damage, injury, and/or relocation of bears. In response to a dramatic rise of incidents (which ranked Shenandoah as second in the National Park System for the number and value of property damage incidents), a bear management program was initiated in 1975. This program strives to ensure that unnatural food sources are removed, incidents are reported, problem bears are removed, visitors are educated, regulations are enforced, and research is undertaken. Immediate results were not apparent because adjustment time was needed, but the program now appears to be very effective. Property damage incidents, which reached a high of 257 in 1976, dropped to 53 in 1980.

Another problem of animal/man encounters involve skunks and other small mammals which are attracted by pet food and scraps in discarded dishwater at campgrounds. Concentrations of skunks appear to be cyclic and at times could present potential safety and health risks. When a large population buildup is noticed, skunks are live-trapped and released in remote areas.

Free-roaming dogs are seen along the Skyline Drive. They are often pets lost by visitors or strays from homes near the park. It is unlikely that many of the pets will become feral since they cannot adjust to the wild and will shortly die of starvation. Whenever possible, lost pets are captured and returned to their owners.

On the other hand, loose hunting dogs from surrounding homes can adapt to the wild and have a rather significant impact on native wildlife. Especially when in packs, dogs frequently chase and have been known to kill deer. They can also pose a threat to visitor safety. Park management works for a greater understanding with hunting dog owners, captures and returns animals to their owners, and takes appropriate measures to minimize this threat to the park's wildlife.

A summary of the more outstanding natural features are illustrated on the Special Natural Features map.

All of the natural systems are molded by climate, which is determined by the area's latitude, topography, and its proximity to the Atlantic Ocean. Shenandoah lies in the zone of prevailing easterly movement of the earth's atmosphere, and in or near the main path of tropical, moist air from the southwest Atlantic and Gulf of Mexico during much of the summer and early fall seasons. The mountains modify these patterns, creating many local climatic conditions. Table 10 shows temperature and precipitation data collected at Big Meadows and five surrounding stations. The most noticeable local difference to the park visitor is the cooler temperatures on the top of the ridge. Mean maximal temperatures in July average 10 to 12 degrees cooler in Big Meadows than in the lowlands around the park. On a hot, sticky day this relief makes the park especially attractive to visitors.

Snow and ice are common in the winter, but they usually melt quickly, leaving the ground bare. Occasional, major snowstorms or ice storms may cause considerable damage to trees and overhead utilities in the park, and temporary inconvenience to winter visitors.

Fog is a common experience for park visitors and occurs most frequently in the summer. The warm, moisture-laden air moving in from the coast rises when it reaches the Blue Ridge, expands, cools, and condenses into fog. When the air descends into the Shenandoah Valley, the fog dissipates.

Haze is the characteristic for which the Blue Ridge Mountains were named. This naturally occurring blue haze shades the distant horizons and limits visibility. It is explained as dust in the air combined with water vapor and/or organic compounds given off by the trees. However, this haze is becoming more prevalent and is associated with increased air pollution throughout the entire eastern United States.

Air quality is of special concern in Shenandoah National Park, where numerous overlooks offer distant views and valley vistas. Under the Clean Air Act, as amended in August 1977, Shenandoah was classified as a mandatory Class I air quality area. Under the program of Prevention of Significant Deterioration (PSD), Class I designation allows very little additional deterioration of air quality over established baseline concentrations of certain pollutants. In any case, the incremental increase is not to exceed any of the National Ambient Air Quality Standards (NAAQS). The act also mandates responsibility to protect Air Quality Related Values (AQRV). AQRVs are all those values (visibility, flora, fauna; archeological, historical, and geological resources; etc.) possessed by an area that may be affected by changes in air quality. Special provisions are included for protecting visibility and remedying existing visibility impairment.

The park provides technical support information to any PSD permit review process begun by an application from a new or a modified existing emitting source that appears to have the potential for affecting this area. A permit will be refused if it can be proven that one or more AQRVs will be adversely affected regardless of whether the PSD increments would be met. Conversely the source may be allowed to exceed the Class I PSD increments if it is proved that no damage to AQRVs will occur.

Table 10. Climatological Information, Shenandoah National Park and Vicinity

	Big Meadows	Luray	Staunton	Culpepper	Charlottesville	Washington, D.C.
Temperature						
Mean, Annual	48	55	55	57	57	57
January						
Maximum	39	48	45	45	46	44
Minimum	20	24	26	26	28	30
July						
Maximum	76	87	86	88	87	87
Minimum	57	60	63	63	67	69
Record Maximum/Minimum	94/-17	103/-7	106/-13	107/-20	107/-9	103/1
Days over 90°	0	45	25	40	41	33
Days under 32°	131	122	109	102	84	72
First frost	Oct. 2	Oct. 9	Oct. 16	Oct. 18	Nov. 6	Nov. 8
Last frost	May 9	May 8	Apr. 24	Apr. 20	Apr. 9	Mar. 30
Growing season (Days)	146	147	175	181	211	223
Precipitation						
Mean Annual	52	39	37	42	46	41
Maximum (inches)	6.2	4.8	4.0	4.8	5.6	4.9
Month	Aug.	Aug.	July	July	July	Aug.
Minimum (inches)	3.0	2.2	2.1	2.6	2.8	2.5
Month	Feb.	Feb.	Feb.	Feb.	Feb.	Feb.
Days with 0.10 in.	80	75	75	73	78	70
Total Annual Snow (inches)	36	-	25	-	-	14
Maximum Snow (inches)	8.2	-	6.8	-	-	4.2
Month	Jan.		Jan.			Jan.

SOURCE: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Climate of Virginia.

Air pollutants include primary emissions that originate from an identifiable source in a form detrimental to vegetation and aquatic organisms. The relative importance of toxicants varies from location to location; however, the primary damage to forest vegetation results from sulfur oxides and nitrate compounds. Secondary pollutants are produced in the atmosphere by combinations of primary toxicants, reactions with indigenous atmospheric materials, or through photolytic activation. This latter group includes combinations of acid-forming compounds, ozone, and compounds which affect visibility.

The park headquarters area on the edge of the park is the site of an air quality monitoring station maintained by the Virginia State Air Pollution Control Board. The station samples ambient air for 24 hours every 12th day. Samples are analyzed for suspended particulates, sulfur dioxide, and nitrogen dioxide. Other chemical elements of the air are analyzed on an irregular basis. Typically, sulfur dioxide levels are particularly low at this location. Particulates and nitrogen dioxide, which are components of automobile emissions, are higher but none exceed normal limits.

Within the park there are several research projects underway by the Virginia Polytechnic Institute and State University (VPI & SU) and the University of Virginia. Since 1977, VPI & SU has established an ozone monitoring station that is checked daily. Also trees along the Skyline Drive from Pinnacles to Rockfish Gap are evaluated several times a year. Research to date indicates direct and traceable effects on white pine when the concentration of ozone exceeds 12 parts per million for periods over 36 hours.

Another study by VPI & SU of ambient air quality and visibility involves collecting data to identify vertical and horizontal concentrations of ozone and sulfur dioxide above the rugged terrain within and near the park boundaries. Although much of the data has not been analyzed at this time, measurements are beginning to show the influence of meteorological parameters on concentration of pollutants. The data will be used for analysis of cause and effect with regard to visibility degradation, acid precipitation impacts, and vegetation damage.

The major pollutant whose origin is within the park is automobile emissions. Most of the pollution is generated during periods of high visitation-- mid-June to September and during the fall color period in October. The auto emissions table in appendix C indicates the total loading of the environment with pollutants based on factors determined by the Environmental Protection Agency (EPA) and traffic counts surveyed in 1978.

Campfires create some air pollution, primarily particulates, however the effects are local and of temporary nature. To many visitors, the smell of burning campfires is important, but it may not necessarily be an essential part of the park experience. Forest fires, which occur primarily in spring and autumn, may produce locally severe pollution, but the effects on air quality are local and relatively transitory.

The third study involves research by the University of Virginia on the potential effects of acid precipitation on the park's streams and soils. In

1977 samples of precipitation were taken from sites within the park, and the preliminary analyses indicated that the pH of rainfall varied from 3.4 to 4.5, which is considered to be highly acidic. Sulfate and nitrate concentrations were elevated and indicative of anthropogenic (man-caused) sources. The study, which includes two stream gauges in the Madison Run watershed, is establishing baseline data, documenting frequency and quantity of acid precipitation, and evaluating the effects on streams.

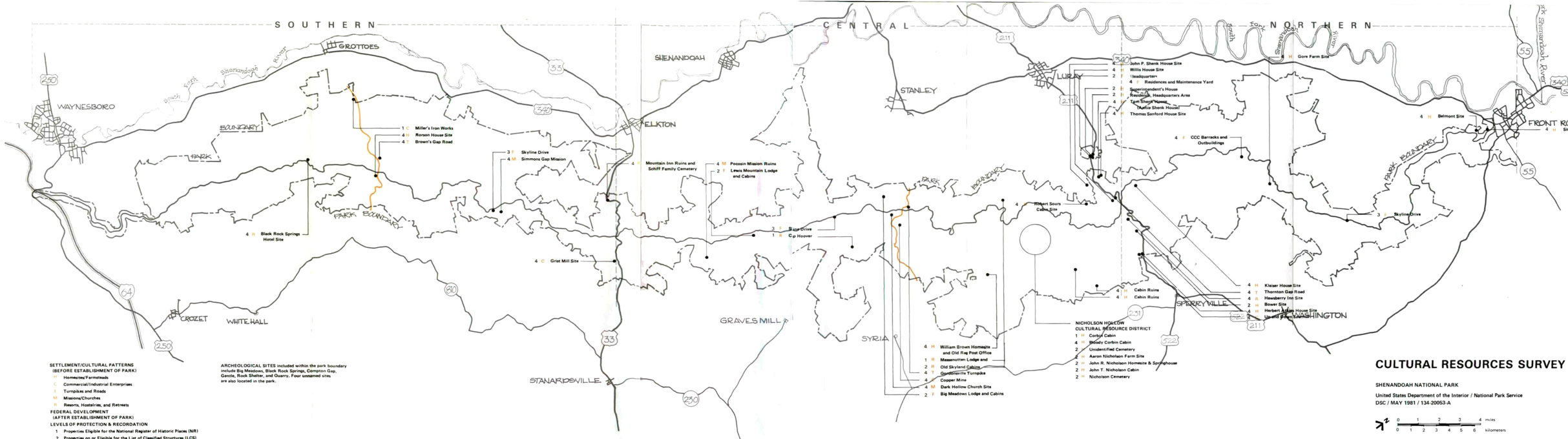
Further effects of existing pollution levels on visitors and the environment have not been determined and will require further research. The National Park Service is continuing to work with the EPA, the State Air Pollution Control Board, VPI & SU, University of Virginia, and other nearby institutions and independent researchers to document incidents of air pollution and its effects on the park environment.

Cultural Resources

In the Shenandoah Valley, Paleo-Indian sites at the Thunderbird and Flint Run archeological districts along the Shenandoah River provide stratigraphic examples of 12,000 years of Indian occupation. The first inhabitants were hunters and gatherers, who primarily remained in the Valley, venturing into the mountains for at least short periods of time. They established seasonal hunting camps in the Blue Ridge Mountains as early as 8,000 B.C. Recent evidence indicates the possibility of more permanent settlements in the mountains, although most civilization was concentrated in the valleys and lowlands. The prehistoric use of the Blue Ridge is evidenced by stone tools, spearpoints and firepits. By A.D. 1000, during the Woodland period, horticulture in the Shenandoah Valley became prevalent, and settlement patterns were more permanent. During the 17th century, the Manahoac, Monacan, Chickacoan, and Iroquois tribes occupied the vicinity; however, much of the Shenandoah Valley was free of Indian settlement because of constant raids from tribes at the north and south ends.

As part of the Appalachian Range, the Blue Ridge Mountains were a hindrance to European exploration. Dr. Lederer, a German scholar and physician, apparently familiar with the Indian languages, was sponsored by Lord William Berkeley to explore the area in 1669 and to investigate the potential for the fur trade and possible areas for settlement. Wandering for five days, Dr. Lederer saw nothing to the west but "mountains higher than I stood upon". He is the first known European to venture across the Blue Ridge.

In the summer of 1716, Governor Spotswood of Williamsburg, Virginia, led an expedition of "gentlemen" across the Blue Ridge with the ostensible purpose of encouraging settlement in the Piedmont and Shenandoah Valley. The group crossed the Blue Ridge in the vicinity of Swift Run Gap or Milam Gap and descended into the Shenandoah Valley. Each member of the exploration party was given a small golden horseshoe to defray the cost of reshodding their horses, and thus came to be known as the "Knights of the Golden Horseshoe."



SETTLEMENT/CULTURAL PATTERNS
(BEFORE ESTABLISHMENT OF PARK)

- H Homesites/Farmsteads
- C Commercial/Industrial Enterprises
- T Turnpikes and Roads
- M Missions/Churches
- R Resorts, Hostelries, and Retreats

FEDERAL DEVELOPMENT
(AFTER ESTABLISHMENT OF PARK)

LEVELS OF PROTECTION & RECORDATION

1. Properties Eligible for the National Register of Historic Places (NR)
2. Properties on or Eligible for the List of Classified Structures (LCS)
3. Properties to be Studied for Possible Inclusion on the LCS
4. Properties not to be Considered for the LCS or NR

ARCHEOLOGICAL SITES included within the park boundary include Big Meadows, Black Rock Springs, Compton Gap, Gentle, Rock Shelter, and Quarry. Four unnamed sites are also located in the park.

CULTURAL RESOURCES SURVEY

SHENANDOAH NATIONAL PARK

United States Department of the Interior / National Park Service
DSC / MAY 1981 / 134-20053-A

Settlement of the Shenandoah Valley began as early as 1726 by the German, Dutch, Scot, and Irish and included those of the Quaker and Mennonite religious persuasions. Colonization was fostered by the issuance of royal grants by Lords Culpepper and Fairfax. In 1754, all remaining Indians disappeared from the Shenandoah Valley; however, uprisings and skirmishes between Indians and settlers became common--preludes to the French and Indian War. The mountain area did remain out of the mainstream of events during the French and Indian War and the Revolution, except it did provide a possible haven for Loyalists and mercenary deserters.

While previous settlement was overwhelming in the lowlands, after the Revolution more families moved into the hollows. Some landownership remained with the wealthy Valley and Piedmont families who had received large grants from the Crown or the Commonwealth. Often tenants occupied this land and grazed livestock for the owners. Other land in the hollows and on the mountains frequently sold parcels of 50, 100, and 150 acres to less wealthy families. Exactly how many mountain people were landowners, tenants, and squatters remains a subject of controversy.

By the early 1800s, the settlement patterns were relatively stable. Families occupying the hollows grew vegetables and grazed cattle, sheep, and hogs. They collected tanbark and chestnuts for food and barter and the tanning industry in the Valley. Small settlements often included grist mills and carding mills, which were located at the bases of the hollows. People living in the hollows brought their grain down to be milled, leaving a portion with the miller for his services. They brought hides and tanbark to the shoemaker and tanner, and again bartered their goods for services. Other mountain industries included lumber, basket weaving, shingle making, weaving, and subsistence farming.

The Shenandoah Valley fared better with a more consistent and stable economy. By the 1820s, the Valley was a common trade route for conestoga wagons carrying cotton, tobacco, and other produce to the markets in Harper's Ferry, Baltimore, and Washington. "Gundalows" carrying trade goods floated down the Shenandoah River to the same destinations. Turnpikes and roads were constructed across the mountains to connect the Piedmont and the Valley, establishing solid transportation routes, expanding trade patterns, and providing cultural ties between the predominately German settlements on the west and the predominately English settlements on the east. Increased trade saw the development of iron furnaces, such as Miller's Iron Works along Paine Run, to process ore mined in the mountains.

During the first decades of the 18th century, soil depletion of the prime farmlands in the Shenandoah Valley was commonplace. Crops decreased in quality and quantity for a time. Just prior to the Civil War, farmers had begun replenishing their soils with fertilizers. Then the Shenandoah Valley became the major grain producer for Richmond milling and shipping, and maintained its reputation as fine grazing land for a growing cattle industry. Meanwhile the mountain economy remained relatively balanced, although the resources were diminishing rapidly.

By the 1860s, the Shenandoah Valley area was well settled and the population was an integral part of the state of Virginia. Trade routes through the Valley to the north (Harpers Ferry, Baltimore, and Washington) and to the south (the Carolinas) were well established. The Shenandoah Valley served as a direct avenue of access between the North and the South; control of the Valley came to be of major importance to both sides during the Civil War. The Valley was recognized as a back door to the Washington and industrial regions of the east, as well as a breadbasket. The fighting in the Valley was centered 100 miles north of the present park until the spring of 1862, when Stonewall Jackson undertook his Valley campaign. Jackson was able to keep Washington under constant threat of attack, while controlling all the resources in the Valley. Jackson's campaign ended in June 1862. In 1864, during an encounter at New Market, Confederate troops and military cadets drove back the Union troops who were establishing their position in the Valley. Ulysses S. Grant then dispatched more troops into the area with orders to "eat up Virginia clear and clean as far as you can go, so that crows flying over it for' the balance of this season will have to carry their provender with them." The Union troops made their way to Lynchburg, where they were forced to retreat to Washington. Finally, General Sheridan's campaign cleared the Shenandoah Valley of Confederate forces by late fall 1864.

The mountains were left relatively unmolested during the Civil War, as most of the action in the vicinity was concentrated in the Shenandoah Valley and the Piedmont. Stonewall Jackson and his troops crossed the mountains three times, probably twice at Brown's Gap and once at Fisher's Gap, and Jubal Early's troops retreated over Brown's Gap in 1864. Col. Thomas Munford of the Virginia Cavalry was quartered at Swift Run Gap for a time. No further war action within what is now the park has been documented. Civil War breastworks are alleged to have existed in Brown's Gap, but source material is scanty and questionable, and physical evidence is lacking.

During the Reconstruction era, the rural industries revived. The Valley and Piedmont were used for farming, orchards, tanning, and support for the logging industry. Basically the Valley people were prosperous, and the mountain people were less so. The mountain culture traditionally had been one of economic insecurity on marginal land. Life for the mountain people continued largely on a subsistence basis, isolated from the more complex Valley progress. The forest resources became the major source of income in the mountains. The logging of oak, chestnut, tulip tree, and pine brought sawmills to the heads of the hollows. The 1880s saw the high point of lumbering with the invention of the portable, steam-powered rotary sawmill.

The tenuous economic security that the mountain people experienced began to topple when the railroad was constructed in the Valley--sawmills at the base of the mountains were abandoned in favor of those closer to rail transportation. This resulted in a loss of jobs in the mountains and hollows. By the beginning of the 20th century, virtually every piece of land that could produce anything was used. Grazing pastures and subsistence gardens had replaced the forest. The soil eroded rapidly with the loss of proper groundcover, and soil depleted by constant

Camp Hoover

Homesite

Camp Hoover

Administrative headquarters

farming produced less each year. Wild game was depleted, and large game such as deer were vanishing. Chemical processing for leather tanning cut the demand for tanbark. In the meantime the economy of rural America was changing, with a new emphasis on commercial crops and products. Cash was replacing the barter system. The mountain economy was tottering. The death blow happened about 1915, when the chestnut blight swept through Virginia at the rate of 24 miles per year. The tree had been a mainstay of the mountain economy, harvested for timber, bark, and nutmeats. The exodus from the mountains had begun by 1900, and by 1925 nearly half of the mountain people had left the area.

At the time the Blue Ridge was being depleted of its resources, summer mountain resorts were becoming popular with more prosperous city dwellers. The Black Rock Springs Hotel and Stony Man Camp were places where people could stay overnight and enjoy the cool mountain air. Stony Man Camp was founded in 1894 by George Freeman Pollock on 4,000 acres of inherited land. This camp was a place of retreat for many people who enjoyed the outdoors, the views from the mountain, and the special events such as cake walks and carnivals. People remained "for periods of five to ten weeks, and some for the whole season."[1] Pollock was a colorful personality who not only got along with his mountain neighbors, but was an avid supporter for the creation of Shenandoah National Park. Stony Man Camp (now known as Skyland) became a park facility in the mid 1930s.

Interest in preserving lands in the southern Appalachian Mountains began in the late 19th century. Park proposals in the early 20th century gave way to national forests. Shortly after the creation of the National Park Service in 1916, Director Stephen T. Mather began studying and advocating the creation of national parks in the east. In 1923 he proposed that a typical section of the Appalachian Range be established as a national park. A Southern Appalachian National Park Commission was established. Comments of this commission highlighted Virginia Blue Ridge Mountain thus:

> The Blue Ridge of Virginia, one of the sections which had your committee's careful study, while secondary to the Great Smokies in altitude and some other features, constitute (sic), in our judgement, the outstanding and logical place for the creation of the first national park in the southern Appalachians.
>
> It will suprise the American people to learn that a national park site with fine scenic and recreational qualities can be found within a three-hour ride of our National Capitol and within a day's ride of 40,000,000 of our inhabitants. It has many canyons and gorges, with beautiful cascading streams. It has some splendid primeval forests, and the opportunity is there to develop an animal refuge of national importance. Along with the whole southern Appalachians, this area is full of historic

---

1. Skyland; The Heart of Shenandoah National Park, George Freeman Pollock (Chesapeake Book Company, 1960).

> interest, the mountains looking down on valleys with their... battle fields...and the birthplace of many...Presidents....
>
> The greatest single feature, however, is a possible skyline drive along the mountain top following a continuous ridge and looking down westerly on the Shenandoah Valley...commanding a view of the Piedmont Plain.... Few scenic drives in the world could surpass it.

Based on the commission's report, the Congress authorized and directed the Secretary of the Interior to determine the boundaries and area of a portion of the Blue Ridge Mountains to be recommended "as a national park, to be known as Shenandoah National Park." Similar instructions were given for the Great Smoky Mountains area and Mammoth Cave. Fieldwork was accomplished, including the use of innovation--aerial photographs taken by the Army Air Service. The act of May 22, 1926 (44 Stat. 616), authorized the establishment of the park (see appendix A).

The hard work of creating Shenandoah National Park began. The remaining mountain people who had not moved out in hard times then moved or resettled as their land was purchased parcel by parcel by the state of Virginia over a number of years. Construction of the Skyline Drive began in 1931, although it had been envisioned years before. Funding came mainly from the Federal Drought Relief Administration. In 1933, the newly established Civilian Conservation Corps began work on reforestation and erosion control, as well as construction on the Skyline Drive. Hundreds of local people were given jobs building a national park out of rugged, overused farmlands and meadows. In 1936, Franklin D. Roosevelt dedicated Shenandoah "to the present and succeeding generations of America for the recreation and re-creation which we shall find here."

By the advent of World War II, the lodges of Big Meadows, Dickey Ridge, and Lewis Mountain had been constructed and the Skyline Drive had been completed. Park development was halted due to the war effort but was revived in the mid 1950s for Mission 66 (a program to provide needed facilities in national parks). During the time it has taken to establish and build the park we know today, the land has been regenerating, bringing a lush surge of flora and fauna covering the tracks of man.

Each civilization leaves behind physical remnants of its culture in the form of lithic flake scatters, firepits, burial sites, building foundations, roads, field systems, and even buildings. These are the threads which are left to piece together the fabric of those civilizations. In Shenandoah National Park more than 100 archeological sites have been discovered. Most of the historic remnants such as ruins of farmsteads and homesites, commercial and industrial enterprises, roads, and missions predate the park. Mountain retreats, the most famous of which is Camp Hoover, date from a slightly later period of time. Other mountain resorts include Skyland, Big Meadows, and Lewis Mountain, which are all coming into a historic significance of their own. Even the early federal structures in the park--the Headquarters building and Skyline Drive--are highly representative of the period in which they were produced.

As part of this assessment and in compliance with Executive Order 11593 (Protection and Enhancement of the Cultural Environment), an inventory was undertaken in 1978 to collate the results of past and present professional studies and to determine the eligibility of particular cultural resources for the National Register of Historic Places. The Cultural Resources Survey map indicates the resources by categories of protection and recordation as determined by the National Park Service, Mid-Atlantic Region, on September 13, 1978, and April 11, 1980, by two major themes--settlement and cultural patterns prior to the establishment, and subsequent federal development. Appendix D provides a listing and evaluation of the resources examined.

The Virginia State Historic Preservation Officer was contacted concerning any properties in the surrounding counties which might have some relationship to Shenandoah National Park that are currently on, or eligible for, the National Register of Historic Places. At this time there are no sites or structures adjacent to the park (see appendix D).

Scenic Resources

Natural and cultural resources of Shenandoah and its surrounding region blend into a rich scenic beauty special to the Blue Ridge Mountains. Outstanding scenery is a key to the identity of the park, as the views from the ridge were a primary consideration in the creation of the park and the Skyline Drive. The congressionally authorized Southern Appalachian National Park Commission set several guidelines to aid their search in 1925, the first of which was "mountain scenery with inspiring perspectives and delightful details."

The inspiring perspectives and delightful details are comprised of a complex tapestry of landforms, vegetation, natural features, and man-made elements seen at varying distances under different time and weather conditions. Four general categories of long views or vistas are gained from the Skyline Drive and its overlooks. One type of vista is a broad, sweeping panorama of the Shenandoah Valley, where the eye is attracted to distant views of patchwork fields, rural buildings, intricate patterns of hedgerows and forest edges, serpentine meanders in the Shenandoah River, successive blue ridges fading into the hazy horizon, and miniaturized towns, cities, and factories.

A second type of vista is a broad panorama of the Piedmont, where the eye is also drawn far into the distance over rolling orchards, woodlands, farms, roads, and clusters of houses. This landscape rolls east as far as the atmospheric conditions will let one see.

Enclosed hollows are another type of vista. At many overlooks, ridges encircle a bowl around the viewer and hold one's attention to the more immediate surroundings. The color and texture of trees attract the eye. Often there is a clearing at the bottom perhaps with settlement, and this becomes a focal point in the scene.

A fourth type of vista is a series of ridges which, when close to the viewer, appear as rolling carpets of thick trees, and with distance, transform into flat planes fading into the haze. There are, of course, many combinations of these vista categories.

Long views from the ridgetop are not the only perspective for scenery. From points in the surrounding vicinity, the ridge of the park commands attention as a dramatic backdrop to the surrounding countryside and communities. Series of fading ridges embody the special character of the rural Blue Ridge landscape.

In addition to the aesthetic quality of the views, the cultural context of the land adds to the appreciation of the scene. A knowledge of Indian history, Civil War campaigns, or tales of hollow folk and moonshiners enhances the viewer's interest in the landscape.

Scenery is constantly changing. The daily sweep of the sun alters illumination and light patterns on the ridges, hollows, and valleys. The weather of the moment, perhaps wind, rain, fog, snow, or clouds, projects a mood upon the landscape. The seasonal cycle is accompanied by the transformation of soft winter grays to lush green growth and eventual firey fall color.

Scenery continuously evolves as years pass. Since the establishment of the park, land which had been grazed, logged, burned, and farmed was protected and vegetation grew into a heavy, dense forest. This not only altered the original scene but nearly blocked viewpoints from the drive, so existing overlooks are periodically cleared to maintain the four types of vistas. Changes are occurring in areas seen outside the park as land uses change. Subtle changes occur as towns grow and the network of highways and utilities expand. More noticeable changes are mines, gravel pits, new industry, and second home developments.

The second home developments often cause dramatic changes to the scenic quality of the park. Attracted to the edge of the park for the forest, hills, and views, they bring along roads, powerlines, and clearings which are often highly visible and tarnish the character of the rural scenery and destroy the visual integrity and unity of the massive mountains. Two examples of this are visible from Naked Creek Overlook onto Long Ridge and from Bacon Hollow Overlook onto Flattop Mountain. More developments are under construction along the park edge and even more are planned, causing many respondents to the preplanning workbook to note the importance of scenery and express their concern with protection of views from outside development.

Scenery can be inventoried, analyzed, evaluated, and classified despite its subjective nature. A wide variety of procedures are available, ranging from very descriptive field evaluation to highly quantified computer evaluation. In 1978, a visual survey was conducted, combining computer programs and onsite investigations tailored to the visibility of land in and around the park from points on the Skyline Drive, from highpoints in the park, and from several points outside the park. The Visibility map shows the computer composite of land seen from 85 points along the Skyline Drive. Many areas are seen from more than one

VISIBILITY

SHENANDOAH NATIONAL PARK

United States Department of the Interior / National Park Service
DSC / SEPTEMBER 1980 / 134- 20054

0 1 2 3 4 miles
0 1 2 3 4 5 6 kilometers

observation point. Other information collected includes viewshed and aspect of 115 individual points. Approximately 30 points have been field inventoried for the diverse elements that constitute the view.

As can be readily noted, most of the composite viewshed covers areas outside the existing landholdings of Shenandoah. While appropriate restraint of vegetation for observation points is within the control of the National Park Service, the quality, character, and aesthetic elements of the views will depend primarily upon the use, development, and protection afforded by landownership in conjunction with local and state regulations.

The beauty of Shenandoah is also expressed in the many intimate and changing scenes within the park. The viewer becomes a part of the mood of the mountains through appreciation of such natural dioramas as a waterfall in its icy winter setting, an open meadow in springtime bloom, a deep and silent ravine in the lushness of summer, or the blaze of autumn glory. The eye moves easily from the great variety of vegetation to the great variety of wildlife which can be smaller than a butterfly or as large as a bear. While exploring, one also finds occasional evidences of past human activity. Looking into the park, the viewer gains an appreciation of the life of the Blue Ridge Mountains and a tranquillity from the quiet timelessness of the rocks and the total life continuum.

Existing Facilities

Shenandoah's natural, scenic, and cultural resources were intended to be used and enjoyed by great numbers of visitors each year, as well as protected for future generations. When the park was dedicated in 1936, development consisted of 34 miles of the Skyline Drive, a restaurant at Panorama, the Appalachian Trail, and Pollock's Skyland. Over the years facilities have been provided to accomplish the purposes of both resource protection and visitor use. The total area of development occupies less than 2 percent of the park.

Today the most notable facility of Shenandoah is the Skyline Drive. To some it has more fame than the park itself. The potential to build such a road on the ridge was one of the reasons this area was chosen to be a national park, and construction on the drive was started 4½ years before the park was dedicated. Thus it is deeply embedded in the identity of Shenandoah.

Skyline Drive is 105 miles long, has 71 overlooks, and is the only vehicular access within the park. It is reached at four entrance stations: Front Royal, Thornton Gap, Swift Run Gap, and Rockfish Gap. Built between 1931 and 1939, the alignment has had few changes, and most stonewalls from its original construction are still maintained. The pavement width ranges from 20 to 24 feet, marked with a centerline and edge lines because of the frequent foggy conditions. The shoulders of the drive are grass and are mowed to a variable width for safety and to add variety to the road corridor. Vegetation adjacent to overlooks is often cleared to maintain the vistas for which the overlooks were established. The winding curves, abundant wildlife, leisurely driving

FACILITIES

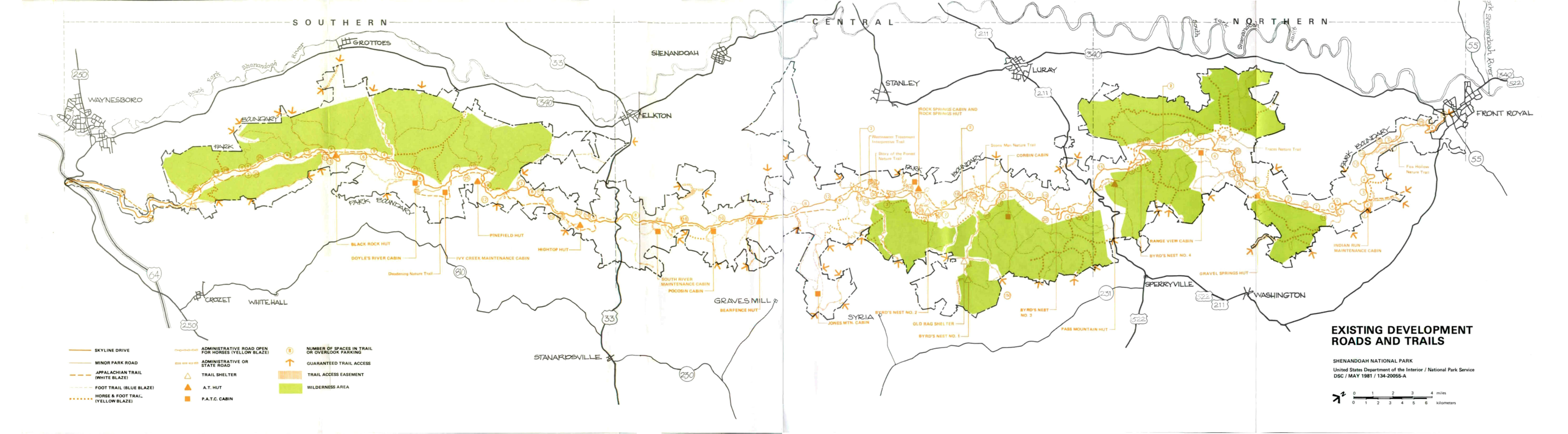
Byrd Visitor Center

Trail Shelter

Appalachian Trail

Family campground

Big Meadows Lodge



EXISTING DEVELOPMENT ROADS AND TRAILS

SHENANDOAH NATIONAL PARK

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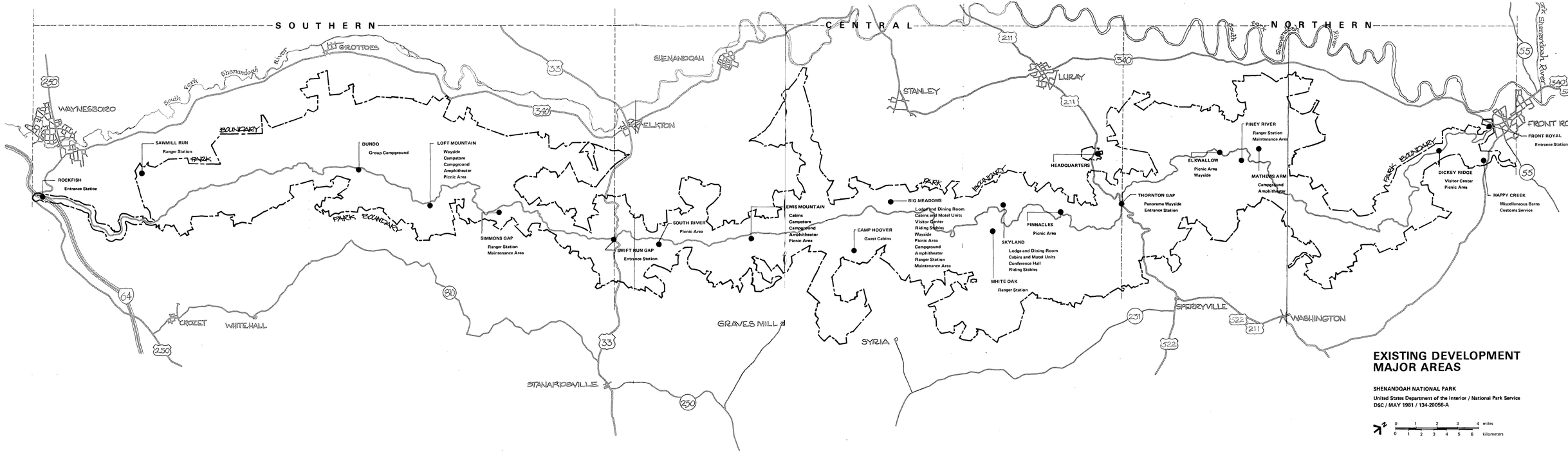
0 1 2 3 4 miles
0 1 2 3 4 5 6 kilometers



EXISTING DEVELOPMENT MAJOR AREAS

SHENANDOAH NATIONAL PARK

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0 1 2 3 4 miles
0 1 2 3 4 5 6 kilometers

sightseers, and grand scenery are all factors contributing to the 35 mph speed limit. The road has a maximum capacity for automobiles, as explained in appendix G.

Other numerous dirt and gravel roads in the park are maintained as fire, patrol, and maintenance roads and trails. They are closed to private vehicles except in a few cases where access roads to private property cross park lands.

Trails vary in length, difficulty, access, and destination for a total of 455 miles. (See Existing Development - Road and Trails map.) The longest single trail in the park is a portion of the Appalachian National Scenic Trail, which stretches from Compton Gap to Jarman Gap and is part of the 2,000-mile route from Maine to Georgia. This segment was first built between 1928 and 1932 along the ridge by the Potomac Appalachian Trail Club (PATC) prior to dedication of the park or construction of the Skyline Drive. Much of the trail was displaced and required relocation during the construction of the drive; it now crosses the drive at nearly 30 places. In 1968 the entire Appalachian Trail was designated as a national scenic trail. Two open shelters, four enclosed cabins, and seven huts with bunks provide overnight accommodations along the trail. Many of these structures are constructed of native stone and chestnut.

Most other park trails were developed by the Civilian Conservation Corp between 1935 and 1940, many following established mountain footpaths. Many park trails are graded and lead to significant features, connect developed areas, and follow interesting routes; linked together they form a variety of circuits as discussed in appendix E. Along these other trails are two open shelters and two enclosed cabins. There are also many unmarked remnants of footpaths and roads of former residents.

Several self-guided nature trails that provide a circuit or loops of less than two miles are located throughout the park.

Approximately 175 miles of designated horse trails and fire roads are also available for horseback riding, some crossing the ridge.

Parking for trails is primarily at the top of the ridge along the Skyline Drive. Facilities range from large paved lots, such as White Oak Canyon, to small unmarked spaces for one or two cars along the road. Trailhead parking at the edge of the park is limited.

Shenandoah National Park also contains facilities for day and overnight uses and operations as shown on the Existing Development: Major Areas map and the Summary of Facilities chart.

In addition to the four entrance stations, Shenandoah provides two major visitor centers that provide orientation, information, and interpretation facilities--Dickey Ridge in the north and Byrd at Big Meadows. The Dickey Ridge Visitor Center provides a view of the Shenandoah Valley, a

display area, publication sales, an auditorium, and restrooms. The Byrd Visitor Center overlooks Big Meadows and contains a museum, auditorium, displays, sales facilities, and restrooms. Information is available at the Boulder Cabin at Skyland. Park Headquarters also has a counter for information, permits, and sales of publications, as well as restrooms. Signs are located throughout the park for information, directions, and interpretation. Nearly 50 interpretive signs are situated at overlooks on the Skyline Drive.

Seven picnic grounds are located off the Skyline Drive; all offer tables, parking, comfort stations and/or pit toilets, and fireplaces with grills. Pinnacles is the only picnic area with a pavilion. A few overlooks have a picnic table for roadside lunching.

Four waysides provide snack bars or restaurants, gift shops, camp stores, and gas stations which are operated by the ARA Virginia Sky-Line Company.

There are four auto access (family) campgrounds off the Skyline Drive which have individual sites for tents only, trailers only, or both. Each site has a picnic table and fireplace with nearby water, comfort stations, and food storage poles. Each of these campgrounds has an amphitheater, most equipped with audiovisual equipment for evening campfire talks. Adjoining facilities have firewood and ice for sale, and some provide showers and laundromats. All campgrounds, except Lewis Mountain, have trailer sewage disposal stations. A campground for organized groups at Dundo has seven campsites, and an area at Big Meadows has been used for group horse camping.

Overnight lodging and accompanying facilities, operated by the ARA Virginia Sky-Line Company, are available in the central section of the park. Each development has its own atmosphere because of different settings, sizes, and facilities. Skyland takes advantage of the superb Shenandoah Valley scenery gained from its high vantage point just below Stony Man. Most facilities are oriented toward the views; the dining room has views of the Valley. Most of the cabin and motel units at Big Meadows are tucked into the woods, and the atmosphere is very enclosed. Lewis Mountain is a small and modest area surrounded by woodland. Also each area has a mixture of old and new architecture which provides individual character to each development.

Camp Hoover is a special facility available to the president, vice-president, cabinet, members of Congress, and other officials on a rental basis. The three rustic cabin units with fireplaces and cooking facilities provide an attractive retreat in a sylvan setting.

Many facilities other than those directly used by visitors are needed to operate Shenandoah. There are ranger stations, maintenance areas, employee residences, and utilities such as water, electricity, telephone, and wastewater treatment facilities. The Headquarters is the central office for park administration.

Maintenance yards provide space for storage and repair and have enclosed garages, gas pumps, workshops, offices, and fire-fighting equipment

caches. The Headquarters yard also has carpenter, blacksmith, sign, and paint shops.

Many employees of the park and the concessioner are housed in the park. The type of housing ranges from houses to trailers, apartments, or dormitories. The park employee quarters are located at Headquarters and other scattered sites throughout the park and can house up to 123 employees. As new National Park Service guidelines for park housing are implemented, unneeded but energy-efficient quarters would be converted to other park uses. The ARA Virginia Sky-Line Company has living spaces for employees at concession-operated areas which can house up to 244 employees.

There is a wide variety of water systems and improved water sources, including a municipal water tap, wells, and springs. Chlorinated wells and/or springs serve the major developed areas, with other smaller systems and sources as shown on table 11. All systems are frequently sampled and inspected, in cooperation with the U.S. Public Health Service and the state public health department, in compliance with the Safe Drinking Water Act.

Park visitors generate large amounts of wastewater that requires sophisticated treatment to meet current discharge standards. In compliance with the Federal Water Pollution Control Act and Executive Order 12088 (Federal Compliance with Pollution Control Standards), five new wastewater treatment plants at Mathews Arm, Thornton Gap, Skyland, Big Meadows, and Loft Mountain can handle a total of 275,000 gallons of wastewater per day. Septic systems serve 16 smaller developments, and a collection vault is used at Dundo. Pit toilets are found at picnic areas, trail shelters, some maintenance areas, and other scattered locations.

Solid waste is hauled outside the park to three approved public landfill sites: the Warren County landfill at Greasy Run, the Page County landfill, and the Waynesboro landfill in Augusta County. All trash cans in public use areas have bear-proof tops, and the 1,200 tons per year of refuse is collected by the park's three compactor trucks. The ARA Virginia Sky-Line Company collects and disposes of its solid waste separately in the Page County landfill.

Borrow-landfill sites are used during construction and maintenance; the majority of these are already disturbed areas. When such a disturbed area is brought to a more naturalized grade, borrowing and/or filling is discontinued and the area is allowed to revegetate. There are 14 sites located at Jenkins Gap, Mathews Arm, Pass Mountain Spring Road, Pinnacles Camp, Hughes River Gap, Skyland, Big Meadows, South River, Red Gate Road, Lower Swift Run, Eaton Hollow, Browns Cove, Jarman Gap, and on the steep, eroded slopes along park administrative roads. In addition, borrow pits are sometimes necessary for trail maintenance. These are hidden from the trail and worked to appear as natural depressions.

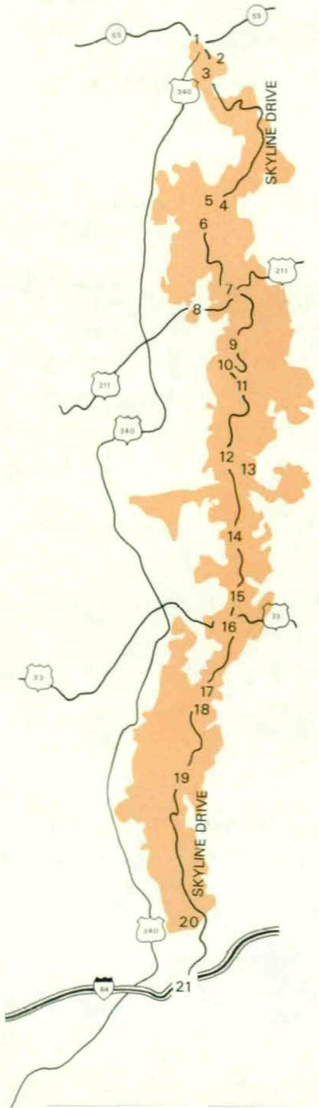
Radio towers and other power, telephone, water, sewer, and gas lines cross, but do not serve the park. These lines are allowed by special use

Table 11. Other Water Systems and Improved Sources

		Developed Spring & Pipe Outlet	Spring with Spring Box/ Collection Reservoir	Warning Sign	Chlor-ination	Out of Service[a]
1.	Indian Run AT Bldg.	X		X		
2.	Browntown Valley Parking Overlook		X		X	
3.	Gravel Springs Hut		X	X		
4.	Elkwallow Shelter Site		X	X		
5.	Range View Cabin		X	X		
6.	Pass Mtn. Parking Overlook		X		X	
7.	Pass Mtn. Hut	X		X		
8.	Byrd's Nest #4 Shelter		X		X	
9.	Hazel Mountain Parking Overlook		X		X	
10.	Hemlock Springs & Stony Man Parking Overlook		X		X	
11.	Old Rag Shelter	X		X		
12.	Byrd's Nest #3 Shelter		X		X	
13.	Hawksbill Gap	X		X		
14.	Rock Spring Hut	X		X		
15.	Lewis Spring	X		X		
16.	Hazeltop Ridge Parking Overlook		X			X
17.	Bearfence Hut	X		X		
18.	Baldface Mtn. Parking Overlook		X			X
19.	South River AT Shelter	X		X		
20.	Swift Run Parking Overlook		X		X	
21.	Pocosin Cabin	X		X		
22.	Hightop Hut	X		X		
23.	Loft Mtn. Parking Overlook		X			X
24.	Pinefield Hut	X		X		
25.	Ivy Creek AT Bldg.	X		X		
26.	Doyle River Cabin	X		X		
27.	Black Rock Hut	X		X		
28.	Trayfoot Mtn. Parking Overlook		X		X	
29.	Turk Mtn. Parking Overlook		X			X
30.	Sawmill Run Shelter	X		X		
31.	Upper Hawksbill (Byrd's Nest #2)		X		X	

[a]Pending future installation of disinfection equipment

SUMMARY OF FACILTIES



| | | ORIENTATION / INTERPRETATION | | | CAMPGROUNDS | | | | | | | | | | | | PICNIC AREAS | | | | | | LODGING, WAYSIDES, AND OTHER ARA OPERATIONS | | | | | | | | | | | |

permits and deed reservations; such a permit allows the U.S. Customs Detector Dog Training Center at the north end of the park.

For various reasons, there are several buildings in the park that are not used. These include some from the former USDA Beef Cattle Research Center and the barn on the old Snead Farm.

Some existing sites and facilities are designated for specific uses. National Environmental Study Areas are outdoor classrooms for school groups, who also use adjacent existing facilities. Three sites are designated for hang-glider launching: Dickey Hill, Hogback Ridge, and Millers Head. Short (1/3 to 1/2 mile) trails provide access from the Skyline Drive.

Many facilities are accessible to handicapped persons in wheelchairs. Both visitor centers have accessible doors, low displays, and space in the auditorium, but only Byrd has accessible washrooms. Headquarters has steps and narrow doors which restrict wheelchairs and has no washroom modifications. Campgrounds at Big Meadows, Mathews Arm, and Loft Mountain are accessible to wheelchairs (including washrooms), but woodchip trails to amphitheaters may create some problems. Washrooms are being adapted at each of the picnic areas, but standard-design picnic tables do not facilitate easy use by people in wheelchairs.

All restaurants and wayside snack bars are accessible to wheelchairs, but readily available washrooms are not always present. A few lodging units at Big Meadows and Skyland are accessible to wheelchairs. Most park housing, notably trailers and houses, cannot accommodate wheelchair use because of narrow doors, door jams, and steps. The apartments at Big Meadows are currently the only feasible accommodations.

Currently, no park trails are accessible to wheelchairs; however, the Skyline Drive, its overlooks, and interpretive signs are all accessible. There are as yet no special provisions for blind visitors.

Most facilities were constructed during two periods--the 1930s when the park was established and the CCC was active, and during the National Park Service's Mission 66 program begun in the late 1950s and completed by 1966. The only major development since then has been the construction of five modern sewage treatment plants. With the passage of time, structures have aged and deteriorated, and past needs and standards for development have become partially obsolete.

General deterioration with age occurs to all structures in varying degrees, but it is particularly a problem of 40-year-old sewage collection systems, septic systems, and water supplies. Maintenance shops and storage buildings are especially showing their age. Facilities intended for temporary use, such as employee house trailers, operations trailers, and maintenance buildings, are deteriorating quickly.

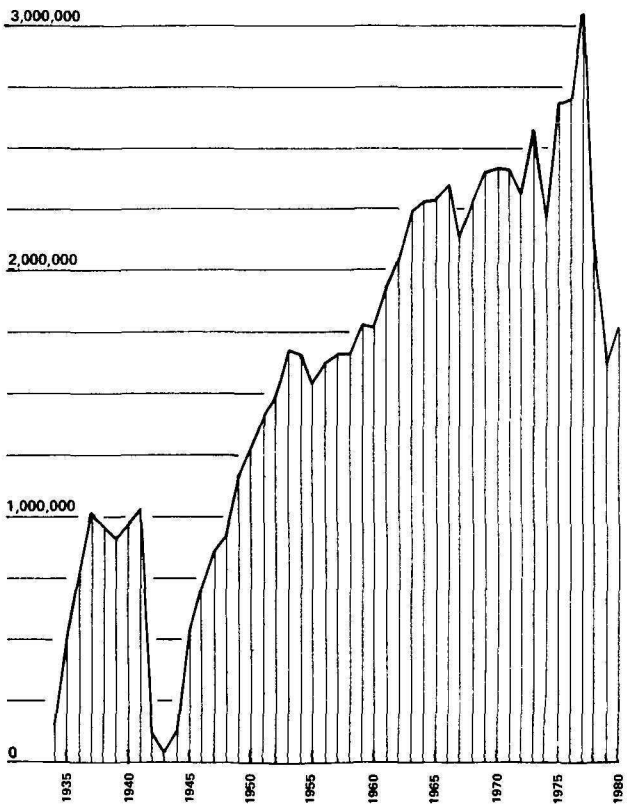
Temporary portable toilets, such as at Dickey Ridge, are only a stopgap measure for an existing need. Some facilities are poorly located, such as the wood and ice sales, a primary interest of campers, located at Elkwallow Wayside at least a mile from Mathews Arm campground. Changing needs have made many maintenance shops and operations offices inadequate for present use.

Increasing health and safety standards demand improvements, particularly for water supplies and sewage treatment. Numerous structures such as lodging units, lodges, entrance stations, visitor centers, maintenance buildings, and employee trailers are energy inefficient. The condition of park facilities, with deterioration partially remedied by routine maintenance, will continue to change over time.

Visitor Use and Interpretation

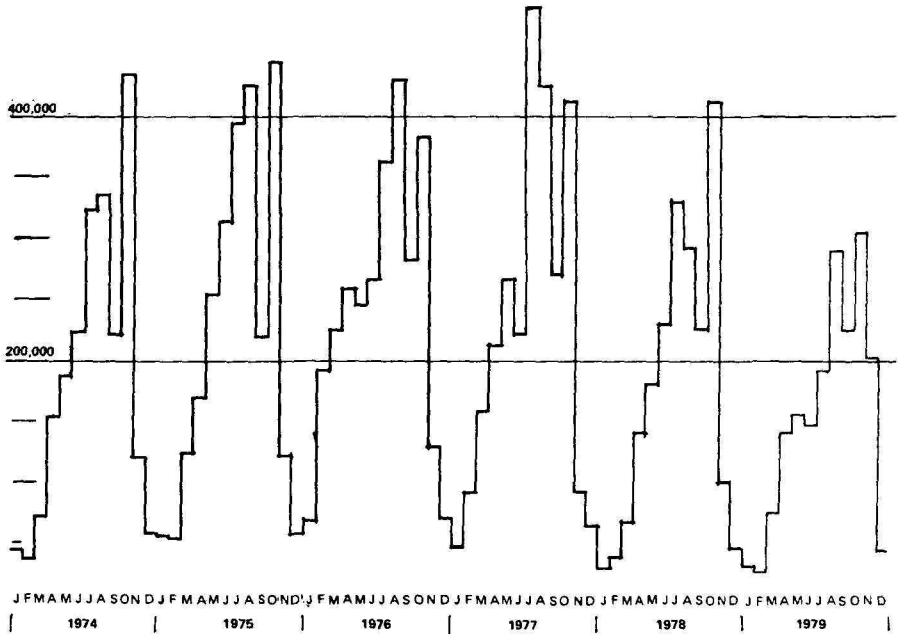
As one might expect, Shenandoah National Park with its natural and cultural features, scenic views, and an array of facilities attracts many visitors. In over four decades, visitation has exceeded 70 million people. Since 1962, visitation has been more than 2 million annually. While there have been fluctuations in yearly visitation, there has been an overall general increase since 1943. However, sizable declines of 31.5 percent and 22.3 percent occurred in 1978 and 1979, respectively. Slightly over half of the 1978 loss can be explained by a change in counting techniques used.

Considering different counting procedures, there was a real loss of 33 percent in yearly visitation in 1978 and 1979. During this same two-year period, gasoline rose sharply in cost, and difficulties in obtaining fuel occurred. The entire decrease cannot be attributed to gasoline problems only because during 1979 unusually poor weather conditions (especially on weekends) and overall inflation occurred. A small recovery (8.2%) of annual visitation occurred in 1980, indicating the continuance of gasoline and other inflationary cost increases.

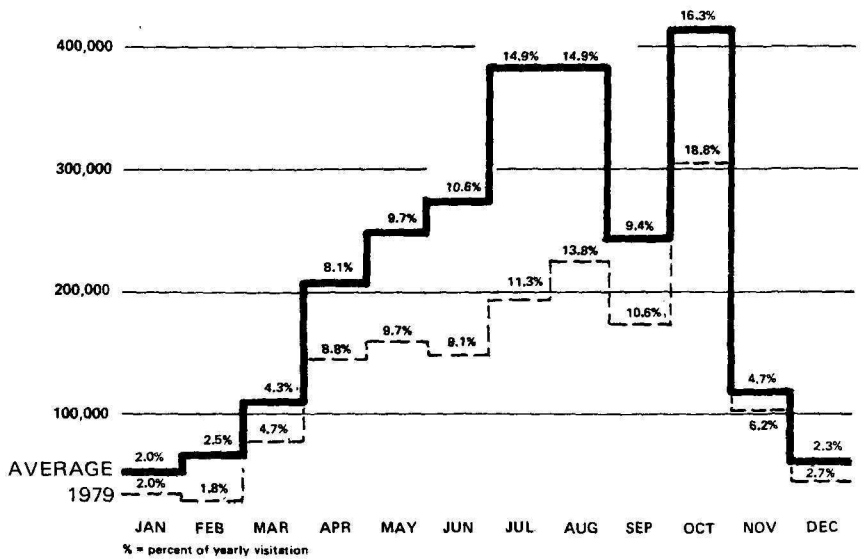


YEARLY VISITION
1934–1980

Visitor use of the park is not a constant throughout the year--there are times of heavy and light visitation that produce a cyclic effect. November through February are consistently low-use periods while July, August, and October are high-use months. The latter three months constitute nearly 50 percent of a year's visitation. While high visitation in July and August is not unusual, the intensity of use in October is surprising. It surely indicates the drawing power of the spectacular autumn color display.



MONTHLY VISITATION
JAN 1974 - DEC 1979

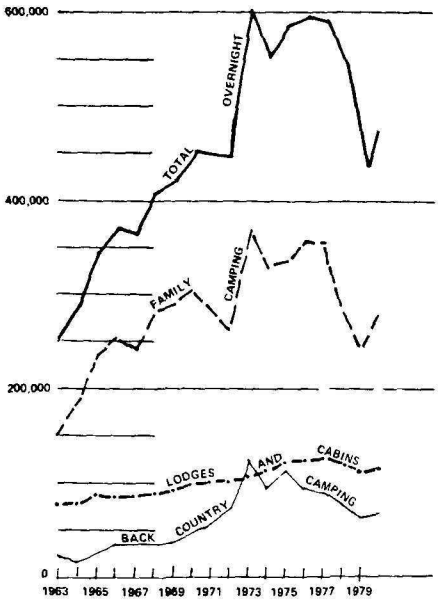


5-YEAR AVERAGE MONTHLY VISITATION (1974 - 1978)
COMPARED WITH 1979

While Shenandoah is a national park that draws from all over the United States and even foreign countries, most visitors come from eastern and midwestern states. Entry surveys (1968, 1977, 1979), a camper survey (1974), backcountry trail users survey (1977), backcountry permits (1977), and cabin/lodge registration samples (1978) point to 13 states which provide generally at least two percent each of Shenandoah's visitors. These are, in declining order, Virginia, Maryland, Pennsylvania, New York, New Jersey, Ohio, District of Columbia, North Carolina, Florida, Delaware, Massachusetts, Illinois, and Michigan. Together these states provide over three-fourths of Shenandoah's visitation.

Virginia consistently contributes the most visitors. Its share varies from 15.4 percent of family campers to 37.6 percent of backcountry campers. In 1979, Virginia contributed 41.6 percent of all entries; an increase of 9.2 percent over 1976 and 18.4 percent over 1968. Maryland is almost always in second place and its contribution varies from 30 to 87 percent of Virginia's. Pennsylvania, New York, and New Jersey are fairly evenly split in the overall entries, campers, and lodgers categories. The remaining states are not always found in every source of visitor origin above the 2 percent threshhold; however, their presence can be found in certain activities. For example, the District of Columbia and Delaware were either very low or not evident on the overall entry survey, but contributed 9.5 percent and 2.3 percent of backcountry campers, respectively. Massachusetts, Illinois, Florida, and Michigan indicate that Shenandoah National Park and its Skyline Drive serve as a vacation travel corridor between these states. Park visitation is very similar in origin to that of the famous Luray Caverns and the entire commonwealth of Virginia.

To many visitors, Shenandoah is a day use area. However, overnight stays have gained popularity and generally increased in popularity between 1963 and 1977 to more than a half million people per year. While there were losses in real numbers in 1978 and 1979, there were gains in percentage of total overnight stays to total yearly visitation. Overnight stays recovered in 1980 by 8.3%, the same growth as overall yearly visitation.



OVERNIGHT STAYS
1963–1980

The largest group (60 percent in 1977, 58 percent in 1980) of overnighters are those who stay in the family, auto-access campgrounds. These facilities are usually full from Memorial Day to Labor Day, with use tapering before and after the summer season except for an increase during fall color and other unusually pleasant weekends. In order to ensure that some visitors will have a campsite upon their arrival, the Big Meadows Campground was set up on a reservation basis in 1980. By mail or walk-in to any Ticketron outlet throughout the country, a visitor may reserve a campsite according to the equipment used and the dates desired. Any remaining vacancies are filled for one night on a first come-first served basis. If this reservation system proves successful, it may be extended to the Loft Mountain and Mathews Arm campgrounds.

There are changing trends in the use of tents and trailer/recreation vehicles. Between 1959 and 1969 trailers and recreational vehicle use increased from 13 percent to 66 percent. Since then tent users have increased, and in 1979, 57 percent of campers used tents.

Haas, in his study in 1974, described the campers at the Big Meadows facility as generally young, "upper class" families, living within a 300-mile range of the park. "Nearly one of every two camping parties stayed for 2 or 3 nights" and "had visited the park before." Hiking, leisure walking through the campground, visitor center participation, pleasure driving, and evening campfire talks were the most popular activities of these park visitors.

The second largest group (22 percent in 1977, 25 percent in 1980) of overnight stays in the park are in concessioner-operated lodges and cabins. During the season from mid-June to nearly the end of October, lodges and cabins are usually full. In the spring and fall, depending on the weather, all rooms may be filled on the weekends. During the peak seasons, visitors who are turned away for lack of space are conservatively estimated between 10 and 50 a day. Between the winters of 1973-74 and 1978-79 a few units were kept open at Big Meadows. However, in the winter of 1979-80 this was discontinued.

In 1978, the ARA Virginia Sky-Line Company conducted a customer preference study of lodgers and diners at their cabins, restaurants, and waysides. About two-fifths of the parties consisted of two people. Almost 90 percent of the responders found the accommodations good; only one percent, poor.

According to the customer preference study the length of stay was fairly evenly split between those staying one night, two nights, and three nights or more. ARA Virginia Sky-Line Company records indicate that the average length of stay at Skyland and Big Meadows for 1978 was 1.5 nights. In 1979, the average was 1.6 nights, while in 1980 the average was 1.5 again.

Nearly 60 percent of the lodgers and diners surveyed in 1978 found the scenery and nature the best part of their stay. Hiking and walking was recorded by 61 percent as the activity they liked the most. Poor weather was rated by almost 14 percent as the part of the stay liked least. Overall, 96 percent of diners and lodgers rated their visit as good and only 1 percent rated the visit as poor.

In addition to the lodging accommodations available at major developed areas, the Potomac Appalachian Trail Club (PATC) maintains six cabins within the park which may be reserved for overnight stays for those who can hike to them. Use of the cabins has declined in recent years for unknown reasons. In 1979, approximately 3,500 visitors stayed in these cabins, which was a decline of 33 percent from the 5,200 who used the cabins in 1975.

Backcountry camping has grown more popular, especially in the late 1960s and early 1970s. Peaking in 1973, this form of outdoor experience is declining and in 1980 constituted 14.0 percent of all overnight stays. Backcountry camping is dispersed throughout the park under certain regulations concerning limits on party size, and distances from roads, streams, and other developments; also no charcoal or woodfires are allowed, a maximum of only two nights can be spent at a single location, and permits are required. The regulations and dispersal of use allow opportunities for seclusion in a natural environment.

In 1978, over 75,000 visitor nights were recorded in the backcountry. Eighty percent of this use occurred between May and October. On five days overnight backcountry use exceeded 1,000 persons, with 1,698 people on the peak night. Most visitors camped only one night and almost 90 percent for three nights or less.

One-third of the backcountry camping occurred in the zone between Beahms and Hawkbill gaps, while the remainder of the use was evenly spread throughout the park. Of course, certain specific locations were more popular than others. The two most popular spots were in the areas around the White Oak Canyon Trail and the Appalachian Trail from Beahms Gap to Hawksbill Gap. Other very popular areas were around Jeremys Run, the Rose River, Riprap Hollow, and the Cedar Run, Big Run, and Doyle River trails. Fourteen percent of all overnight stays were along the 95-mile Appalachian Trail.

A 1977 trail user survey revealed that for about one-fifth of the campers this was their first experience, slightly over one-third had camped one to five times before, and slightly under one-third had camped six or more times. Around 80 percent of the campers were well prepared with tent, canteen, and stove. Only 9 percent of the campers felt the area was overcrowded, and nearly 57 percent felt it was not crowded.

In 1976, the University of West Virginia conducted a survey concerning the preferences of backcountry campers. The following responses, in declining order, are views on what makes for an enjoyable backcountry camping trip: solitude while camping, selection of personal campsites, solitude while hiking, undisturbed campsites (evidence of no other previous use), campfires, meeting other backpackers, contact with park personnel, permanent shelters, and developed campsites. About 27 percent of those surveyed felt the backcountry was overcrowded, but 85 percent felt their camping trip at Shenandoah was enjoyable.

Sites at the Dundo Campground may only be reserved by organized youth groups. This type of overnight stay makes up only 1 percent of the overnight stays in 1980. Other group camping occurs in the backcountry

if larger groups divide so that camping parties do not exceed ten persons, and in family campgrounds when parties do not exceed eight persons. The designated area at Big Meadows may be reserved by group horse campers, but it receives very little use.

In early summer 1979, an Appalachian Hut program was initiated. Operated by PATC, the program affords overnight accommodations to meet the special needs of long distance hikers, e.g., a place to dry out during inclement weather.

Shenandoah receives a very high level of day use. While visitors participate in a variety of activities, hiking is one of the most popular--whether as a pursuit in itself or as a means for other activities. The many miles of trails in the backcountry make this a very enjoyable activity. The study in 1977 showed that 67 percent of backcountry use occurs on weekends and nearly half the parties consist of two people. About 25 percent experience this use for the first time; about 33 percent have gone into the backcountry less than six times. Hiking was the purpose of 32.7 percent of those on the trails, while camping and sightseeing were 19.3 percent and 14.0 percent, respectively. About one-fourth chose their own trail because of an outstanding feature that could be found and nearly one-third selected the trail because of previous familiarity, reading, or a friend's advice.

Almost half the visitors were using the trail in a two-way direction, while slightly over a fourth were only going one way, thereby using other trails to make their circuit. Almost one-fifth planned to hike only 3 miles, and 57 percent planned to hike 8 miles or less. Similarly, over two-fifths planned to hike less than six hours, with half of these planning only a two- or three-hour hike.

Only 5 percent of hikers found the backcountry overcrowded while 40 percent did not. As might be expected, weekenders found it more crowded than weekday users, 6.2 percent and 2.4 percent respectively. Interestingly, hikers on the White Oak Canyon Trail, one of the most popular in the park, expressed less-than-average observation of overcrowdedness.

Activities within the park are varied and include both active and passive pursuits. Appendix F lists 32 general categories of activities, as well as a discussion about resource dependency, i.e., activities occurring because of Shenandoah's special experience and those occurring because of the park's attractive setting.

The one activity in which almost every visitor participates is driving--for the pleasure of the views, the easy pace, and/or to get to where another activity will be undertaken. As explained in appendix G, use of the Skyline Drive varies according to the section of the park, time of day, and day of the week during the summer and fall color seasons. Between Rockfish and Swift Run gaps and between Thornton Gap and Front Royal, each section averages around 1,500 vehicles per day on summer weekdays. At the same time, the section between Swift Run Gap and Skyland averages around 1,700, and the average number of vehicles between Skyland and Thornton Gap is 2,200 per day. During summer

weekends the same general pattern exists, except at a 15 to 20 percent higher level. Weekday traffic in October is about 10 percent higher than its summer counterpart. Traffic on these weekends is also higher, especially on the peak color weekend when the increase is dramatic.

Traffic is, of course, not uniformily distributed during a day. Starting about 8 a.m., traffic gradually increases until it peaks at noon to 2 p.m. and then gradually decreases to 9 p.m. Between Skyland and Big Meadows the heaviest time is from 11 a.m. to 5 p.m..

On heavy-use days in the summer and fall, there are sporadic occurrences of spot congestion. These are caused by slow moving vehicles when a visitor's attention is drawn to scenic views, sightings of wildlife, and traffic crossings at overlooks. Fortunately this only happens occasionally, but it does cause park users to remark that their visit was spoiled. Twenty percent of the respondents to the preplanning workbook stated that traffic was heavy at particular times at certain locations, creating frustrating and dangerous conditions. Another 8 percent said that traffic was awful, too heavy, making for an irritable day.

Using visitor centers, attending campfire talks, and joining ranger guided hikes are very popular activities at Shenandoah. These are part of a park program of information, orientation, and interpretation managed under a current Statement for Interpretation (USDI, NPS 1980). The program is shared by the National Park Service, Shenandoah Natural History Association, Potomac Appalachian Trail Club, and the ARA Virginia Sky-Line Company. The objectives of the program are

> to protect park resources by fostering public understanding and appreciation of the historical and present role of man and natural processes in shaping the changing environment of the Blue Ridge Mountains
>
> to promote public awareness of available recreational opportunities, interpretive programs, visitor services, safety considerations, and park regulations

The first objective is met under the following interpretive themes

> The Changing Natural Scene--seasons, cycles, energy, natural history
>
> A Recycled Wilderness--park story, effect of park on area ecology
>
> Cultural History--Indians, explorers, settlers, mountain people
>
> Park Management--wildlife, fire ecology, air quality, etc.

The second objective is met by a full summer program of activities, including short strolls, longer hikes, afternoon programs, and evening campfire talks, as shown on the summer activities schedule for 1980. These activities are geared to overnight visitors (campgrounds and lodges), day users (home based and through drivers), backcountry users

1980 SUMMER ACTIVITIES SCHEDULE
Shenandoah National Park

	ACTIVITY AND LOCATION	TIME	SUN.	MON.	TUES.	WED.	THUR.	FRI.	SAT.
DICKEY RIDGE Mile 4.6	DICKEY RIDGE VISITOR CENTER. Information, exhibits, publications.	8:30 a.m.-6:00 p.m.	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *
	WELCOME TO SHENANDOAH. 5-minute slide program. Brief introduction to the moods of Shenandoah and the Blue Ridge Mountains at visitor center.	Frequently	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *
	TERRACE TALKS. Informal talk with a ranger/naturalist about the park.	Frequently	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *
MATHEWS ARM CAMPGROUND Mile 22.2	HIKES AND WALKS BEGIN NEAR THE BULLETING BOARD AT AMPHITHEATER PARKING AREA		SUN.	MON.	TUES.	WED.	THUR.	FRI.	SAT.
	ADVENTURE HIKE. 3 hours. Explore some of the trails around Mathews Arm. Wear sturdy shoes and bring water.	9:00 a.m.			✓		✓		✓
	SIGNS OF THE SEASON. 1½ hours. Discover some of the signs of the season's passing.	9:30 a.m.	✓	✓		✓		✓	
	WATERFALLS RAMBLE. 2½ hours. A water-oriented hike along a creek or to waterfalls. Wear sturdy shoes.	1:00 p.m.				✓			
	TRACES OF HISTORY. 1½ hours. A walk into the past. Discover who lived here before.	3:30 p.m.	✓		✓		✓		✓
	CHILDREN'S HOUR. 1 hour. Be a part of Shenandoah and learn its secrets. For children, ages 8-12.	3:30 p.m.							✓
	SHENANDOAH SAMPLER. 1-hour sit-down activity. Meet in amphitheater.	4:00 p.m.		✓ *		✓ *		✓ *	
	NIGHT WALK. 2 hours. Find a different Shenandoah as night descends. Bring a flashlight and jacket.	8:00 p.m.	✓		✓		✓		
	EVENING PROGRAM. 1 hour in amphitheater. Topics about Shenandoah's history, life, moods.	8:45 p.m.		✓ *		✓ *		✓ *	✓ *
SKYLAND Mile 41.7	ACTIVITIES MEET AT LOWER LEVEL CONFERENCE HALL		SUN.	MON.	TUES.	WED.	THUR.	FRI.	SAT.
	SHENANDOAH COLORS. 2½ hours. Discover wildflowers and other colorful inhabitants. Wear sturdy shoes.	9:30 a.m.	✓		✓		✓		✓
	SKYLAND STROLL. 1½ hours. Discover Skyland of the past and present.	10:00 a.m.		✓		✓		✓	
	NIGHT WALK. 2½ hours. Discover a different Shenandoah as night descends. Bring a flashlight and jacket.	7:30 p.m.	✓		✓		✓		
	EVENING PROGRAM. 1 hour. Topics vary — Shenandoah's history, life, moods.	8:30 p.m.		✓ *		✓ *		✓ *	✓ *
TIMBER HOLLOW OVERLOOK/ Mile 43.3	LIMBERLOST WALK. 2 hours. A walk through a virgin hemlock forest.	3:00 p.m.	✓	✓	✓	✓	✓	✓	✓
BIG MEADOWS Mile 51.1	BYRD VISITOR CENTER. Information, exhibits, publications.	8:30 a.m.-5:30 p.m.	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *
	INTRODUCTION TO SHENANDOAH. 10-minute slide program. Brief introduction to the park — its history, changing seasons, moods, former residents.	Frequently	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *
	SECRETS OF SHENANDOAH. 20-minute slide program. Topic varies each day.	Frequently	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *
	HIKES AND WALKS BEGIN NEAR THE BULLETIN BOARD AT BYRD VISITOR CENTER		SUN.	MON.	TUES.	WED.	THUR.	FRI.	SAT.
	MORNING IN THE MEADOW. 1½ hours. 1 mile. Greet the morning with a leisurely stroll through the meadow and surrounding forest.	9:00 a.m.	✓	✓		✓		✓	✓
	LEG STRETCHER. 1½ hours. 1 mile. Join a ranger/naturalist and roam nearby trails.	10:00 a.m.			✓		✓		
	CHILDREN'S HOUR. 1 hour. Close encounters with nature. Specifically designed for children, ages 8-11. Please sign up at Byrd Visitor Center before 12 noon. Limited to 15 children.	1:00 p.m.	✓		✓			✓	✓
	ADVENTURE HIKE. 3 hours. 3 miles. Seek the Shenandoah story. Wear sturdy shoes, bring water, and bring your car so we can carpool.	1:00 p.m.	✓		✓		✓		✓
	ENCOUNTERS WITH A RANGER. A day in the life of a ranger. Specifically for young people, ages 11-15.	1:00 p.m.		✓		✓			
	HIKE THE APPALACHIAN TRAIL. 3 hours. 3 miles. Join a ranger/naturalist and hike sections of the Appalachian Trail. Wear sturdy shoes. Bring water. Bring your car so we can carpool.	1:00 p.m.		✓		✓		✓	
	SHENANDOAH SAMPLER. 1-hour sit-down activity. Share a ranger/naturalist's favorite bits of Shenandoah.	4:00 p.m.	✓ *		✓ *		✓ *		✓ *
	OUTDOOR LORE. 1-hour sit-down activity. Learn the 'how to' and 'why for' of being outdoors. Meet at amphitheater.	4:00 p.m.		✓		✓		✓	
	EVENING LIGHT. 1 hour. 1 mile. Enjoy the sounds and sights of twilight. Bring a flashlight.	7:30 p.m.	✓		✓		✓		✓
	EVENING PROGRAM. 1 hour. Topics vary each night. Meet at amphitheater. In case of inclement weather, meet in Byrd Visitor Center auditorium.	8:45 p.m.	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *	✓ *
LEWIS MOUNTAIN Mile 57.5	CAMPFIRE PROGRAM. 1 hour. Join a ranger/naturalist around a campfire. Topics vary. Meet at campfire circle.		✓ *	✓ *		✓ *	✓ *	✓ *	✓ *
LOFT MOUNTAIN Mile 79.8	ALL ACTIVITIES MEET AT AMPHITHEATER PARKING LOT BULLETIN BOARD UNLESS OTHERWISE NOTED		SUN.	MON.	TUES.	WED.	THUR.	FRI	SAT.
	EXPLORERS HIKE. 3 hours. 3 miles. Discover some of the more remote areas of Shenandoah. Wear sturdy footwear; bring water. Bring your car so we can carpool.	9:00 a.m.					✓		✓
	WHAT'S THAT. Everything you've wanted to know about Shenandoah National Park but were afraid to ask.	10:00a.m.	✓ *		✓ *				
	LOFT MOUNTAIN KIDS' CLUB. Become aware of nature close to the ground. Specifically for children ages 8-12.	1:00 p.m.					✓		✓
	TRAIL BLAZER. 3 hours. 3 miles. Join a ranger/naturalist on an adventurous hike. Bring sturdy footwear and water.	1:30 p.m.		✓		✓			
	MOUNTAIN MEANDER. 2 hours. 2 miles. Become familiar with Shenandoah's natural and cultural resources.	2:00 p.m.	✓		✓			✓	
	CAMPFIRE PROGRAM. Informal talk around a campfire. Topics vary. Meet at amphitheater.	8:45 p.m.		✓ *		✓ *			
	EVENING PROGRAM. Discover something new about Shenandoah through slides. Meet at amphitheater.	8:45 p.m.	✓ *		✓ *		✓ *	✓ *	✓ *

*Accessible to all people

Note: No pets allowed on ranger/naturalist conducted activities

(hikers and campers), children (including school groups), and special populations (handicapped, non-English speaking, and minorities). During the spring and fall the program is less inclusive and varied, and in the winter services are only available at the Byrd Visitor Center. In 1979, over 43,000 people participated in evening programs; almost 19,000 participated in conducted activities, such as hikes, demonstrations, and talks; and over 385,000 used the visitor centers.

In 1979, the ARA Virginia Sky-Line Company initiated an interpretive service to charter group tours. Between Skyland and Big Meadows, ARA guides join the bus tours and provide these visitors an understanding of the park. In 1979, this program served over 270 visitors on eight tours.

In 1980, the Potomac Applachian Trail Club, in cooperation with the park, began a program of providing information and educational services to Appalachian Trail hikers and other park visitors.

For the last six years, two days a year have been established as Hoover Days. With shuttle buses running between the Byrd Visitor Center and Camp Hoover, visitors are treated to easy access and an interpretation of the camp, the man who established it as his retreat, and some of the events that occurred there. While the camp can be visited by hikers, the Hoover Days give an opportunity for other people who would not otherwise have a chance to visit the camp. In 1979, 1,600 visitors participated in this event.

Shenandoah offers three types of environmental education services: staff-led teacher workshops, national environmental study areas (NESA), and a loan library operated by the Shenandoah Natural History Association. The three NESAs were used by almost 3,200 people during 1979, led by park staff or self-guided.

Other self-guided interpretation occurs within the park through the use of the 92 interpretive waysides along the Skyline Drive and in picnic areas and campgrounds, as well as the five nature trails and Camp Hoover. The last six facilities served over 80,000 visitors in 1979.

The park's fundamental emphasis is that of a recycled wilderness--a place that 50 years ago had suffered much misuse but was set aside to regenerate. Human history created the devastation and willed the changes. Today millions of visitors are enjoying the end result of that foresight which established the park. The quantity of visitation has not adversely affected the physical condition of the resources nor the quality of the overall park experience. The only exceptions are that traffic is an occasional problem on peak use days, and a small percent of backcountry visitors observe overcrowding.

Current Management

Shenandoah National Park is managed under a current statement for management. Approved in July 1977, this document provides a summary of the state-of-the-park, short- and long-term management objectives (see appendix H), and a general framework for park operations.

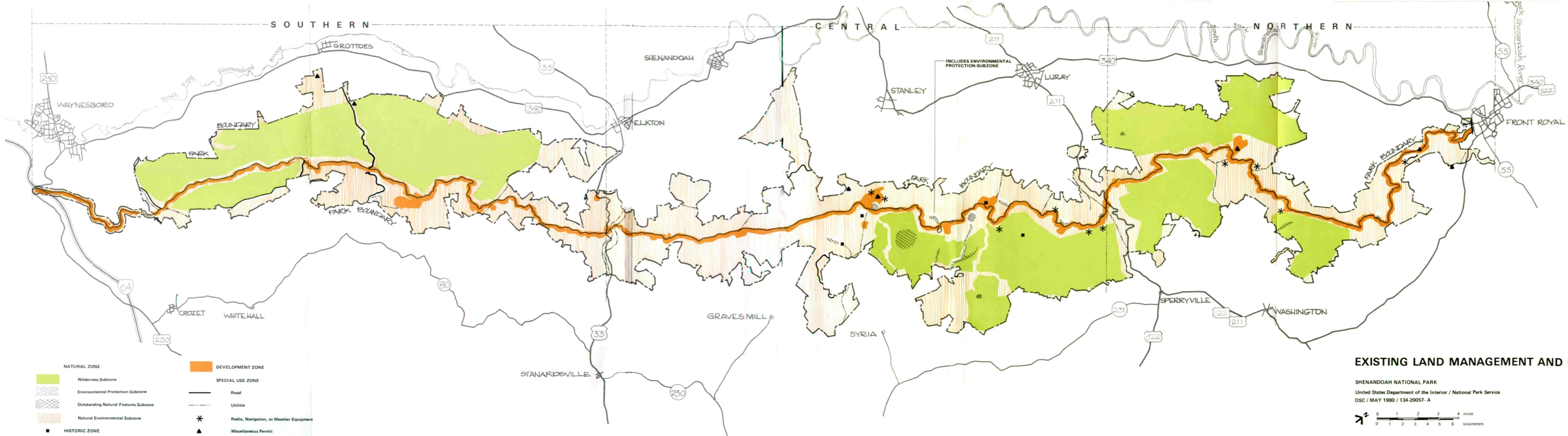
The Existing Land Management and Use map depicts the existing patterns of public use and management emphasis, according to zones of present park lands, as follows.

Natural Zone. The natural resources and processes remain largely unaltered by human activity, except for minor facilities such as administrative roads, foot and horse trails, simple water systems, trail shelters, and overlooks which provide for visitor use and appreciation and park protection. The natural zone is comprised of the following four subzones.

> Wilderness Subzone--These park lands were designated by PL 94-567 for addition to the National Wilderness Preservation System (see appendix A). These eleven units are managed in accordance with the requirements of the Wilderness Act of 1964 (PL 88-577) and those departmental and National Park Service policies and regulations issued pursuant to that act for the public enjoyment of areas "where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain."
>
> Environmental Protection Subzone--These areas contain and/or support rare species, areas which are now thought to be essential to the survival of such species, and areas which possess exceptional value as wildlife habitat or for research purposes. The only such areas yet identified in the park are the rockslides on the upper north sides of Hawksbill, Stony Man, and the Pinnacles, where the total known population of the Shenandoah salamander exists.
>
> Outstanding Natural Features Subzone--These lands include those geological and biological features possessing unusual intrinsic value or uniqueness and are being carefully managed to provide for visitor enjoyment without impairment of their natural qualities.
>
> Natural Environment Subzone--This subzone includes all remaining areas within the natural zone which do not qualify for classification in the other subzones.

Visitor uses within this zone are generally dependent upon, and protective of, the resources. These uses include hiking, camping, horseback riding, photography, nature study, and change-of-pace retreat. Little basic research has been conducted concerning specific natural and cultural resources, or concerning the needs, expectations, and gratifications of individual visitors. Due to this insufficient research, many of the park policies, practices, and regulations affecting resource management, visitor use, and facilities have been formulated (within the flexibility permitted by the "Management Policies" of the National Park Service and regulations found in parts I through 5 of the Code of Federal Regulations) through practical, onsite experience, or have been adopted from experiences and/or research of other areas or agencies. Special regulations primarily concern fishing, backcountry camping, fires, and sanitation.

Fishing is a traditional park activity enjoyed by many. Current regulations require a valid state resident or nonresident fishing license or a



EXISTING LAND MANAGEMENT AND USE

SHENANDOAH NATIONAL PARK

United States Department of the Interior / National Park Service

DSC / MAY 1980 / 134-20057- A

0 1 2 3 4 miles

0 1 2 3 4 5 6 kilometers

$3 temporary park license. Only trout fishing with single hook artificial lures is permitted, with a creel limit of five trout per day over 8 inches each. The Rapidan and Staunton rivers and their tributaries are fish-for-fun streams, where fish must be caught with a single barbless hook on an artificial lure, and all fish must be immediately and carefully returned to the stream. There is no artificial stocking of exotic fish in the park.

Backcountry camping regulations were established in 1974 in response to the mushrooming of backpacking and subsequent trampling of designated backcountry campsites and the areas around trail shelters. These regulations disperse use by keeping campers away from developments and streams, and out-of-sight of each other. The backcountry camping permit limits a stay to two nights in one location, allows a maximum party size of ten people, and the use of trail shelters for emergency situations only. Prohibition of open wood or charcoal fires minimizes the damaging impacts of such use by campers and day users.

Sanitation regulations prohibit the possession of discardable glass, food, and beverage containers in the backcountry. Personal sanitation is not allowed within 10 yards of any stream, trail, unpaved road, or park facility, and fecal material must be covered by not less than 3 inches of soil in the backcountry.

Historic Zone. This includes the best known structures and sites that are managed to retain their historic appearance and integrity. Currently Camp Hoover, Big Meadows (the meadow itself), Corbin Cabin, and Massanutten Lodge comprise this zone.

Development Zone. This classification identifies areas where nonhistoric park developments and/or intensive use by park visitors occur, and where the resultant and necessary management practices substantially alter the natural environment. Within these areas are aggregations of buildings, parking lots, service roads (other than administrative roads in the natural zone), formal campgrounds and picnic areas, utilities serving these developed areas, and the Skyline Drive. Most resources and all facilities within this zone are intensively managed as follows:

> Selective thinning and/or removal of forest growth, hazard tree removal, and tree preservation (by pruning).
>
> Periodic mowing of vegetation on lawns, around buildings and structures, in picnic areas and campgrounds, and on road shoulders, cut and fill slopes, and embayments along the Skyline Drive. These areas may be landscaped and seeded and are fertilized as needed to better withstand the impacts of visitor use. Herbicides are used on the stonewalls along the drive to protect them from overgrowth by vegetation.
>
> Vista clearing with hand tools, mechanized equipment, vehicles, and controlled burns is performed at overlooks and embayments along the Skyline Drive and in association with buildings and other visitor concentration areas.

Special Use Zone. Those areas within Shenandoah which are not used for park purposes are depicted within this zone. While a long-term objective calls for the elimination of all such uses, many are destined to continue beyond the foreseeable future. A number of these special uses predate the establishment of Shenandoah National Park and occur on deeded rights-of-way. These uses include, for example, maintenance and operation of electric power lines, a natural gas line that crosses the park, and water intakes for the towns of Luray and Front Royal.

Special use permits cover minor road access to private land, utilities crossing the park, aviation radar, radio transmission, weather and scientific equipment, springs, pay telephones, and a trail. There are over 80 of these permits in the park.

All management practices within the special use zone that have the potential for adversely affecting park resources are monitored to ensure that the assigned areas will be maintained in as natural a condition as is feasible, and so that the authorized operations will cause the least possible impact upon the park's environment. Each special use is carefully considered and evaluated at its time of renewal to determine whether it is still valid and necessary, and whether the written provisions for its exercise provide sufficient and reasonable safeguards for affected park values.

In addition to the zoning described, existing management along the 95 miles of the Appalachian National Scenic Trail within the park is undertaken in accordance with the memoranda of agreement between the National Park Service and the U.S. Forest Service of October 1970, and between the Appalachian Trail Conference and National Park Service of May 1970. The former deals with the retention of the outdoor experience for 100 feet or more on each side of the trail, as well as cooperation in uniform management, use, and protection insofar as possible. The latter agreement includes provisions to try to provide and maintain a primeval natural environment for the trail. Both agreements allow the National Park Service to fulfill its obligations and programs on lands within its jurisdiction.

A five-year memorandum of agreement signed in January 1980 by the Shenandoah National Park and PATC defines the roles of each party in the core of park trails. Basically the PATC performs routine maintenance on the 95-mile Appalachian Trail and 199 miles of the blue-blazed foot-trails, and may in the future do similar maintenance on the yellow-blazed horse trails, while the park undertakes major and emergency safety hazard removal, erosion control, and overuse repair.

Park regulations have been established and are enforced to protect the park's resources and visitors. The basic regulations cover the protection of plants and wildlife, vandalism, use of fire and motor vehicles, prohibition of carrying loaded or assembled firearms within the park, and required permits for backcountry camping. Shenandoah National Park has exclusive jurisdiction and thereby may also enforce the laws of Virginia within the park through the Assimilative Crimes Act, 18 U.S.C. 13 (1969). Most incidents are violations of regulations established to protect visitors, such as traffic violations and larceny. The others are violations which

threaten park resources, such as improper fishing, improper backcountry camping, and poaching. While a vast majority of the 12,324 incident reports generated in the park in 1980 were petty crimes, vandalism, and service incidents, a number of serious crimes did occur. There were 95 part I offenses in 1980, of which 91 involved larceny and burglary. Some 6,000 of the total incidents were traffic and part II offenses, with approximately 3,000 visitor services and assists.

When violators are apprehended, those committing minor violations may pay a collateral (established by the federal court) directly to the district clerk of the U.S. District Court. For serious violations and for those violators of petty crime who desire to plead not guilty, a U.S. magistrate is available in Charlottesville and Harrisonburg to hold trial on a given monthly schedule. In 1979, fines amounted to $41,850 from 1,651 violations.

Poaching of bear and deer in the park is prevalent, particularly from the Skyline Drive and the perimeter of the park. Patrolling for this illegal activity is difficult, and approximately 35 known incidents per year reflect only a portion of the problem. Conviction can lead to fines and confiscation of any equipment involved, including firearms and vehicles.

Scientific, cultural, and sociological data is required to protect and manage the park. An outline of research needs has been prepared to prioritize the topics most critical to the park. Most research is actually conducted by others, such as universities and state agencies, and is coordinated by the park. Begun in 1976, a research symposium is held each spring to present reports on the various research projects underway.

The resources, facilities, and visitors of Shenandoah National Park all warrant protection and management. This requires people to operate the park, and Shenandoah has a staff of about 90 full-time, 75 part-time, and 85 seasonal employees. The top park managers are the superintendent and assistant superintendent, who coordinate the four divisions of park staff--resource management and visitor protection, interpretation, maintenance, and administration.

The task of managing and operating a park as large and popular as Shenandoah has required the assistance of others in addition to the park staff. One means of assistance is the memoranda of understanding which are established with other agencies for the coordination of services for mutual benefit. There is a memorandum with the Virginia Commission of Game and Inland Fisheries to manage the fish-for-fun program on the Rapidan and Staunton rivers. Cooperative fire control exists between the park, the U.S. Forest Service Region 8, George Washington National Forest, and Virginia Division of Forestry.

The ARA Virginia Sky-Line Company maintains and operates the cabins, lodges, and restaurant facilities at the major developed areas within the park under a concession contract with the National Park Service. The original invitation for concession contract bids in the mid 1930s called for extensive investment in 14 lodge, picnic, and camp developments, and

attracted few inquiries. Eventually a bid for a more modest scheme of slow and conservative development was accepted in 1937 from the Virginia Skyline Company (today known as the ARA Virginia Sky-Line Company). Their present concessions contract covers the period from January 1, 1959, through December 31, 1988.

Although contract authority rests with the regional director of the Mid-Atlantic Region, National Park Service, actual administration for concessions contract compliance is handled by the park superintendent. Rates charged by the concessioner are subject to regulation and approval by the superintendent. These rates must provide an opportunity for the concessioner to make a fair profit, based on comparability studies of accommodations, services, and goods sold outside the park.

Under the terms of this contract, ARA pays 2 percent of its gross annual receipts (excluding Indian and native handicraft sales receipts). In addition, it pays an annual rental rate of $3,080 for use of ten government-owned buildings, which is all turned over to the General Fund of the U.S. Treasury. Accounting records and reports are maintained by the concessioner as prescribed by the National Park Service and are submitted to the park on an annual basis.

Land assignments are made to the concessioner for its operations. The concessioner may construct or install buildings, structures, and other improvements necessary or desirable for operations, subject to approval by the contract administrator. Provisions for maintenance responsibility are spelled out in a separate maintenance agreement entered into by the concessioner and the National Park Service.

If the concessioner ceases to be authorized to continue operations, compensation must be paid for possessory interest in improvements and all other property used or held in connection with operations. The term "possessory interest" is defined as being all cases of ownership except legal title; that title is vested in the United States. Taking into account all provisions of concession contracts, possessory interest is basically a right of the concessioner to be compensated for such structures, fixtures, or improvements as he constructs or acquires on federal lands, if the right to use them for concession operations is terminated. The measure of compensation is "book value" (original cost less charged depreciation) except in those cases where the government requires the concessioner to replace the buildings or other facilities, in which case the measure of compensation is reconstruction cost less depreciation of existing structures.

The concessioner has the option to provide any new or additional facilities and services that may be required as long as those particular accommodations, facilities, and services have been authorized under the existing contract. It is important to note that the preferential right is the first right of refusal and not an exclusive or monopolistic right.

The PATC, under a concessioner permit, maintains and operates six rental reservation cabins and seven long-distance hiker huts along the Appalachian Trail. The permit differs from a contract in that the concession permit holder, PATC, has no possessory interest in its

operation. The current permit extends from January 1, 1977, through December 31, 1981, with rental rates and a franchise fee of $478 annually. Rental rates are subject to approval by the regional director.

A certain tract of land around each cabin and hut is assigned. Sanitary facilities must be provided by the PATC and normally consist of a single pit privy. These facilities can be located either within or outside the assigned tract of land. If outside, approval from the superintendent is required. PATC is responsible for all maintenance of the facilities and improvements whether located within or outside the assigned tracts of land. Any improvements to these facilities and/or lands must have approval from the superintendent, and on termination of this permit, the sites must be returned to as nearly a natural condition as possible. Any improvements not removed within six months following termination of the permit would become the property of the United States. No compensation would be awarded as there is no possessory interest.

The facilities and improvements are inspected by the National Park Service three times annually to ensure that the ARA Virginia Sky-Line Company and PATC are complying with park standards. Annual records and reports must be submitted to the superintendent.

The Shenandoah Natural History Association is a cooperating association which provides invaluable assistance in staffing the park visitor centers. In addition, the association provides a wide array of publications that help visitors find the special places in the park and gain a better appreciation of what they see.

Various private individuals also donate their time and expertise to the park. Known as volunteers in the park (VIPs), their contribution goes often unseen but provides many of the little things which make for a more enjoyable visitor experience and help the busy park staff.

In addition to protecting and managing the resources and facilities within the park boundaries, Shenandoah National Park has been identified as the designated government agency to provide backup support to the PATC for certain portions of the Appalachian National Scenic Trail outside the park. These portions are between Rockfish Gap and the southern park boundary, and between the northern park boundary and I-66. Support includes cooperation in corridor planning and ensuring the adequacy of arrangements for resource management, visitor use monitoring, and possible emergencies.

ALTERNATIVES

The Congress, in authorizing Shenandoah National Park in 1926, provided that administration, protection, and development be in accordance with the following establishing legislation:

> The Service thus established shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations, hereinafter specified, by such means and measures as conform to the fundamental purpose of said parks, monuments and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations.
>
> --National Park Service Act, 1916

The mission is clear--to care for the park, to help the public enjoy the park, and to do both in ways that ensure the integrity of the park for future use.

As identified in the problem statement, Shenandoah National Park consists of a land base, resources, and facilities for visitors. Within each of these topics are several directions or choices that can be taken in improving the park's responsiveness to its mission. It is the purpose of this document to explore and address these directions and to present alternatives for the solution of those problems which face the park at this time.

The approach used was first to formulate different emphases or philosophies within each topic. This was done based upon public response between March and November 1978, resulting from preplanning workbooks, public workshops, and letters and conversations with interested citizens and organizations. Also the planning team had discussions with the park staff and undertook appropriate independent study. The second step was to identify actions necessary for each alternative emphasis. Third, possible impacts or consequences of each alternative and its associated actions were assessed.

Within each topic the first choice is a no new action alternative. This alternative represents accomplishing objectives and needs and resolving park problems by continuing past and present trends, conditions, and responses. The no new action alternative offers a basis of comparison with the other alternatives, and also offers possible direction for use, protection, and maintenance of the park in the future by using the present level of existing programs and projects.

In the review of the alternatives, it should be remembered that each topic is directly related to other topics. Therefore the preference for a particular alternative within one topic will affect the choices in other alternatives.

Although refinements of alternatives may be necessary to prepare a general management plan which unifies all elements, it is anticipated that the final plan will benefit from the thoughtful consideration of all choices available within each topic.

LAND BASE

Shenandoah National Park, as other units of the National Park System spanning the United States, was established to preserve for all time the scenic beauty, natural and cultural resources, and recreational opportunities extant and potential. As stated earlier, Shenandoah's land base is only 37.5 percent of the size originally envisioned. The elongated, irregular, topographically unrelated base has caused problems in the past and they can be expected to continue. The current means to improve the park land base are donation and equal-value land exchange.

The following two alternatives and one option indicate reasonable choices available to park management for the next ten years. They present very modest courses of action that are cognizant of the prevailing and probable future political and financial constraints on making changes in Shenandoah's land base.

To aid in understanding the choices, a "Summary of Actions and Impacts" concerning the land base alternatives and option can be found at the end of this section.

ALTERNATIVE L1 - CONTINUED RANDOM EXPANSION AND MODIFICATION

Existing programs for expanding and modifying the park's land base would be continued, albeit the programs have been relatively inactive in recent years. The emphasis under this alternative would be to develop the best park land base possible, while using the existing, voluntary tools of donation and equal-value exchange.

Shenandoah's land base would continue to consist of lands owned in fee, reserved rights-of-way, and scenic and access easements on adjacent private land as shown in the "Description of the Environment" section. Under this alternative, the donation boundary would remain at 521,000 acres, as authorized by the Congress in 1926.

Because the programs of donation and exchange are voluntary and subject to chance, or random opportunity, it is not possible to predict when and where future acceptance of land, easements, and exchange will occur. However, it is hoped that Shenandoah's land base would be improved and that better protection and improvement of existing resources and man-made facilities and development of new opportunities would result to meet the following problems:

loss and/or degradation of natural resources, such as mountain stream water quality, vegetation, wildlife habitats

quality, quantity, and distribution of visitor use

loss and/or inadequate location of trails, trail accesses, and trail circuits

alteration of views from inside and outside the park, as well as overall regional scenic quality

poor relationship of the land base to existing topography and public roads

difficult maintenance and jurisdiction of perimeter public facilities

recreational (other than trails) and administrative facilities needed to accommodate visitor use and resource protection

administrative difficulties of dealing with external activities that threaten resources and park character

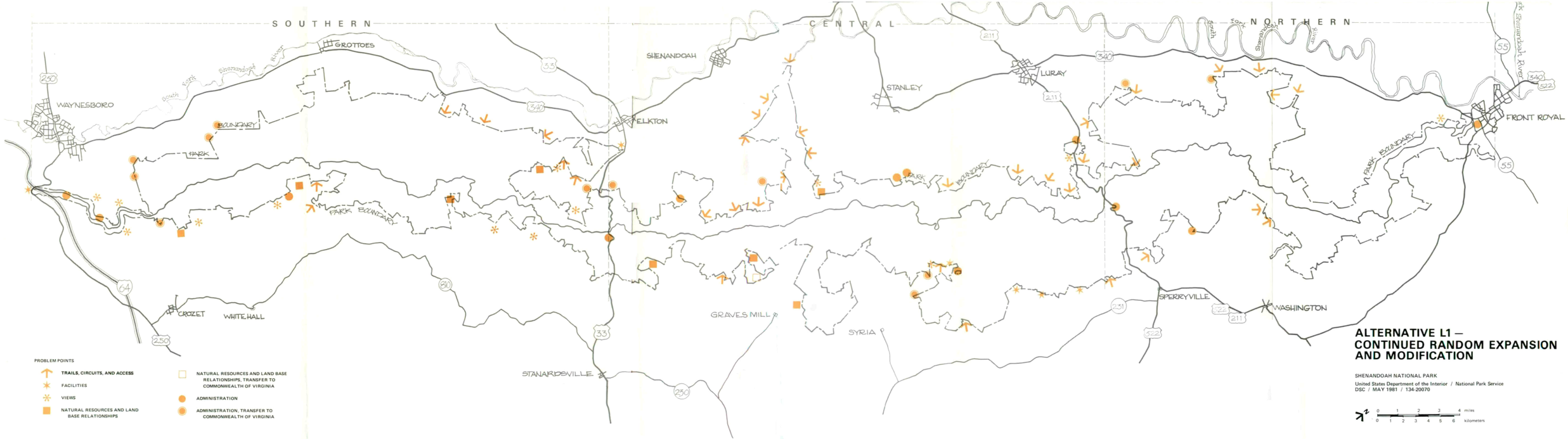
The following map indicates locations around the park where these various problems would be attempted to be solved. Donation, exchange, and deletion would be the means to change the existing land base of Shenandoah under this alternative.

The voluntary transfer of land in fee simple or easement (selected interests-in-land) from a private or public owner to the United States would constitute a donation. On donations of land in fee simple, when such action would not constitute an adverse use, the National Park Service would permit landowners to continue their use and occupancy of the land and facilities for a specific period of years, or possibly their lifetimes. Provisions would be drawn concerning the appropriate reserved use and any permissible alteration to existing improvements on the property. In this way the quality of the property would be assured until it comes into complete federal custody.

Donations would be accepted anywhere within the authorized boundary. Property adjacent to the existing park would be accepted when it improved and/or expanded the National Park Service commitment to resource conservation and public recreational use. Nonadjacent property would be accepted to either bring new resources under federal administration or be used as land for future exchanges. Donations that would place undue administrative and protection burdens upon park management would not be accepted.

Exchange would involve the equal value trade of properties in fee between the United States and another party. This is permitted by the Land and Water Conservation Fund Act of 1964, as amended. Where appropriate, development and use restrictions could be placed in the deed of conveyance so that excized land would be protected from abuse, and adjacent landowners would be protected from possible incompatible activities.

Equal value exchange would be undertaken to complete and/or improve resources currently protected and improve the relationship of the perimeter to existing features and nearby private use. Exchanges that would place undue administrative and protection burdens upon park management would not be undertaken.



ALTERNATIVE L1 — CONTINUED RANDOM EXPANSION AND MODIFICATION

SHENANDOAH NATIONAL PARK

United States Department of the Interior / National Park Service
DSC / MAY 1981 / 134-20070

0 1 2 3 4 miles
0 1 2 3 4 5 6 kilometers

It is remotely possible that easements could be exchanged. This would occur only on single-owner property. As land uses and development patterns continue to change within the Blue Ridge Mountains, either the National Park Service or a property owner might desire to change the actual configuration of easement coverage, providing protection to a different area or relocating an existing or future access.

Deletion of park lands (without exchange) would occur only where small parcels of land would be transferred to the Virginia Department of Highways to clarify maintenance and jurisdiction of state roads at the perimeter of the park.

Shenandoah National Park currently leases 2 acres of land for visitor parking in Weakly Hollow. The policy of extremely limited leasing would continue wherever and whenever it would be advantageous. However, leasing would be considered only as a temporary measure and would only be used for small amounts of land and limited periods of time.

Donations of land and easements would require many separate, voluntary, private actions. As a form of encouragement, a general informational program would be undertaken to let adjacent landowners, park neighbors, conservation organizations, corporations, philanthropic foundations, and any other interested individuals and groups know of Shenandoah's mission and needs. Such a program would describe how donors could assist the park's long range conservation of the Blue Ridge Mountains and improve visitor use. Reserved use and occupancy, as well as possible tax advantages, for donors would also be outlined.

Land acquisition and relocation of people whose land would be donated or exchanged for National Park Service property is governed by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, PL 91-646.

Surveys for endangered or threatened plant or wildlife species would be conducted on lands acquired and deleted. Similarly surveys and other actions would be taken to comply with the Procedures of the Advisory Council on Historic Preservation (36 CFR Part 800), National Park Service "Management Policies," and all other National Park Service historic preservation policies and procedures.

In-lieu-of-tax payments would continue to be provided to local counties for Shenandoah's existing land base and would be extended to cover any new lands acquired by donation or exchange. The amount of payment would be in accordance with Public Laws 94-565 and 95-469.

Summarily, this alternative would continue the mission and programs established for Shenandoah over 50 years ago. Expansion and modification of the park's land base within its donation boundary and the protection of the Blue Ridge Mountains would depend heavily upon the concern and goodwill of citizens and public agencies of the local area and state. Interested groups and individuals from outside Virginia could also contribute. The National Park Service role would be to protect, to the highest possible degree, its existing land and easements and any new donated lands. It can be expected that the program under this

alternative would go on for many years, and that most of the land between the existing perimeter and the authorized donation boundary would remain outside of federal ownership or easement protection.

Impacts

The following impacts on the socioeconomic environment, land base, management, natural and cultural resources, visitor use, and facilities of Shenandoah National Park and its environs would occur from actions taken under this alternative.

Impacts on the Socioeconomic Environment: Since the donation of lands to the National Park Service or the trading of lands would be on a voluntary basis, there would be few emotional or social effects as a result of voluntary relocation of private landowners. It is not known how many persons would be relocated as a result of land acquisition through donation or equal-value exchange.

As property values increase, landowners could be less receptive to donating higher value property. However, an increase in property taxes could be an incentive for landowners to donate lands to the National Park Service for other tax benefits.

The original land acquisition program through donation and equal-value exchange for Shenandoah National Park has had minimal success since the park was established; there is little reason to believe the situation would improve very much.

An information program to inform adjacent landowners, park neighbors, conservation and philanthropic organizations, private corporations, and interested individuals and groups of the mission and needs of the park could improve the local status of the park and elicit donations of land. In contrast, an information program to solicit voluntary donations of land could be construed by local citizens as harassment and a possible threat of condemnation.

The donation boundary would remain at 521,000 acres, which appears as a threat to people who fear that the National Park Service would condemn their land, even though any authority for purchase or condemnation actions does not exist.

Noncontiguous properties would be accepted as additions to the land base of the park or to be used for land exchanges. However, the donation of land by private landowners was probably intended as a method for adding lands to the park and not for obtaining other lands. This could restrain donations of land to the park.

Lands donated or traded to the National Park Service with tenancy provisions could restrict certain activities considered important to the inhabitants, such as farming, tree cutting, and hunting.

Development and use restrictions on land transferred to private ownership from federal control would put limitations on private use of that land.

Expenditure of federal funds would be required for the planning, maintenance, and administration of new properties (including lands not contiguous to the park, which would include surveying and control of trespass, etc.).

Expenditure of federal funds for improvement and management of lands would result in protection of these lands for long-term recreational use by the public.

In-lieu-of-tax payments would be provided to counties for donated fee land in accordance with PL 94-565 and PL 95-469. The amount of payment cannot be calculated because of the uncertainty of land donation and equal-value trades. In-lieu-of-tax payments provided to counties would be an irretrievable commitment of federal funds.

The National Park Service would not make any in-lieu-of-tax payments for easements.

Acquisition of private lands by donation to the National Park Service would result in losses to the tax base of local counties.

Those landowners who chose to retain use and occupancy rights after donating their property to the National Park Service would be relieved of county property taxes. All private land within the donation boundary of Shenandoah National Park would continue to be subject to local land use control under zoning ordinances and subdivision regulations.

Donated easements to Shenandoah National Park would complement zoning to enhance the existing and future visual qualities of the Blue Ridge Mountains. Scenic easements would be limited; only a small amount of land viewed from the overlooks would be protected by easements.

Visitation to the park would increase as additional access and facilities were developed, bringing increased income to local communities. Possible establishment of new businesses in these communities could provide employment opportunities for these communities and add to the tax base of the surrounding counties.

Increases in boundary access could affect the traffic patterns on local roads by increasing traffic.

Deletion of lands to the commonwealth of Virginia would result in the loss of land administered by the National Park Service.

Land trades to reduce inholdings and intrusions or to solve boundary and access problems would result in loss of lands administered by the National Park Service.

A program of expansion and modification of the land base of the park through donation and equal-value exchange would continue the traditional mission and programs established for Shenandoah National Park over 50 years ago. The acquisition of lands contiguous to the park would not be an irretrievable commitment to public use of these lands.

Impacts on National Park Service Management. Since 1935 the existing land acquisition program of donation and exchange has been slight; the average yearly increase is 435 acres or 0.25 percent of the total park area.

The National Park Service would be responsible for costs of relocating persons residing on lands donated or exchanged for national park property under the provisions of PL 91-646 (Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970).

Because the donation of land is voluntary and subject to chance or random opportunity, boundary and access problems would not necessarily be resolved because the National Park Service might not be able to acquire private inholdings, intrusions, or land for existing and future perimeter access.

The receipt of lands not contiguous to the existing park perimeter could result in management problems such as protection, trespass, or vandalism of facilities.

The National Park Service could use park lands within the donation boundary for exchange to reduce inholdings and intrusions or to solve perimeter and access problems.

Operating costs could increase or decrease, depending upon the location of lands donated to the park. The expanded development and maintenance of trailheads, parking areas, roads, and other improvements would require additional capital expenditures made possible by land exchanges or donations.

Even though developments or activities adverse to park policies occur on inholdings, the National Park Service could not forestall these conflicting developments or activities.

Restoration and maintenance of any acquired cultural resources would require expenditure of funds by the National Park Service.

The acquisition of land could include structures or other improvements or development. The National Park Service would assume the responsibility for costs of obliteration or land restoration to a natural condition.

Impacts on Land Base. The park land base would only be expanded according to the availability of donated or exchanged lands and easements.

Impacts on Natural Resources. Donation of lands would result in a slightly larger land base for the park and provide greater protection for flora and fauna on these lands. Small parcels of land acquired would benefit smaller species of wildlife more than they would benefit larger wildlife.

Some of the lands donated or exchanged for park lands would have been subjected to various land uses such as farming, grazing, and logging; during this ten-year plan, the acquired land would not develop a mature forest appearance.

The changes in plant succession resulting from the cessation of the above land uses during the time frame of this plan would not greatly affect wildlife populations.

Addition of land or easements would provide an opportunity for natural revegetation, hiding any existing disturbances.

Flora and fauna on lands not contiguous to the park would not be given the equivalent protection as existing park lands, but they could be more protected than they were by former owners.

Donation of land for access to the perimeter of the park would increase visitation, possibly causing damage or destruction of natural resources due to vandalism, littering, man-caused fire, or resource erosion caused by visitor use.

The levels of sound and of air and water pollution would increase with increased visitation.

More visitors and activity could cause wildlife to alter their activities. However, no impacts on endangered or threatened plant or wildlife species would occur because none are known to exist on lands adjacent to the park.

Impacts on Cultural Resources. The donation of property to the park could result in greater protection for any cultural resources that could be found on that land. Increased visitation access because of more access sites would increase the possibility of damage or destruction of cultural resources due to vandalism, looting, or resource erosion.

Impacts on Visitors. Because of the voluntary nature of donation of land and the chance or random acquisition of land, actions under this alternative would not prevent the closure of existing perimeter accesses across private land, solve access problems caused by the lack of perimeter facilities, or protect the existing visual scene. The opportunity to expand visitor enjoyment through a larger park would continue to be limited.

Fewer perimeter accesses would restrict the availability of some popular areas unless visitors spent more time and effort. Loss of perimeter access could restrict the more inaccessible areas for some visitors.

As traditional perimeter accesses over private land were closed, park visitors who continue to use these accesses could be jeopardized by actions of irate landowners.

Access sites, especially at trails beginning or terminating at the park boundary, would tend to disperse visitors.

Donated scenic easements would protect currently enjoyed views.

Impacts on Facilities. Donation of land or equal-value land exchange could improve the trail network of the park.

Additional lands along the boundary of the park could help the integrity of scenes from vistas along the Skyline Drive.

Chances of improving existing, or providing new, park facilities along the park perimeter would not be great.

Lack of desirable donations or exchanges could result in facilities being constructed in less favorable locations.

ALTERNATIVE L2 - NO EXPANSION OR MODIFICATION

The emphasis under this alternative would be to restrict National Park Service ownership and interests to the land base already under its jurisdiction. One of the purposes of this alternative would be to mollify lingering local public unhappiness with past acquisition of the existing land base. The second purpose would be to allay local fears about the removal of lands and control from the private sector, as expressed in meetings and preplanning workbook responses in 1978.

Under this alternative there would be no change in the existing land base of Shenandoah National Park as of January 1, 1981, and there would be no further acquisition of private and public land. Fee simple ownership would remain at 194,078 acres, easement protection at 723, and reserved right-of-way at 330, for a total of 195,131 acres. The lease for the 2-acre property in Madison County that provides visitor parking for Old Rag Mountain would be terminated, and no new leases would be undertaken.

The existing donation program of lands and easements would be discontinued, and potential donors would be directed to interested local and state governments involved in the preservation of the visual, natural, and cultural resources of the Blue Ridge Mountains.

Congressional legislation would be sought to reduce the authorized donation boundary of Shenandoah to coincide with the existing perimeter of fee, easement, and reserved lands. All other private land between the existing perimeter and the donation boundary would be excluded from the park.

The mission of the National Park Service concerning the visual, environmental, and public use legacy of the Blue Ridge Mountains would be restricted to preservation, interpretation, and offerings on land currently held. Thus this alternative would partially discontinue the mission and programs established over 50 years ago. The National Park Service would continue to provide advice and technical assistance to interested groups and public agencies dealing with similar matters in the Blue Ridge Mountains, as it would also enter into cooperative agreements for maintenance of roads that are used for nonpark purposes.

Impacts

The following impacts on the socioeconomic environment, management, land base, natural and cultural resources, visitor use, and facilities of Shenandoah National Park and its environs would occur from actions taken under this alternative.

Impacts on the Socioeconomic Environment. Shenandoah National Park would continue to have no land purchase authority. There would be long-term avoidance of acquisition costs, and the authority to acquire land through donation or equal-value land exchanges would be eliminated. The National Park Service would have to reject any donations and would not be authorized to negotiate any offers of equal-value land exchanges.

With a short-term deference to some local residents who wish to limit the boundaries of Shenandoah National Park, there would be the abrogation of land acquisition programs for donation and exchange which would constitute the long-term loss of the original mission and purpose, i.e., preservation and recreation, as established for the Park over 50 years ago.

Congressional legislation would reduce the donation boundary of the park to coincide with the existing perimeter of fee, easement, and reserved lands; this would remove the threat to people who fear that the National Park Service would condemn their land to increase the size of the park.

Reducing the boundary of Shenandoah National Park to the existing perimeter would be an irretrievable commitment of the administration of lands outside the new park boundary to private landowners and local and state governments.

Private lands under existing easements would continue to be protected by federal controls and local zoning. The only control of private lands, within the perimeter of the park and excluded by a new boundary would be by county subdivision regulations and zoning ordinances.

By eliminating land acquisition programs, there would be no further effect on the tax base of adjacent counties. The current level of in-lieu-of-tax payments would continue under the provisions of PL 94-565 and PL 95-469.

No additional capital expenditures would be required if the land base was fixed at the present level. Federal funds would continue to be required for the planning, maintenance, and administration (surveying, control of trespass, etc.) of lands within the existing perimeter.

The lack of trail access and visitor facilities along the boundary of the park would result in continued trespass on private lands and could increase the amount of trespass. The restrictions of access along the park perimeter would make the park less accessible for local residents.

The loss of donation and exchange authority would be a long-term loss in the opportunity of the National Park Service to cooperate with local groups and residents in mutually beneficial boundary modifications.

The setting of a permanent park boundary could, in effect, create a barrier to cooperation between the National Park Service and residents of the local communities.

Impacts on National Park Service Management. The abrogation of land acquisition programs of donation and equal-value land exchange would limit the original mission and purpose established for Shenandoah National Park over 50 years ago and would be contrary to National Park Service policies and legislative history.

The National Park Service would not be able to acquire future park access or prevent the closure of existing access on private land. A static boundary would restrict attempts by the National Park Service to solve existing and future access problems. When accesses across private lands to the park perimeter were closed, the National Park Service would need to inform visitors of accesses that were available.

The National Park Service would be unable to eliminate physical intrusions or prevent visual intrusions.

Additional capital expenditures would not be necessary if the land base was set at the existing size; however, operating costs for the park would have to be increased for additional personnel and administrative costs to protect the park from nonconforming activities along its boundary.

The National Park Service would have to request congressional legislation to designate a new authorized boundary. The maximum authorized size of Shenandoah National Park would be reduced to 195,128 acres.

Parking for access to Old Rag Mountain would be limited since leased areas outside the park would be terminated, and similar future problems would not be resolved.

Restrictions in acquiring land to locate park facilities could result in greater costs when building new facilities in less than desirable locations.

Prohibitions in expanding the land base would be contrary to the intent of Congress in establishing Shenandoah National Park in that "it should be of sufficient size to meet the needs as a recreational ground for the public not only of today, but of coming generations...."

Impacts on Land Base. No changes would occur, except that the current lease of 2 acres would be terminated.

Impacts on Natural Resources. Prohibitions on expanding the land base would provide no means to protect additional watershed areas, vegetation, or wildlife habitat. Restrictions on expanding the land base would place some limitations on solving problems of illegal hunting and poaching inside the park.

Limiting access along the park perimeter to natural areas in the park would protect the flora and fauna in these areas. No known impacts on endangered or threatened plants or wildlife species would occur.

Prohibitions of acquiring access along the park boundary would reduce the chances of interaction between park visitors and wildlife.

Impacts on Cultural Resources. Restrictions on land acquisition would preclude the possibility of protecting any cultural resources beyond the existing park perimeters. Abandonment of use might result in physical damage or deterioration of any cultural resources outside the existing park perimeter.

Inappropriate use, interpretation, maintenance, stabilization, or restoration might result in changing the quality or understanding of those aspects of cultural resources that qualified, or might qualify them, for entry onto the National Register.

Impacts on Visitors. Prohibiting the enlargement of the land base in the park would reduce the opportunity to enhance and expand visitor enjoyment of the park.

Prohibiting acquisition of new lands for more park facilities would tend to concentrate visitor use at existing facilities, such as the Skyline Drive. Traffic congestion and visitor use could increase as a result of visitors being oriented to the park from the Skyline Drive, especially during peak visitation.

Fewer access sites would restrict the availability of more popular areas unless visitors spent more time and effort. Limiting access along the park perimeter would restrict the more inaccessible areas for some visitors.

The National Park Service would not be able to acquire perimeter access or prevent the closure of existing access over private land. As traditional corridors of access were eliminated, visitors could by jeopardized by actions of irate landowners who objected to the continued use.

Prohibiting acquisition of new lands and easements would eliminate the park's ability to maintain the visual scene from within the park.

Restrictions on access to natural areas would improve the solitude for visitors.

Impacts on Facilities. Restrictions on land acquisition along the park boundary would limit the development of information, orientation, and interpretation facilities at access sites.

Restrictions in acquiring land could result in the building of facilities in less than favorable locations.

OPTION - ZONE OF COOPERATIVE PROTECTION

Over the years obstacles have stood in the way of expanding Shenandoah's land base to the area first envisioned. The political and financial constraints recognized in the two preceding alternatives do not

propose acquisition to the 521,000-acre donation boundary. However, past obstacles and current constraints do not in themselves render the land between existing park holdings and the original boundary unworthy of attention, or lessen the recognition of its value. This option deals with how this land could be protected and the possibility of National Park Service participation. It would be added to any of the preceding alternatives.

For initial purposes under this option, a Zone of Cooperative Protection would be established for the area between the fee and easement lands described in the alternatives and the existing authorized donation boundary. This area has intrinsic national quality, and while it would not be included in the traditional concept of Shenandoah National Park, it is of sufficient national concern to merit some federal participation. After cooperative studies, this area could be modified and the authorized boundary for Shenandoah National Park could be revised, with appropriate legislation, to conform to an agreed-upon Zone of Cooperative Protection.

The overall emphasis for Shenandoah's Zone of Cooperative Protection would be to protect the existing visual, ecological, and cultural landsacpe without major federal acquisition. While change is accepted as inevitable, it could be controlled so that the interplay of forests, farmed fields and orchards, and low-density development are maintained in a pleasant rural mosaic. New second homes could be kept off steep slopes so as to prevent erosion and ugly ground scars. Wildlife habitats outside the park could be preserved so that normal movement of animals would not be disturbed. Fertile farmlands could be protected from real estate speculation and competing pressure for houses, commerce, or industry. Small communities and dispersed second homes could receive protection from uncontrolled expansion which changes the character and density of living patterns. Existing accesses to park and other public lands could be protected from unilateral termination, especially without provision for new means of public entry. These and other specific concerns would be cooperatively considered, and appropriate actions would be taken to maintain the character of the Blue Ridge Mountains that is so widely enjoyed and appreciated.

The means to accomplish this protection would be cooperative planning and enforcement by interested citizens, agencies from state and county governments, the private market, and the National Park Service. Institutional arrangements would be required to develop mutual concerns, goals, consistent criteria, protection strategies, and individual responsibilities. Many tools exist today, such as zoning, police powers, and acquisition by state and local governments, while relatively new tools could include the transfer of development rights and/or tax incentives. An example of the latter is provided by the Virginia Agricultural and Forestal Districts Act of 1977 (see appendix A). The National Park Service role would depend on the alternative selected to combine with this option. A rigid formula for each or any party cannot be described at this time; however, through cooperative commitment the efforts of all could be focused on a common concern--the future of a portion of Virginia's Blue Ridge Mountains and its surrounding landscape.

Aspects of this cooperative approach are not new and have been undertaken in various places such as Cape Cod National Seashore in Massachusetts, Indiana Dunes National Lakeshore in Indiana, the Sawtooth National Recreation Area in Idaho, and Lowell National Historical Park in Massachusetts. The Adirondack Park in New York State is a model of this approach in that it constitutes a mix of state and private lands covering 6 million acres.

To take this option from the realm of theory or concept and see if it can be put into practice, it is proposed that, upon completion of the public review of this Environmental Assessment, the National Park Service initiate meetings with the planning district commissions, county boards of supervisors, state agencies, and county planning commissions of counties, towns, and cities to identify and explore common interests, goals, and to establish a program for further effort. Appropriate public meetings for citizen input; joint determination of the area to be included and protection strategies on a county-by-county basis; joint preparation of draft maps, controls, and individual responsibilities for enforcement; further public meetings for citizen comment on drafts; and a revision of such things as draft maps and controls could be some of the expected results. The success of this initial program would depend on local, regional, and state acceptance by citizens and governmental agencies. If lacking, the program could be terminated at any point along the way.

Any result of this effort would be included in the draft general management plan and/or draft environmental statement that will be prepared by the National Park Service. These documents will be reviewed by the Department of the Interior, the Washington Office of the National Park Service, and a wide audience of the public. Additional actions could be in order before a final Zone of Cooperative Protection for Shenandoah National Park is developed.

The success of the Zone of Cooperative Protection for Shenandoah National Park would depend on the concern and committment of many citizens and their representatives, especially at the local level. While the path is relatively uncharted, an opportunity exists to evolve new approaches, skills, and means so that the area that has been identified as a valuable resource for over a half a century would continue to be protected in the future.

Impacts

The socioeconomic environment, management, land base, natural and cultural resources, visitor use, and facilities of Shenandoah National Park and its environs would be impacted from the actions that would be taken under this option.

Impacts on the Socioeconomic Environment. Efforts to develop a Zone of Cooperative Protection for the park would require the involvement and cooperation of the local residents, the National Park Service, and state and local governments.

The existing visual, ecological, and cultural landscape around the park would benefit from protection through state and local laws and ordinances.

Additional land probably would not be acquired by the National Park Service, thereby maintaining the local tax base.

In-lieu-of-tax payments paid to counties around the park would remain approximately the same.

Development of private lands located within the zone could be controlled to maintain the interspersion of woodlands and farms and small rural communities through zoning, subdivision regulations, and acquisition by state and local government agencies. Over the long term, this could restrict private use of these lands.

Restrictions on development of private land could be offset by transfers of development rights, conservation easements, and tax incentives.

Limitations on siting new industries within this zone not in character with the rural and small community atmosphere could adversely affect local economies.

Existing small communities and dispersed second homes would benefit from protection of inadvertent and uncontrolled development.

Farm and farmland valuations would not increase from real estate speculation and pressure for second home and subdivision development.

Declaring the lands around Shenandoah National Park a Zone of Cooperative Protection would be an irretrievable commitment of these lands to continued uses for farming, rural, residential, and small communities.

The National Park Service would make an irretrievable commitment of federal monies to develop the concept of a Zone of Cooperative Protection.

The situation at Shenandoah National Park typifies current controversies arising around federal reservations - those who wish to see the land protected but remain in private ownership, and those who feel they have the right to do everything they want on their land. This option would require long-term cooperative efforts by residents and federal, local, and state agencies to effectuate the concept of this option to cause and maintain the long-term integrity of the Blue Ridge and its environments.

Impacts on National Park Service Management. Protection of patterns of woodlands, farms, and low density rural and residential development would require new management programs.

Limited federal funds would be expended in the protection of the zone around the park. Greater in-lieu-of-tax payments would not be required.

Designation of a Zone of Cooperative Protection would not necessarily prohibit additional acquisition of lands adjacent to the park through donation or equal-value exchange.

Impacts on Land Base. The amount of change in the land base would depend on the alternative selected and the results of cooperative planning.

Impacts on Natural Resources. Flora and fauna outside the park could be protected.

Limitations placed on locating second homesites would protect erosional and intrusive ground form disturbances.

Restrictions on siting buildings and factories within this zone, and not in character with the rural and small community atmosphere of the Piedmont and Shenandoah Valley, would protect the visual scene from within the park and throughout the area.

Impacts on Cultural Resources. Additional cultural resources and landscape could be protected.

Impacts on Visitors. Visual resources of areas outside the park would be maintained, thus providing increased visitor enjoyment of vistas along the Skyline Drive.

Improving visitor enjoyment could increase visitation to the park.

Increased visitation would also increase the possibility of damage or destruction to natural resources due to vandalism, littering, man-caused fire, or of resource erosion and would increase the levels of sound, air, and water pollution.

Impacts on Facilities. Local and state protection of lands along the park boundary could improve local access to the park.

Maintaining the visual resources of lands beyond the park perimeter would benefit the overlooks and vistas along the Skyline Drive.

Table 12. Summary of Actions and Impacts
Land Base Alternatives and Option

	L1 Continued Random Expansion and Modification	L2 No Expansion or Modification	Option Zone of Cooperative Protection
Emphasis	Develop best land base using existing means	No change in existing land base after December 31, 1981	Protect area beyond federal ownership and easements around park through cooperative planning and enforcement; this option would be added to L1 or L2
Ability to solve problems concerning natural resources, visitor use, trail access and circuits, views land base relationships, facilities, and administration	Low	Extremely low	Moderate
Park Acreage (authorized)	521,000	195,131	521,000 ±
Fee	194,078 +	194,078	Amount of acreage in fee, easement, and private ownership would depend on the alternative selected and the outcome of cooperative planning
Easement	723 +	723	
Reserved r-o-w	330	330	
Lease	2	0	
Private	325,870 -	0	
Method of Land Acquisition			Varies with alternative selected and results of cooperative planning; would include means available to state and local governments and others
Donation	Yes	No	
Exchange	Yes	No	
Purchase	No	No	
Legislation Required	No	Yes	Possible
Impacts			
Socioeconomic	The local tax base could change; there could be some voluntary relocation of residents; the Park Service would have limited ability to make mutually beneficial perimeter adjustments with adjacent landowners	The local tax base would not change; residents would not be relocated; local fears would be alleviated of greater federal intrusion into local communities; no ability to make mutually beneficial perimeter adjustments	Depending on alternative selected, additional impacts could result from cooperative planning and enforcement
NPS Management	There would be moderately low opportunities to solve management problems and make improvements to park land base	There would be extremely low opportunities to solve management problems and no opportunity to improve land base	Depending on alternative selected, state and local governments and others would be able to assist

	L1 Continued Random Expansion and Modification	L2 No Expansion or Modification	Option Zone of Cooperative Protection
Land Base	Change would depend on availability of donations and exchanges	No change	Dependent on alternative selected and results of cooperative planning
Natural Resources	Some opportunity to protect and expand park resources would be provided	There would be no further opportunity to protect and expand park resources	A major opportunity to protect regional resources would be afforded
Cultural Resources	Donation of property could result in protection of resources on that land; increased visitation could increase possibility of damage or destruction of cultural resources	Restrictions on land acquisition might preclude possibility of protecting cultural resources	Additional cultural resources and landscape could be protected
Visitor Use	There would be some opportunity to improve and expand use and a chance to protect and facilitate visitor use from edge of park	Use could be improved only on existing land base; opportunities to protect and facilitate perimeter access would be very limited	Depending on alternative selected, new opportunities for visitors could be developed in the region
Facilities	Any new perimeter facilities would be constructed on existing park lands, except when additional lands became available	Any new perimeter facilities would be constructed only on existing park land	Depending on alternative selected, new facilities for recreation could be developed in the region

NATURAL RESOURCES

Shenandoah was envisioned as a natural park, an example of primitive America in the southern Appalachian Mountains. However, the land acquired was a patchwork of farms, eroding fields, and cut-over forests with only remnants of the extensive hardwood forests of oak, hickory, and chestnut described by European explorers 200 years before. After dedication of the park in 1936, protection policies of the National Park Service allowed the forest to revegetate, so that today over 95 percent of the park is in various stages of forest succession.

Shenandoah is located in a transitional zone, including northern and southern forest types. Northern species, including maples, birches, oaks, and white pine dominate higher elevations on north-facing slopes, while southern types of oak/hickory and oak/pine are found at lower elevations on south slopes. Regrowth of the forest has advanced, and in 1976 Congress designated nearly 80,000 acres of the park as a component of the National Wilderness Preservation System. The public use of these areas is managed to conserve wilderness values in accordance with the requirements of the Wilderness Act of 1964. With the exception of administration and emergency measures for human health and safety, the act prohibits roads, structures and installations, and the use of motorized equipment in wilderness areas.

Natural succession will continue to be the dominant force in shaping vegetation of Shenandoah National Park. The possible effects of this dynamic process are that evidence of man's presence prior to the establishment of the park will continue to disappear and that changes will occur in habitat types, and some wildlife species will increase in number, while others will decrease.

The management objectives of Shenandoah National Park are to protect the park ecosystems and provide an opportunity for natural processes to occur, and to the extent possible, protect and perpetuate threatened or endangered species and restore extirpated native plants and animals. Research, including cooperative programs with other federal and state agencies, would be continued so that information could be obtained to achieve these management objectives.

ALTERNATIVE N1 - CONTINUED PROTECTION

Under this alternative, no changes would be made in the current natural resources management programs, and native plants and animals would continue to be protected and allowed to perpetuate. The wet meadows near Big Meadows would be protected in conformance with Executive Order 11990 (Protection of Wetlands).

Research on park vegetation by others would continue to be encouraged, and no developments would be initiated until determination of the presence of threatened or endangered species and possible effects on their habitat were completed.

The existing fire management program would continue, and all wildfires in the park would be suppressed. Control of wildfire would vary in intensity, with maximum efforts to suppress fire when fire threatened human life and property, both inside and outside the park or when extreme burning conditions were imminent. A fire management plan has been developed to ensure visitor safety, to provide protection for developed areas and cultural sites, and to lessen the anxiety of coterminous landowners. Since most wildfires in the park are man-caused, fire prevention would continue to receive priority emphasis. Handout brochures, notifications and signs at appropriate locations, and interpretive programs concerning forest conditions and use of fire would be the primary means of control.

The fire management plan includes procedures for use of prescribed fire in maintaining historic open space at Big Meadows. Research would continue for determining the feasibility of fire to maintain roadside vistas, to restore natural open forest, or to maintain plant or animal habitat where it has been demonstrated that failure to do so would be detrimental to survival of native species. The National Park Service would continue to monitor wildfire by using photo plots. The fire management program at Shenandoah would seek to minimize adverse environmental effects and comply with the provisions of the Virginia Regulations for the Control and Abatement of Air Pollution, part IV, sec. 4.11.g (p. 32) and appendix D (p. 97), and applicable provisions of the Clean Air Act (PL 88-206) and related federal regulations.

Direct reduction or elimination of exotic plant species would occur only where their presence threatened native species, public health, or recreational enjoyment.

Programs to control forest pathogens in Shenandoah National Park, including native and exotic insects and diseases, would be applied only when necessary to prevent loss of native host or host-dependent species from the ecosystem; to prevent an epidemic from having a significant economic impact on noninfected coterminous lands; to conserve rare, threatened, endangered or scientifically valuable plant specimens or communities; to ensure public health and safety; and to protect important aesthetic values in developed areas. Where control measures were necessary for a particular species, chemical pesticides and herbicides would be used only where feasible or prudent alternatives, including biological controls, were not available. The use and application of any pesticide would be in accordance with approved National Park Service policy and the U.S. Environmental Protection Agency regulations.

Monitoring programs for white pine blister rust and gypsy moth, which are currently being conducted in cooperation with federal and state forestry agencies, would be continued and additional cooperative research would be encouraged.

Wildlife would be regulated by natural means within the park; individual animals or populations would be controlled only when necessary for visitor safety or health. Exotic animal species would be controlled when they threatened visitor safety or have a significant detrimental effect on native wildlife and plants. The first priority in habitat preservation and restoration would be for threatened or endangered species to comply

with the Endangered Species Act of 1973. No new developments would be initiated until site-specific surveys to determine the possible presence of threatened or endangered species were completed.

The National Park Service would continue cooperative studies of those wildlife species that range beyond park boundaries. In 1972, the park entered into a cooperative research agreement with the Virignia Commission of Game and Inland Fisheries to provide information on the black bear of Shenandoah National Park, including population densities, age and sex ratios, birth, growth and mortality rates, and home range.

Research concerning deer populations of the park would be continued. Deer numbers have expanded with a documented increase in adverse visitor/deer encounters. Deer are not uniformly distributed throughout the park, rather they are concentrated in areas of favorable habitat along Skyline Drive. Some of these areas have been subjected to extensive overuse. Research about deer composition, density, and occurrence, relative to successional trends in vegetation, would continue to be needed.

The park serves as a game preserve and, in effect, provides deer for legal hunting outside the park, which helps control deer numbers. Should greater control of the in-park deer population be necessary, a cooperative agreement would be sought with the Virginia Commission of Game and Inland Fisheries to extend the outside-park hunting season.

Illegal hunting occurs within the park, and the National Park Service would continue to employ various methods to control this unlawful activity.

This alternative would comply with Executive Order 11752 (Prevention, Control and Abatement of Environmental Pollution at Federal Facilities). The quality of park streams exceeds state standards; park management would continue to maintain water quantity and quality.

Traditionally, fishing has been allowed in the National Park System. General policies relating to fishing and fishery management within national parks are as follows:

> Stream areas may be closed when there is a danger to threatened or endangered plant and animal species.
>
> Park waters may be closed to fishing when aquatic life has a greater value to a greater number of visitors.
>
> Fishing may be prohibited in park waters if necessary to protect spawning areas of endemic fish.

In Shenandoah National Park, objectives of fishery management would be to maintain and manage streams as wild native brook trout fisheries, while providing quality angling opportunities. Informal research would continue as a means to investigate any possible competition between native and exotic species.

The National Park Service has entered into cooperative agreements with the Virginia Commission of Game and Inland Fisheries to provide for fish-for-fun programs on the Rapidan and Staunton rivers in the park; these programs would continue. Fishing in these streams is limited to the use of artificial lures with single barbless hooks, and all fish caught must be immediately returned to the stream.

Air quality in Shenandoah National Park is of special concern since the character of its scenic values are found in the broad, sweeping panoramas of the surrounding lowlands and valleys and the distant mountains. Visibility may be impaired by natural causes (the clouds, fog, or haze for which the Blue Ridge Mountains was named) or anthropogenic causes originating outside the park. In recent years, increasing levels of man-caused pollutants have reduced visibility and may be damaging forest vegetation and degrading water quality of park streams. Environmental researchers at the University of Virginia have found elevated concentrations of sulphates and nitrates in precipitation samples taken in the park. Researchers at Virginia Polytechnic Institute are conducting studies to determine the impact of photochemical oxidant pollution on air quality and forest vegetation.

Under the 1977 amendments to the Clean Air Act, Shenandoah is designated as an area with Class I air quality. The maximum allowable increase in sulphates and particulate matter over an established baseline concentration of such pollutants shall not exceed the following amounts:

Pollutant	Maximum Allowable Increase (micrograms/cubic meter)
Particulate matter	
Annual geometric mean	5
24-hour maximum	10
Sulphates	
Annual arithmetic mean	2
24-hour maximum	5
3-hour maximum	25

The primary emphasis of continuing research would be the establishment of baseline air quality data to determine levels and origin of pollutants and to determine their effect upon the air quality related values of the park.

Research in Shenandoah would not be funded through National Park Service accounts except for air quality studies. The park would continue to encourage cooperative studies by other federal and state agencies and private organizations, and to coordinate and direct these investigative activities.

Impacts

The following impacts on the socioeconomic environment, management, land base, natural and cultural resources, visitor use, and facilities of Shenandoah National Park and its environs would occur from actions taken under this alternative.

Impacts on the Socioeconomic Environment. Nuisance bears that were trapped and turned over to the Virginia Commission of Game and Inland Fisheries for release could possibly be available for hunting in areas outside the park. Bears released outside the park could cause human injury and/or damage to private and public property.

The control of trespass animals, including dogs and livestock, could help improve attitudes toward the National Park Service by returning these animals to their owners. The extent of control of trespass animals could cause animosity from local residents and create public relations problems for the National Park Service.

The suppression of wildfire would reduce the apprehensions of adjacent landowners who feared that wildfire originating in the park would threaten their lands and property.

Private landowners adjacent to the park could have different opinions regarding the control of forest pathogens, preferring chemical controls to biological controls. This could affect the park directly or influence attitudes toward the National Park Service.

An irretrievable commitment of federal funds would be required for continued research, evaluation, protection, and maintenance of natural resources.

Impacts on National Park Service Management. Severely limited funding of research would prevent the acquisition of necessary and desired information for specific natural resource management.

Air quality research would be a continuing cost.

The determination of favorable habitat for threatened or endangered wildlife species would place restrictions on the use of that area for other uses.

Impacts on Land Base. No changes in the park land base or acquisition authority would be required.

Impacts on Natural Resources. The distribution and movement of wildlife would be affected by forest succession. Reduction in natural openings would tend to concentrate deer and bear along the Skyline Drive, and at campgrounds, picnic areas, and lodge areas, which would increase animal/human encounters. There could be an increase in injuries to visitors, damage to property, and an increase in automobile road kills and potential accidents resulting from animals on the highway.

The natural succession toward mature forests would improve conditions for wildlife such as the wild turkey, ruffed grouse, and gray squirrel and adversely affect other species such as the cottontail, deer, and hawks. The lack of vegetative community diversity would result in a corresponding reduction in diversity of wildlife.

The suppression of wildfire within the park would help maintain water quality of park streams by maintaining watersheds. A closed forest canopy would help maintain lower water temperatures in the streams. Suppression of wildfire would tend to enhance plant succession, adversely affecting vegetative types intolerant to shade, and benefiting mature forest types. Due to the lack of knowledge concerning the historic role of wildfire suppression, it might be contrary to the stated management objectives of allowing natural processes to occur in the park.

Without research, the park does not know the effects of current fish management programs; for example, the fish-for-fun program might not necessarily benefit natural brook trout populations.

The distribution and movements of wildlife could be influenced by visitor use of trails and development of facilities.

Plant damage and soil compaction could continue because of visitor use of trails.

Insects and a few small animals would be killed directly from burning at Big Meadows or from the changes in habitat resulting from such fire.

The prescribed burning at Big Meadows would contribute to pollution of the atmosphere.

Impacts on Cultural Resources. The management of natural areas of the park would continue the process of succession that obscures cultural sites.

The suppression of wildfire would provide greater protection for cultural resources; however, cultural sites could be damaged or destroyed as a result of wildfire suppression activities.

The prescribed burning at Big Meadows to impede the plant succession process would be a short-term effect; control of shrub vegetation would maintain the historic appearance of the meadow.

Impacts on Visitors. The trapping and releasing of problem bears outside the park would reduce possible injuries to visitors and/or damage to private and public property.

The removal of nuisance bears from the park would restrict some chances of visitors viewing bears.

When habitat for threatened or endangered wildlife and plant species was determined, visitor use of these areas would be restricted.

Waterfall in White Oak Canyon

Black bear

Rock formation:
columnar joint

Whitetail deer

Trilliums

The suppression of wildfire in the park would reduce the risk of injury to visitors.

Impacts on Facilities. No changes in park facilities would result, except that the Big Meadows stable would need to be removed or relocated in order to protect the nearby wet meadow from stable drainage.

Continued suppression of wildfire would reduce risk of damage to facilities.

ALTERNATIVE N2 - CONTINUED PROTECTION AND EXPANDED RESEARCH

This alternative would be the same as alternative N1, except that research programs for the park would be developed and funded by the National Park Service in order to provide complete information for the management of natural resources.

The research that would be undertaken would include the following:

precise and current inventories of biological communities and their interactions, specifically the effects of exotic plants on natural park species, effects of visitor use on vegetation along trails and in and around campsites, continued use of Big Meadows Swamp, the absence of hemlock reproduction within the Limberlost, and the decline of reproduction of paper and gray birch, red spruce, and balsam fir

data on the effects of wildfire on flora and fauna community dynamics; various plant growth parameters, soil conditions, and water quality and quantity; and the various uses of fire as a tool for resource management

wildlife observations, including in-depth recording and evaluating of populations, and the inventorying of fish, reptiles, amphibians, and invertebrates

data on the status of deer in the park, including numbers, distribution, movements, population dynamics, and effects on the park environment (browsing impact on vegetation; determination of carrying capacity, and the extent of deer/visitor encounters)

data on bear, including population information, habitat requirements, and seasonal use patterns

information to determine the effect of exotic rainbow and brown trout on native brook trout and the effects of fishing on brook trout populations in park streams

a quantitative inventory of streamflows, water quality parameters, and groundwater levels, to determine effects on aquatic plant and animal populations

baseline quality data to evaluate actual and potential sources of water degradation and the effects of various management actions and recreational use

expansion of air quality monitoring to determine the existing and baseline concentrations of pollutants, their effects on resources of the park, the trends in ambient air quality, the effects of acid rain, and measurable parameters related directly to visibility

Impacts

The socioeconomic environment, management, land base, natural and cultural resources, visitor use, and facilities of Shenandoah National Park and its environs would be impacted from actions under this alternative. The following impacts are those which are different from impacts presented under alternative N1.

Impacts on the Socioeconomic Environment. Impacts would not differ from those described under alternative N1.

Impacts on National Park Service Management. Development of a research program in the park would require funding for personnel and research facilities and materials.

Results of research could indicate the need to modify some existing methods of park operations.

Impacts on Land Base. Impacts would not differ from those described under alternative N1.

Impacts on Natural Resources. There could be a slight loss of vegetation and/or wildlife during research activities. As data would be obtained, management and protection would be more specifically directed toward each individual resource and its requirements.

Impacts on Cultural Resources. Impacts would not differ from those described under alternative N1.

Impacts on Visitors. Research studies in selected areas of the park could restrict the use of these areas by visitors. Results of the studies could indicate the need to modify some existing visitor activities and/or existing areas of visitor activities.

Impacts on Facilities. Monitoring stations to measure water quality and quantity and air quality would be required.

The need for laboratory space would require the use of existing buildings or the construction of new buildings.

Table 13. Summary of Actions and Impacts
Natural Resource Management Alternatives

	N1 Continued Protection	N2 Continued Protection Expanded Research
Emphasis	Continue the existing programs for natural resource management	Same as N1, plus expand NPS programs and funds for research
Vegetation	Protect and perpetuate native plants; reduce or eliminate exotics only when threatening to native species, public health, or recreational opportunities	Same as N1
Wildlife	Protect and perpetuate native species by natural means, trap and remove nuisance bears, control exotics only when they threaten visitor safety and native plants and animals	Same as N1
Streams (Water)	Maintain and manage streams as native brook trout fisheries	Same as N1
Fire	Suppress all wildfire with maximum effort when fire threatens human life and property inside and outside the park; use prescribed fire to maintain Big Meadows and selected vista clearing	Same as N1
Research	Encourage and coordinate cooperative studies and research by other federal and state agencies, universities, and private individuals; federal funding only for air quality studies	Same as N1, plus develop and fund major research efforts for wildlife, vegetation, water, and air resources
Air Quality	Continue monitoring efforts under the 1977 amendments of the Clean Air Act for a Class 1 area	Same as N1
Impacts		
Socioeconomic	Control of trespass animals could cause local animosity toward the park; return of animals to their owners could improve local attitudes. The suppression of wildfire would relieve local apprehensions and protect life and property outside the park	Same as N1
NPS Management	Limited funding for research would inhibit specific management of resources	Results of research could require change in existing programs and management

	N1 Continued Protection	N2 Continued Protection Expanded Research
Land Base	No change would be required	Same as N1
Natural Resources	Reduction in natural openings would tend to concentrate deer and bear at man-made areas Suppression of wildfire would enhance water quality and plant succession processes Prescribed burning at Big Meadows would contribute to air pollution and the loss of insects and a few small mammals; other wildlife would benefit	Same as N1, but resources would receive more specific management and protection as a result of increased research
Cultural Resources	Suppression of wildfire would provide greater protection of cultural ruins and structures Prescribed burning at Big Meadows would maintain the historic scene	Same as N1
Visitors	Control of nuisance bears and suppression of fire would increase visitor safety	Same as N1, plus research results could indicate the need to modify some existing visitor activities and/or locations
Facilities	Suppression of wildfire would protect park facilities and private property outside the park	Same as N1

CULTURAL RESOURCES

When Shenandoah National Park was pieced together out of hundreds of parcels of land, reestablishment of the pre-Colonial primitive forest was of foremost concern. At that time, evidence of human habitation could be seen throughout the land in the form of mountain cabins surrounded by eroded farmland, overgrazed fields, and barren, rocky hillsides. The guiding philosophy for the new park management was to obliterate that evidence, in an attempt to heal the scars. Cabins, mills, and split-rail fences were demolished or left to melt into the landscape. Over the years, the forest grew prolifically.

The scars of overuse have healed with time. In the process, however, most evidence of human habitation has also disappeared. What remains today are the last vestiges of the mountain culture (see Cultural Resource Survey map). Management of these cultural resources has been negligible for the most part, indicating a continuation of the primitive forest philosophy. In efforts toward that goal, part of the cultural heritage of the area has been lost.

As a federal agency, the National Park Service is mandated to preserve and protect its cultural resources, through specific legislation such as the Antiquities Act of 1906, Executive Order 11593, the National Environmental Policy Act, the Procedures of the Advisory Council on Historic Preservation, and National Park Service "Management Policies." As part of the compliance with that legislation, the National Park Service is mandated to survey and evaluate all cultural resources on lands under their jurisdiction.

Evaluation of cultural resources is accomplished through application of the criteria for evaluation of the National Register of Historic Places. (The National Register is the official listing of the nation's cultural resources that are worthy of preservation and significant in terms of American history, architecture, archeology, or culture.) In addition to this evaluation, the National Park Service has developed a List of Classified Structures which is a central listing identifying all historic structures within the National Park System that may meet National Register criteria, or that warrant preservation for their cultural values.

The resources in these alternatives are dealt with in a descending order of significance. Those on or eligible for the National Register are of first priority, followed by those on the List of Classified Structures, and thirdly, to those currently being studied for inclusion on the List of Classified Structures. Other cultural resources that do not merit National Register or List of Classified Structure status, but nevertheless are resources, are mentioned last (see also appendix D).

The levels of treatment for cultural resources involve the following:

> Preservation is the application of measures to sustain the existing form, integrity, and material of an object or structure; it includes ongoing maintenance and stabilization that arrests the course of deterioration.

Restoration is the process of recovering the general historical appearance of a site, or the form and details of an object or structure, by the removal of incompatible natural or man-caused accretions and the replacement of missing elements as appropriate.

Reconstruction is the accurate reproduction of an object or structure in whole or in part.

A fourth level of treatment is to allow the resource to deteriorate gradually and melt back into the landscape and designate it as a discovery site; when this status is proposed, the loss of resources would be the result of conscious management decisions.

The two alternatives proposed primarily differ in philosophy. In the first, management of the resources would be through minimal preservation and further compliance with historic preservation legislation. In the second alternative, more of the extant cultural resources would receive expanded preservation treatment, and some emphasis would be placed on removal of intrusions from historic scenes. Both alternatives emphasize preservation as the recommended level of treatment. This guiding philosophy was set forth in 1936 by the Advisory Board on National Parks, Historic Sites, Buildings and Monuments (now the National Park System Advisory Board) as follows:

> Better preserve than repair, better repair than restore, better restore than reconstruct.
>
> It is ordinarily better to retain genuine old work of several periods, rather than arbitrarily to "restore" the whole, by new work, to its aspect at a single period.

All actions in both alternatives will comply with the procedures established under section 106 of the National Historic Preservation Act and section 2(b) of Executive Order 11593 (Protection and Enhancement of the Cultural Environment) as appropriate (see appendix I).

All cultural resources eligible for the National Register will be recorded and measured according to the highest professional standards. The state historic preservation officer and the Advisory Council on Historic Preservation will be given opportunity to comment on proposed actions affecting cultural resources as required by the Advisory Council's regulations (36 CFR Part 800).

ALTERNATIVE C1 - MINIMAL PRESERVATION

Under this no action alternative, the traditional management of cultural resources in Shenandoah National Park would continue, with the philosophy that reestablishment of the forest, and the elimination of any evidence of the hand of man, are of greater importance than preservation of cultural resources. Emphasis would be on minimal preservation.

Surveys and evaluations of cultural resources would continue. Archeological work would involve additional surveys to complete compliance

with Executive Order 11593 and to provide a more complete picture of the prehistory of the area. Intensive surveys and testing would proceed at more significant sites to define the boundaries and better determine the cultural components.

A research program would include a historic resource study covering the development of the land prior to establishment of the park. The study would be used as a tool in compliance with Executive Order 11593 by aiding in further identification of historic sites, buildings, and objects. Historic structure reports and historic structure preservation guides would be completed as needed on Camp Hoover, Massanutten Lodge, Corbin Cabin, and Miller's Iron Works, which are potentially eligible for the National Register of Historic Places.

The three main cabins at Camp Hoover would be preserved in their current altered states and would continue to receive traditional use and maintenance. However, the ruins, historic utilities, and foundations, including period trails and the artificial stream through the compound, would not be maintained and would be allowed to blend into the natural setting. A National Register form will be completed in the near future and consideration will be given to designating the camp a national historic landmark.

The Corbin Cabin would continue to be maintained by the Potomac Appalachian Trail Club and be used as a backcountry cabin on an intermittent rental basis. Maintenance would be in accordance with standards established in a historic structure preservation guide and would be monitored by the National Park Service. Adaptive use with possible interior changes would continue, and the exterior would be preserved. Materials from other ruins in Nicholson Hollow that are used for maintenance of the Corbin Cabin would no longer be permitted, instead materials would be acquired outside the park and packed in to the site. The Corbin Cabin will be nominated to the National Register of Historic Places.

The Massanutten Lodge would continue to be used as seasonal quarters and would possibly receive some public use during the summer. The exterior would be preserved, but the interior could be changed to accommodate adaptive use. The entire structure is currently being rehabilitated. The historic structure report has been completed, and a historic preservation guide will be prepared to ensure adequate maintenance to an upgraded standard. The building will be nominated to the National Register.

Miller's Iron Works would be recorded, using professional standards. After comment by the state historic preservation officer and the Advisory Council on Historic Preservation under 36 CFR Part 800, it would remain as a discovery site. Any significant artifacts would be gathered, inventoried, and stored. The property will be nominated to the National Register.

The ten archeological properties that are eligible for the National Register are in the process of being professionally recorded and nominated to the National Register. After that, resources would be protected, periodically monitored, and remain in place.

The present burning policy at Big Meadows would continue, keeping the historical landscape open. The controlled burning would be done when weather conditions permitted so as to reduce air pollution and the susceptibility of fire spreading into the forested area. Extreme care would be exercised in the manipulation of natural resources, and the effects would be monitored by qualified personnel. If the natural resource manipulation techniques prove to be improper or ineffective, the management of areas affected would be reevaluated.

Resources in the Nicholson Hollow Cultural Resource District and the Bower, which are included on the List of Classified Structures, would remain as discovery sites. No attempt would be made to preserve any ruins; however, cannibalism of the Nicholson Hollow resources for maintenance materials in the Corbin Cabin would cease.

Impacts

The following impacts on the socioeconomic environment, management, land base, natural and cultural resources, visitor use, and facilities of Shenandoah National Park and its environs would occur from actions taken under this alternative.

Impacts on the Socioeconomic Environment. Preservation of some of the cultural resources found in the park would enhance the national, regional, and local cultural environment.

Those resources identified as discovery sites would be eventually lost, thus losing part of the cultural heritage of the area.

An irretrievable commitment of federal funds would be required for the research, inventories, evaluations, preservation, protection, and maintenance of cultural resources.

Impacts on National Park Service Management. The research program, Executive Order 11593 surveys and evaluations, historic structure reports, and historic structure preservation guides will require a short-term commitment of funds on the part of the National Park Service. The research, surveys, and evaluations could reveal more historic sites that would warrant preservation, possibly compounding long-term maintenance costs.

The research program would assist park management in required compliance with historic preservation legislation.

Operating budgets would increase for expanded preservation, protection, research, periodic monitoring, interpretation, and staff.

Additional capital expenditures would be required to maintain buildings and structures at an appropriate level.

Preservation of the three cabins at Camp Hoover would continue to require the National Park Service to commit funds and personnel for VIP security.

The maintenance of Corbin Cabin by the Potomac Appalachian Trail Club would require few federal personnel.

The preservation of the Massanutten Lodge would provide housing for park employees and possibly a facility for public use.

Discovery sites would not entail costs or personnel, except for initial surveying and recording.

Continued use of the Headquarters building and the historic concessions buildings at Skyland and Big Meadows would eliminate the need to construct replacement facilities.

Impacts on Land Base. No changes in the land base or park acquisition authority would result.

Impacts on Natural Resources. Deterioration of certain man-made features at Camp Hoover would allow natural forest succession to continue. The existing streambed would return to a more natural course.

Deterioration of Miller's Iron Works and other discovery sites would allow the continued reestablishment of the forest vegetation.

Controlled burning at Big Meadows would arrest successional stages of vegetation in the meadow, creating a short-term effect. The herbaceous and brush communities would be burned to ground level, but a diverse plant cover would obliterate visible traces of the fire within one month of spring treatment. The controlled burn would encourage root sprouting of fire resistant species of vegetation and produce an open area for meadow flora and fauna. Some birds, reptiles, mammals, and invertebrates could be killed by the controlled fire burns at Big Meadows. The burning at Big Meadows would contribute to air pollution.

Impacts on Cultural Resources. The research and surveys proposed under this alternative would assist in the identification of resources which would otherwise remain unknown and be lost without the benefit of recording.

In the processes of stabilization and preservation, the removal of structurally unsound original fabric might be required for the benefit of preserving the entire structure.

Preservation of the cabins at Camp Hoover would retain the remaining historical and architectural qualities that qualify the property for the National Register, and it would allow continued historic uses of the camp. Remaining bits of the historic scene at Camp Hoover, including the utility lines, roads, trails, and artificial stream, could be gradually altered and eventually lost through deterioration. This change could adversely affect the property's eligibility for the National Register and would be considered irreversible.

Preservation of the Corbin Cabin would retain the historical and architectural qualities that make the property eligible for the National Register. The discovery site status of cultural resources in the 1-acre

historic zone surrounding the Corbin Cabin would lead to the gradual destruction of the remaining historic environment. Packing in maintenance materials to the Corbin Cabin would prolong the life of other resources in Nicholson Hollow, which have been previously used for scavenging.

The stabilization and preservation of the Massanutten Lodge would be beneficial because retention of the architectural character would qualify the building for the National Register.

The discovery site status of Miller's Iron Works would cause a neglect of the property, resulting in the irreversible loss of a resource which is eligible for the National Register.

Losses of resources at other discovery sites would be long-term, irreversible effects.

The monitoring of archeological sites eligible for the National Register would allow the observation of any changes and allow the taking of corrective measures to retain the characteristics that qualify the sites for the National Register.

Controlled burning would maintain the historic scene at Big Meadows.

Lack of monitoring of other archeological sites could result in their alteration or destruction.

The continued use and maintenance of structures at Big Meadows, Lewis Mountain, and the Headquarters could result in preservation of the architectural character that could qualify the buildings for the National Register of Historic Places when they reach 50 years of age.

The buildings at Skyland, some of which are 70 years old, are not being considered for the National Register; their preservation could result in retention of the quiet, rustic character of the old resort.

To allow the continuation of existing uses at Corbin Cabin, Massanutten Lodge, Big Meadows Lodge and cabins, Lewis Mountain Lodge and cabins, Headquarters, and other structures could require some change to the interior historic fabric and the introduction of elements out-of-character with the buildings.

The continued use and maintenance of the Skyline Drive could retain some of the architectural qualities which make it a cultural resource, even though it is not eligible for the National Register.

If other buildings (those not eligible for the National Register or the List of Classified Structures) are adaptively used, they possibly could retain architectural and historic characteristics which contribute to their significance. Continued use of buildings in this category would result in higher levels of maintenance and greater protection from vandalism.

It is expected that many cultural resources which are not eligible for the National Register or the List of Classified Structures would be lost.

Impacts on Visitors. Camp Hoover would be available for interpretation of a presidential "hideaway".

Continued maintenance of Corbin Cabin would allow public access to an Appalachian mountain experience and foster a better understanding of mountain culture.

The preservation of Massanutten Lodge would enhance the rustic character of present-day Skyland. It would also be an example of the historic character of Old Skyland and would be available for ongoing interpretation.

The loss of Miller's Iron Works would have only minor impacts on visitors because it is an unknown, uninterpreted resource to most visitors.

The controlled burning at Big Meadows would provide interpretive experiences at the Byrd Visitor Center, where prehistoric cultures, the historic scene, and present ecosystems would be interpreted.

The natural deterioration of discovery sites could have negative effects on visitors because they might feel that some resources could have been preserved for future education and enjoyment. However, deterioration of discovery sites would allow the land recovery process to be interpreted.

The routine maintenance of facilities at Skyland, Big Meadows, Lewis Mountain, and Headquarters could offer continued visitor enjoyment of a park experience by retaining a rustic character of overnight and service facilities and a Colonial Virginia theme at Headquarters.

The continued use of Skyline Drive would allow visitors to continue experiencing the pleasant visual qualities from the drive and would provide access to other areas within the park.

Impacts on Facilities. Camp Hoover would continue to provide a traditional presidential retreat facility.

Corbin Cabin would remain as a mountain/backcountry facility.

The preservation of Massanutten Lodge would enhance the rustic character of Skyland resort, retain housing for park employees, and possibly serve as a public use facility.

Use of the Skyline Drive would ensure its continuation as a through-road, a scenic drive, and an access corridor to other facilities.

ALTERNATIVE C2 - PRESERVATION

Under this alternative, preservation would be expanded through retention of cultural resources and some historic scenes which would otherwise melt into the landscape under alternative C1. Historic structure reports and historic structure preservation guides would be completed for the four properties potentially eligible for the National Register: Camp Hoover, Corbin Cabin, Massanutten Lodge, and Miller's Iron Works. Historic

structure preservation guides would be completed on many structures to be included on the List of Classified Structures inventory.

The research program outlined under alternative C1, which includes archeological surveys and a historic resource study, would remain the same.

Camp Hoover would receive the same use as described under alternative C1, but self-guided interpretation would be upgraded. The interiors and exteriors of the three main cabins would be preserved in their present state. The extant foundations from the marine camp and other structures (including steps, utilities, paths, roads, and the artificial stream) would be stabilized and receive maintenance treatment in accordance with the standards of the preservation guide. The National Register form will be completed, and consideration will be given for national landmark status.

Corbin Cabin would continue to be used and maintained as a backcountry cabin, but self-guided interpretation could be initiated on the exterior. The ruins in the 1-acre historic zone would be stabilized and would be maintained in accordance with standards established in a preservation guide. Trees would be "deadened" by traditional girdling in the 1-acre zone to improve the remaining semblance of a period scene.

The Massanutten Lodge would continue to be used as seasonal quarters and possibly receive some public use. All maintenance would be done in accordance with a preservation guide. The exterior would be preserved, and the interior could be changed to accommodate adaptive uses.

At Miller's Iron Works, the furnace would be stabilized and maintained. Vegetation would be removed periodically from the structure.

The ten archeological properties eligible for the National Register would be recorded, nominated, and protected in place.

Burning would continue at Big Meadows to maintain the historic landscape in the traditional manner. The controlled burning would be done when weather conditions permitted so as to reduce air pollution and the susceptibility of fire spreading into the forested area. Extreme care would be exercised in the manipulation of natural resources, and the effects would be monitored by qualified personnel. If the natural resources manipulation techniques proved to be improper or ineffective, management of the areas affected would be reevaluated.

Resources in the Nicholson Hollow Cultural Resource District and the Bower, which are on the List of Classified Structures, would be stabilized. Vegetation would be removed from the stone chimneys and foundations with hand tools, and other appropriate measures would be taken to slow the course of deterioration. Periodic maintenance would ensure stabilization.

The Headquarters building, Big Meadows Lodge and cabins, and Lewis Mountain Lodge and cabins would receive maintenance in accordance with standards established in a historic structure preservation guide so that when the structures are 50 years old they would retain enough integrity to be nominated to the National Register of Historic Places.

The Skyland cabins would be included on the List of Classified Structures and would continue to receive present use, and maintenance would be done in accordance with the standards of a preservation guide. Also, obvious weeds would be removed from the Judd Garden to aid in the retention of some historic vegetation.

Skyline Drive would continue in its present use and receive routine maintenance, except for a 1-mile segment of the road where the stone retaining and guide walls would be preserved as dry-laid masonry, the original construction. The 1-mile section of road and additional specific preservation for it would be chosen after appropriate study. This segment would be interpreted, and maintenance would follow a preservation guide. (See also development alternatives.)

All other cultural resources--those not eligible for the National Register and not included on the List of Classified Structures--would be inventoried and recorded. The minor archeological sites would remain in place, and their locations would be avoided by actions proposed in the future. Buildings in this category would be adaptively used if appropriate, and other resources, such as homesites, would be left as discovery sites.

Impacts

The following impacts on the socioeconomic environment, management, land base, natural and cultural resources, visitor use, and facilities of Shenandoah National Park and its environs would occur from actions taken under this alternative.

Impacts on the Socioeconomic Environment. Preservation of more of the cultural resources found in the park would enhance, to a slightly greater degree the national, regional, and local cultural environment.

Those resources identified as discovery sites would be eventually lost, thus part of the cultural heritage of the area would be lost.

An irretrievable commitment of federal funds would be required for the research, inventories, evaluations, preservation, protection, and maintenance of cultural resources.

Impacts on National Park Service Management. The research program, Executive Order 11593 surveys and evaluations, historic structure reports, and historic structure preservation guides would require a short-term commitment of funds on the part of the National Park Service. The research, surveys, and evaluations could turn up more historic sites warranting preservation, which could compound long-term maintenance costs. The research program would assist park management in required compliance with historic preservation legislation.

Operating budgets would increase for expanded preservation, protection, research, periodic monitoring, interpretation, and staffing.

Additional capital expenditures would be required to appropriately maintain the buildings and structures indicated.

Preservation of the three cabins at Camp Hoover would continue to require the National Park Service to commit funds and personnel for VIP security.

Maintenance of the Corbin Cabin by the Potomac Appalachian Trail Club would require few federal personnel.

Preservation of the Massanutten Lodge would provide housing for park employees, as well as a possible facility for public use.

Upgraded maintenance of properties on the List of Classified Structures would be a long-term cost.

Discovery sites would not entail costs or personnel, except for initial surveying and recording.

The continued use of the Headquarters building and the historic concessions buildings at Skyland and Big Meadows would eliminate the need to construct replacement facilities to house these activities.

Impacts on Land Base. No changes in the land base or the park acquisition authority would result.

Impacts on Natural Resources. To improve the semblance of a period scene around Corbin Cabin, approximately 75 to 85 percent of the trees within a 1-acre-area would be lost through the traditional means of girdling.

The deterioration of discovery sites would allow the continued reestablishment of the forest vegetation.

The controlled burning at Big Meadows would arrest successional stages of vegetation in the meadow, which would be a short-term effect. The herbaceous and brush communities would be burned to ground level, but a diverse plant cover would obliterate visible traces of the fire within a month of spring treatment. The controlled burn would encourage the root sprouting of fire-resistant species of vegetation and produce an open area for meadow flora and fauna. Some birds, reptiles, mammals, and invertebrates could be killed by the controlled fire burns at Big Meadows.

The burning at Big Meadows would contribute to air pollution.

Impacts on Cultural Resources. The research and surveys proposed under this alternative would assist in the identification of resources which would otherwise remain unknown and be lost without the benefit of recording.

In the processes of stabilization and preservation, the removal of structurally unsound original fabric might be required for the benefit of preserving the entire structure.

Preservation of the three cabins and the utility lines, roads, trails, and artificial stream at Camp Hoover would retain the remaining historical and architectural qualities, and also the historic scene which qualify the property for the National Register. The historic uses of the camp would continue.

The preservation of the Corbin Cabin and creation of a period scene would retain the qualities that make the property eligible for the National Register.

Packing in maintenance materials to the Corbin Cabin would terminate the scavenging of materials from other cultural resources in Nicholson Hollow.

Stabilization of extant resources in the Nicholson Hollow cultural resource district would provide a semblance of the historic environment surrounding the Corbin Cabin.

Stabilization and preservation of the Massanutten Lodge would have a beneficial effect through retention of the architectural character that qualifies the building for the National Register.

Stabilization of Miller's Iron Works would retain the remaining historical and architectural qualities that qualify the property for the National Register.

The monitoring of archeological sites eligible for the National Register would allow the observation of any changes and allow corrective measures to be taken so that characteristics that qualify the sites for the National Register could be retained.

Controlled burning would maintain the historic scene at Big Meadows.

Lack of monitoring of other archeological sites could result in their alteration or destruction.

The continued use and upgraded maintenance of structures at Big Meadows, Lewis Mountain, and Headquarters would result in preservation of the architectural character that could qualify the buildings for the National Register of Historic Places when they reach 50 years of age.

The buildings at Skyland, some of which are 70 years old, are not under consideration for the National Register. Their preservation could result in the long-term retention of the quiet, rustic character of the old Skyland resort.

To accommodate the continuation of existing uses indicated for Corbin Cabin, Massanutten Lodge, Big Meadows Lodge and cabins, Lewis Mountain Lodge and cabins, Headquarters, and other structures could require some change to the interior historic fabric and the introduction of elements out-of-character with the buildings.

The preservation of a 1-mile section of Skyline Drive would protect some of the original material and scale. The continued use and maintenance of the remainder of the Skyline Drive could retain some of the architectural

qualities that make it a cultural resource, even though it is not eligible for the National Register.

If other buildings (those not eligible for the National Register or the List of Classified Structures) were adaptively used, they possibly could retain architectural and historic characteristics that contribute to their significance. Continued use of buildings in this category would result in higher levels of maintenance and greater protection from vandalism.

It is expected that many cultural resources that are not eligible for the National Register or the List of Classified Structures would be lost. The losses of resources at discovery sites would have long-term, irreversible effects.

Impacts on Visitors. Camp Hoover would be available for interpretation of a presidential hideaway.

Corbin Cabin would offer visitors exposure to an Appalachian mountain experience, and interpretation around the cabin would provide a better understanding of mountain culture.

The preservation of Massanutten Lodge would enhance the rustic character of present-day Skyland, offer an example of the historic character of Old Skyland, and make it available for ongoing interpretation.

The stabilization of Miller's Iron Works would have only minor impacts on visitors because it would remain an uninterpreted resource for most visitors.

The controlled burning at Big Meadows would provide information for interpretation of prehistoric cultures, the historic scene, and present ecosystems from the Byrd Visitor Center.

The deterioration of discovery sites could have a negative effect on visitors because they might feel that some resources could have been preserved for future education and enjoyment. However, deterioration of discovery sites would be interpreted to provide an understanding of the land recovery process.

The upgraded maintenance of the facilities at Skyland, Big Meadows, Lewis Mountain, and Headquarters would offer continued visitor enjoyment of a park experience by retaining a rustic character of overnight and service facilities and a colonial Virginia theme at Headquarters.

The preserved 1-mile section of the Skyline Drive would give visitors a perspective of the drive as it appeared in the 1930s. The continued use of the Skyline Drive would allow visitors to experience the pleasant visual qualities from the drive, and it would provide access to other areas within the park.

Impacts on Facilities. Camp Hoover would continue to provide a traditional presidential retreat facility.

Corbin Cabin would continue as a mountain/backcountry facility.

The preservation of Massanutten Lodge would enhance the rustic character of the Skyland resort, retain housing for park employees, and possibly serve as a public use facility.

Use of the Skyline Drive would ensure its continuation as a through-road, a scenic drive, and an access corridor to other facilities.

Table 14. Summary of Actions and Impacts
Cultural Resource Management Alternatives

	C1 Continued Minimal Preservation	C2 Preservation
Emphasis	Continue traditional management of cultural resources, with reestablishment of the national forest taking precedence over preservation of cultural resources.	Expand preservation efforts to include retention of additional resources and historic scenes
Management		
Level of significance	Moderate	Moderate
Level of preservation	Low	Moderate
Action/Treatment	Preserve Camp Hoover (3 main buildings), Corbin Cabin, Massanutten Lodge, Gentle Site, Rock Shelter, Black Rock Springs Site, and Big Meadows archeological district Leave Miller's Iron Works as a discovery site Allow deterioration of remaining historic scene around Camp Hoover, Corbin Cabin, and Nicholson Hollow	Preserve Camp Hoover and remaining historic scene, Corbin Cabin and remaining historic scene, Massanutten Lodge, Miller's Iron Works, Gentle Site, Rock Shelter, Black Rock Springs Site, Big Meadows archeological district, and 1-mile segment of the Skyline Drive (location to be determined) Stabilize selected ruins in Nicholson Hollow and the Bower to slow inevitable deterioration Maintain integrity of Headquarters building, Big Meadows Lodge and selected cabins, Skyland cabins (selected), and Judd Garden, and Lewis Mountain Lodge and cabins
Studies and Programs	Continue archeological survey (EO 11593); protect and monitor sites Complete the following: Historic Resource Study of the park Historic Structure Reports: Camp Hoover (3 buildings) Massanutten Lodge (completed) Corbin Cabin (structure only) Miller's Iron Works Historic Structure Preservation Guides with implementation of recommendations, preservation, and maintenance programs presented therein for the following structures and sites: Camp Hoover (three buildings) Massanutten Lodge Corbin Cabin (structure only)	Same as C1 Complete the following: Historic Resource Study of the park Historic Structure Reports: Camp Hoover (expanded scope to include historic scene elements) Massanutten Lodge (completed) Corbin Cabin (expanded scope to include historic scene in 1-acre historic zone) Miller's Iron Works Historic Structure Preservation Guides, with implmentation of recommendations, preservation, and maintenance programs presented therein for the following structures and sites: Camp Hoover (expanded scope) Massanutten Lodge Corbin Cabin (expanded scope) Miller's Iron Works Nicholson Hollow (selected ruins) The Bower Headquarters Building Big Meadows Lodge and cabins Lewis Mountain Lodge and cabins Skyland cabins (selected) Skyline Drive (1-mile segment)

	C1 Continued Minimal Preservation	C2 Preservation
Impacts		
Socioeconomic	Some cultural heritage would be preserved	More cultural heritage would be preserved
NPS Management	Compliance with law would occur	Compliance with law would occur
	Funds and personnel on short- and long-term bases would be committed	The commitment of funds and personnel on a short- and long-term bases would be greater
Land Base	No changes	Same as C1
Natural Resources	Continued reestablishment of forest vegetation and other natural features at Camp Hoover, Miller's Iron Works, and other discovery site areas would occur	Continued reestablishment of forest vegetation in discovery site areas would occur
		Some trees around Corbin Cabin would be lost
	Maintenance burning at Big Meadows would encourage growth of fire resistant vegetative species; air pollution would be produced	Same as C1
Cultural Resources	Some resources or portions of resources would be lost, while others would be retained	Same as C1, plus historic scenes and resources of lesser significance would be preserved, including architectural character of facilities such as Big Meadows Lodge
		Higher levels of maintenance and potential use of historic structures
Visitors	Certain resources and facilities of a cultural/interpretive nature would continue to remain available to visitors, although some potential for visitor experiences would be lost	Greater number of resources and facilities of a cultural/interpretive nature would remain visible to visitors; better maintenance would provide a broader range of experiences for visitors
Facilities	Certain cultural resources would continue to be used as facilities for resorts, housing, and roads	Same as C1

VISITOR USE AND INTERPRETATION

Since 1936, when President Franklin D. Roosevelt dedicated Shenandoah National Park for recreation and re-creation, the park has provided safe public enjoyment, appreciation, and understanding of the natural, cultural, and recreational resources through a variety of activities (see appendix F).

Shenandoah is obviously a popular park--as mentioned, annual visitation has grown from 42,000 in 1943 to over 3 million in 1977. However, visitation in 1978 and 1979 suffered noticeable declines as a result of external factors such as gasoline shortages, higher fuel prices, and rising costs for all goods and services, combined with some unusually poor weather for outdoor activities.

It is unknown what the effects and repercussions of these energy and economic ailments will be, especially if they are prolonged. Three simplified scenarios, or outcomes, seem apparent at this time for the near future: visitation will continue to decline as all costs increase and gasoline becomes less available; visitation will level off or perhaps increase as costs moderate and/or citizens accept the new reality; or visitation will rebound, perhaps to a lesser level than before, as national and personal economic situations prosper again and improve and/or alternate energy sources and means of park access become available. Although the duration of reduced visitor levels cannot be estimated, the first and/or second scenarios could serve as a prelude to the third, and it is hoped, long-range outcome.

Repercussions of the first and second scenarios could change the composition of park visitors and the use of the park, at least temporarily. If gasoline becomes more expensive, fewer long-distance and more nearby residents may use the park. Evidence of this possibility is demonstrated in the percentage of visitors from Virginia--32.4 percent in 1976 and 41.6 percent in 1979. Another repercussion could be that visitors would stay longer, making Shenandoah more of a destination rather than a drive-through park. A hint of this possibility is that the average length of stay in lodges was 1.5 nights in 1978 and 1.6 nights in 1979. A third possibility is that there will be less use of recreation vehicles for overnight camping. Evidence of this is less obvious since a trend to tent use has occurred since 1969; however, there was a 5 percent increase in tenting in 1979, while the more normal increase averaged 2 percent per year during prior years. Other results could include more bus tours, shortened visitor seasons, and differing needs for some facilities and activities.

While the above discussion highlights some possible uncertainties about the future, visitor use in Shenandoah will certainly continue to be directed to nonconsumptive enjoyment of the resources and experiences extant. Inasmuch as no major or serious problems were discovered in the preplanning efforts, the visitor use alternatives are directed toward maintaining the existing situation or possibly making it better. The minor problems deserving consideration are illegal activities, uneven parkwide use, capacities for certain activities, clashes in user styles, competition for facilities, and limited visitor experiences.

For the purpose of considering future visitor use, the alternatives in this section are based on the assumption that appropriate facilities, design, funding, staffing, and energy would be available. For instance, if hiking opportunities would be increased under an alternative, it would be assumed that additional trails would be constructed in appropriate places and that additional rangers would be available for the protection of hikers and resources. Effectuation of these visitor use and interpretive alternatives is covered in alternatives under other topics.

The two visitor use alternatives indicate choices available to park management for the next ten years. Each alternative presents modest courses of action which would not disrupt the success of existing visitor use and interpretive programs. The alternatives have different emphases based on different aspects of information and orientation, interpretation, kinds and styles of visitor activities, and seasons of and levels of visitor use. All programs and efforts would be directed toward maintaining the appropriate visitor use patterns of the past, while remaining receptive to suitable opportunities for expanding visitor enjoyment of the resources that have been husbanded for a half century.

ALTERNATIVE V1 - CONTINUED VISITOR USE AND INTERPRETATION

Existing visitor use and interpretation would continue at present locations and at levels dictated by park-external factors. No new endeavors or major improvements would be undertaken, except as noted.

The overall park program of information, orientation, and interpretation would continue to be managed toward the objectives of fostering understanding and appreciation of the changing Blue Ridge Mountains environment and the awareness of public opportunities for compatible use. Information and orientation materials and services would continue at the present locations, issuance of backcountry camping permits would be improved, and use of existing trails for strolling (under 2 miles) and short hikes (under 5 miles) would be emphasized.

Interpretive materials and programs would continue, except that necessary updatings of literature, movies, and evening and day programs would occur as necessary to keep them current, interesting, and helpful to visitors. These updatings would cover orientation, information, and interpretive topics related to geology, flora, fauna, natural history, resource management, ecology, historical areas, and the Appalachian Trail. These topics would cover the existing themes of changing natural scene, recycled wilderness, cultural history, and park management.

Cooperative interpretive programs and services with the Shenandoah Natural History Association, the ARA Virginia Sky-Line Company, and the Potomac Appalachian Trail Club would continue. Training programs would be offered by the park to these cooperating groups to assist the public in enjoying the park.

The visitor activities described in appendix F would continue, except for illegal and destructive ones. Specifically, continued efforts would be directed to greatly limit or eliminate illegal activities of commercial ginseng

collecting, hunting, poaching, and vandalism within Shenandoah. Efforts to restrict and redirect the seemingly thoughtless activities of visitors who damage and destroy park resources and facilities and create unsafe conditions for other visitors would continue.

Under this alternative, access for handicapped visitors to all park programs, services, resources, and experiences would be available in conformance with the Rehabilitation Act of 1973 (PL 93-112). These efforts would include reserving rooms and sites for handicapped visitors until all others were full, making some remote experiences available, and removing barriers to unassisted access to facilities.

Since riding of concessioner rental horses is a low volume activity at Big Meadow, and since there are problems of stable drainage into a natural wet meadow, the riding of rental horses at Big Meadows would be eliminated. However, this horseback riding activity would continue at Skyland.

From time-to-time, the question of how visitors are or should be using the park arise. These occasions include requests by individuals or groups to permit a new activity or eliminate an existing one, or operational problems and constraints. In accordance with National Park Service policies, visitor use in Shenandoah is directed to those activities that draw their meaning from resources and values extant; the more direct the relationship with a resource, the more appropriate the use. With this in mind, the following priorities would be used in determining the acceptability of any change, irrespective of origin.

1. Maintain existing established uses that derive their meaning from association with, and do not impair, park resources (type A, see appendix F)

2. Allow and encourage new and/or nontraditional uses that are similar to 1 (type A)

3. Maintain existing established uses that do not impair park resources (type B)

4. Allow new and/or nontraditional uses similar to 3 (type B)

Shenandoah would continue to be open the year around. The Skyline Drive would be open when safe travel could be ensured in the winter. Interpretive services at Big Meadows in the winter could be decreased or terminated, depending upon visitor demand and/or park management and operation considerations. Also, adjustments would continue to be made, as appropriate, in the amount of lodging reservations accepted for club activities, business meetings, and conferences, especially during the spring and fall shoulder months at Big Meadows and Skyland.

The overall level of visitation would continue to depend upon park-external factors. Visitor use would be distributed in the same areas that it has been in the past few years--on the Skyline Drive, in the developed areas, and on certain backcountry and wilderness trails. Management vigilance would continue to identify potential resource damage

problems. Necessary informational, regulatory, and enforcement activities would be undertaken for park protection.

In summary, visitor use and interpretation would remain essentially the same as now. Only minor changes for upgrading services and modifying visitor uses would occur.

Impacts

The following impacts on the socioeconomic environment, land base, natural and cultural resources, visitor use, and facilities of Shenandoah National Park and its environs would occur under this alternative.

Impacts on the Socioeconomic Environment. Because visitor use and interpretation would not be expanded, visitor revenues to local communities would not increase.

Only minor expenditure of additional capital funds would be required if no new endeavors and only minor improvements were accomplished. The operating budget of the park would be increased to keep pace with inflation.

Expenditure of federal funds for operation, maintenance, and protection would be presumed to continue as an addition to local and regional economies. Tourist monies available to local communities would remain the same or possibly decrease over the long term if visitation was reduced by park-external factors.

A decrease or termination of visitor use services in winter could result in temporary unemployment of some local people, which would place a greater demand for unemployment services on adjacent communities.

The continued effort to reduce and/or eliminate illegal activities could increase local adverse sentiment toward the park and the National Park Service.

The lack of trail access and visitor facilities along the boundary of the park would result in continued and possibly increased trespass on private lands.

The restrictions of available existing access and the continued closing of accesses over private property along the park perimeter would make the park less accessible to local residents.

Continued parking problems, such as congested roadsides and blocked driveways along the park perimeter, would continue to cause conflicts between park visitors and neighboring residents.

Impacts on National Park Service Management. Only minor expenditure of additional capital funds would be required if no new endeavors and only minor improvements were accomplished.

Continued efforts to reduce illegal and/or destructive activities could require an increase in personnel and funding.

Efforts to provide accessibility for handicapped visitors to park programs, services, resources, and experiences would be in compliance with the Rehabilitation Act of 1973; additional funding would be required for improvement of unassisted access.

The updating of literature, movies, and interpretive programs, and also development of orientation shelters and rehabilitation of informational and interpretive exhibit waysides, would require additional funding.

The commitment of funds for operation and maintenance of visitor programs would be an irretrievable loss.

Impacts on Land Base. The continued existing level of visitor enjoyment and interpretive programs and the acceptance of decreasing perimeter access would require no change in the existing park land base or park acquisition authority.

Impacts on Natural Resources. Existing levels of sound and of air and water pollution would continue.

Maintaining existing levels and distribution of visitor use would not adversely affect wildlife nor induce additional impacts on endangered or threatened plant or wildlife species because none is known to exist in the park.

Local opposition to park efforts to control illegal activities could result in retaliation in the form of destruction of natural resources, e.g. fires and vandalism.

The reduction and/or elimination of illegal activities would help protect the vegetation and wildlife of the park.

Elimination of the stables in the Big Meadows area would reduce the problems of stable drainage pollution in the natural wet meadow.

Impacts on Cultural Resources. Failure to emphasize appropriate use and interpretation of cultural resources could result in deterioration or lack of understanding of those features that qualified (or might qualify) the cultural resource for consideration for the National Register.

Opposition to park efforts to control detrimental or illegal use activities could result in retaliation in the form of destroying cultural resources by fire, vandalism, etc.

Impacts on Visitors. Continued improvement in issuing backcountry camping permits would provide a greater convenience for visitors hiking in the park.

Continual updating of orientation, information, and interpretive programs would provide more visitor enjoyment of the park.

VISITOR USE

Ranger guided hike

Horseback riders

Backcountry campers

Hikers

Cross-Country skiers

Cooperative training programs with the park concessioner and cooperating associations for visitor interpretation services would provide broader knowledge and interpretation of recreational opportunities.

Park-external factors (such as a decrease in the availability and an increase in the cost of petroleum products) and the lack of counteracting efforts could result in fewer people driving along the Skyline Drive. However, an increase in bicycling, motorbiking, and bus touring could result.

Use of the park would continue to be focused on the Skyline Drive, thus perpetuating existing traffic patterns.

Existing visitor activities would continue at the same general level, except for a decrease in illegal activities.

Visitor distribution would continue in the same general locations, thus maintaining traditional high activity areas; however, the discontinuance of horse rental at Big Meadows would eliminate a traditional activity.

Declining park perimeter accesses would restrict the availability of some popular areas except by a greater expenditure of visitor time and effort. Loss of perimeter accesses could restrict some visitors from the more inaccessible areas.

As traditional corridors of park perimeter accesses were closed by private landowners, visitors could be jeopardized by the actions of irate landowners who would object to the use of these corridors.

Impacts on Facilities. Operation and maintenance of existing facilities would be continued, except that the Big Meadows stable would be removed.

ALTERNATIVE V2 - EXPANDED VISITOR USE AND INTERPRETATION

This alternative provides for limited changes and expansion of visitor activities and an increase in the informational, orientational, and interpretive programs of the park. Overall this alternative would provide for an improvement in the quality of visitor experiences.

To help visitors better enjoy Shenandoah--what the park offers, regulations, and understanding the resources--a program to inform visitors before they reach the park would be undertaken through several means. Periodic bulletins, spot announcements, and other newsworthy items would be furnished weekly to radio and television stations and newspapers. Topics would include routine items related to dates of spring flowers or the fall color season and also a synopsis of the day and evening interpretive programs regularly provided during the summer season. Distribution of this material would be furnished to the media in the metropolitan Washington, Richmond, and Baltimore areas, in the smaller communities around the park, and along the major highways leading to the park.

Another means of communication to inform visitors beforehand would be to initiate radio traveler information stations (TIS) on the interstate and major highways around the park. The TIS would provide, within a 2-mile radius of a transmitter, information on car radios about traffic and weather conditions in the park, backcountry permits, the dangers of feeding and molesting park wildlife, areas of high visitor use and possible alternate places within the park, and other matters relating to safety, use, and enjoyment.

In addition to the TIS, direct telephone connections to the park would be installed at several locations along interstate highways around the park. Possible locations would be the Virginia Travel Service rest area information stations on I-66 at Manassas, I-64 at Charlottesville, and I-81 at Staunton, New Market, and Clearbrook (north of Winchester). The information furnished on direct telephone connections would be longer and more detailed than that provided on the TIS.

A study would be undertaken to determine the final locations for the TIS and direct telephone connections. It would also include the necessary cooperation and agreements with the Virginia Department of Transportation, Virginia Travel Service, and other appropriate agencies, concerning the sharing of their facilities, coordination of services, and necessary signage. In addition, the study would determine message content at each location and develop an implementation schedule.

As visitors approached the park, a second TIS system would be initiated. Radio transmitters would be located at the four park entrances--Front Royal, Thornton Gap, Swift Run Gap, and Rockfish Gap. Up-to-the-minute information would be furnished about traffic, weather, visitor densities, and also other news to help visitors get to their destinations and to adjust their plans as appropriate.

Another means to aid visitors prior to their arrival in the park would be previsit literature, which would be available to requesting individuals, bus tours, and school groups going to national environmental study areas.

All the informational and orientational upgrading described under alternative V1 would be included. In addition, new staffed visitor services would be provided at Skyland, Thornton Gap, and Rockfish Gap. The services at Skyland would be a modest operation and would be predominately for lodgers and guests. The services at Thornton Gap would be sufficient to handle visitors at the most-used park entry and would take over all the services provided currently at Headquarters.

At Rockfish Gap, the informational and orientational services would be a joint effort between the Blue Ridge Parkway, the George Washington National Forest, and possibly other tourism-oriented groups such as Shenandoah Valley Travel Association and the Virginia Travel Service. With a combined effort, visitors would receive the total picture of recreational opportunities in the entire region.

With the existing service at the Dickey Ridge Visitor Center, the three most heavily used entry points would be covered by personal,

informational, and orientational services. Provision of similar services at Swift Run Gap would not be provided within the next ten years, unless there should be a dramatic change in the number of visitors entering at this point.

A major emphasis of the expanded information/orientation program described above would be to advise visitors that access to recreational opportunities in the park need not depend solely upon using the Skyline Drive. For hikers, horsemen, backcountry campers, cross-country skiers, and local residents, park access from the perimeter might often be preferable because less time would be spent getting to the desired location. Also, less contact would be made with other user types, and during the winter, when storms temporarily close the Skyline Drive, perimeter access for various activities would be more feasible.

Under this alternative all interpretive rehabilitation described under alternative V1 would be included, plus interpretation at the Big Meadows wastewater treatment facility would be improved. Additional interpretive staff, exhibits, and audiovisual programs for the Blue Ridge Parkway and Shenandoah National Park would be provided at Rockfish Gap. At Skyland and Thornton Gap, new media and programs would focus on the ecology and history within the park. Efforts would be expended to provide interpretive services to organized groups camping within the park, as well as individuals using the backcountry (not in wilderness areas).

In addition to new interpretive programs, a major thrust would be made in the environmental education program. Programs outside and within the park would be directed to school groups to improve their awareness of ecology as a whole and specific environments within the park. The Dickey Ridge National Environmental Study Area would be improved to allow for greater use.

Interpretation of cultural resources would be expanded to cover more sites, structures, and ruins, such as Camp Hoover, Corbin Cabin, Massanutten Lodge, Miller's Iron Works, Black Rock Springs Hotel Site, Nicholson Hollow, Bower, Big Meadows Lodge and selected cabins, Judd Garden, Headquarters, and selected cabins at Skyland, in accordance with the management of cultural resources.

Another emphasis of interpretation would be to increase visitors' appreciation of their senses in enjoying the world around them. A variety of means would be used to make all visitors more aware of their five senses--seeing, hearing, touching, tasting, and smelling.

Conducted activities as described under alternative V1 would be continued; however, several improvements would be added to the program--longer hikes (up to 6 hours), additional walks so that the visitor group sizes could be reduced, and wilderness interpretive living demonstrations (WILD) program. The capacities for evening programs at Mathews Arm, Big Meadows, and Skyland would also be expanded.

Cooperative efforts in information, orientation, and interpretation, including publishing materials and pictures in cooperation with the

Shenandoah Natural History Association, would continue. Additional literature would be developed that would be oriented to the national environmental study areas and bus tours. Special consideration would be given to encourage the association to join the National Park Service in providing additional foreign language editions of some of the more popular literature. This would not only benefit foreign language speaking Americans and tourists from abroad, but it would also enhance the experience for foreign dignitaries and representatives who are directed to the park as a change from the formal proceedings that occur in the nation's capitol. Audio cassettes of more popular publications would also be made available for visitor use.

Visitor activities under this alternative would be similar to those under alternative V1, with several changes and additions. To encourage more winter use, provisions for cross-country skiing would be improved through the availability of better information. Even though skiing is allowed in the park, visitors would be directed to marked trails and other areas that afford better experiences.

Snowmobiling would be a new permitted use and would occur in accordance with new National Park Service policies. On days when snow covers the Skyline Drive, the southern section from Loft Mountain to Rockfish Gap would be closed to automobiles and open to snowmobiles. Snowmobile use would be tried on an experimental basis for two years to test the feasibility of demand and use, and the adequacy of snow conditions. Snowmobiling in the park would complement the cross-country skiing opportunity provided by the Blue Ridge Parkway south of Rockfish Gap.

Existing bicycling on the Skyline Drive is a hazardous activity because of the narrowness of the road and shoulder and the amount of traffic; however, the safer opportunity of riding on a rental bike in the Big Meadows developed area can become boring very quickly. Under this alternative, a program of bike days would be initiated. This would be accomplished by restricting Skyline Drive automobile traffic to a one-way lane in the north or south section of the park for a period of eight hours or less. Biking days would be limited to weekdays in the spring, summer, and fall and probably not more than two days per month in June, July, and August. The program would be tried on an experimental basis for two years to test demand and use.

Pleasure driving on the Skyline Drive is a very popular activity but when traffic becomes heavy, some of the joy is lost. Under this alternative, 7 sightseeing transportation services would be initiated to provide visitors a choice in viewing scenery along the drive. In addition, it would provide transportation to hikers, allowing them to hike longer one-way distances and flag-stop a vehicle to return to their cars, campgrounds, or lodges. By providing interpretation on each bus, visitors would be able to gain an appreciation and understanding of what they are viewing.

Another means to reduce traffic on the Skyline Drive would be to encourage park perimeter access for hikers, horsemen, and others, as discussed earlier under information and orientation concerns.

While being slightly reduced in wilderness areas, horseback riding opportunities would be increased throughout the rest of the park by the improvement of access (along the Skyline Drive and park perimeter), circuit rides, cross-mountain rides, and the opportunity to get to more park features. In addition, greater emphasis would be put on the group horse camping opportunity at Big Meadows. Horse rentals at Skyland and Big Meadows would continue.

Hiking is currently a popular activity and one that deserves more encouragement as a way to see and learn about Shenandoah and the natural environment. Under this alternative, hiking would receive increased emphasis throughout the park to encourage sedentary spectators to stretch their legs and become active participants, especially through strolling and short loop hiking. Increased opportunities for circuit hikes would be provided from the Skyline Drive and the park perimeter so that visitors would not have to return to their point of origin along the same route.

Hiking on the Appalachian Trail is a personal challenge for long-distance hikers and an opportunity to get away from the busier aspects of everday life. Efforts would be made to protect this experience and to minimize the intrusions of nontrail users and automobiles.

Wilderness was set aside in Shenandoah to provide opportunities for solitude and primitive type recreation. Inasmuch as wilderness areas are within a very short distance of the Skyline Drive and other access points, visitors often unknowingly use the wilderness for nonwilderness purposes. While the uses are not detrimental to the resource, it does impinge upon those visitors looking for a wilderness experience. Under this alternative, those visitors who wish to enjoy nature, hiking, and backcountry camping, without the adventure, self-reliance, and solitude that is inherent in a wilderness experience, would be directed to other backcountry areas so as to improve the "wildness" experience for those so inclined. Wilderness access would also be slightly reduced, and interior circulation would be improved to enhance the appropriate experience.

During the summer months, existing facilities for overnight lodging and tent/trailer camping are often filled to capacity. To stay in Shenandoah is one of the most pleasant experiences, and under this alternative this use would be expanded modestly at Big Meadows, Skyland, and Lewis Mountain for overnight lodgers. Since records indicate that tent campers have increased over the last decade, tenting would be expanded at Mathews Arm. The existing family camping reservation system used for Big Meadows would be expanded to cover camping at Mathews Arm and Loft Mountain.

Because tent campers and trailer/RV campers do not always share the same enthusiasms, and because the noise of vehicles and electric generators can be offensive, certain areas within each campground would be reserved for each use. In this way it is hoped that the clashes in user styles would be ameliorated.

Group camping provides the opportunities for organized youth groups to share a common outdoor experience. This opportunity would be continued at Dundo and initiated at Mathews Arm.

Eating/dining and shopping for souvenirs and camping supplies are necessary components of other activities. If these components cannot be accomplished pleasantly and efficiently, they can lead to a poor experience in the park. Under this alternative, dining and eating services would be expanded at Big Meadows and Elkwallow. Camping supplies, including firewood, would be moved from Elkwallow to Mathews Arm, and shopping opportunities for souvenirs and arts and crafts at Elkwallow would be improved.

As described under alternative V1, future changes in visitor activities, e.g. additions and deletions, would be undertaken in accordance with the criteria explained. Adjustments for club activities, business meetings, and conferences at Big Meadows and Skyland would be made as appropriate.

Shenandoah would continue to be open the year around. The Skyline Drive would be kept open (except the area for snowmobiling) for safe winter travel.

While the overall level of park visitation would continue to depend upon park-external factors, expanded information and orientation programs (especially previsit information) would encourage more visitation. Some adjustment of existing visitor distribution would occur as use was guided to the park perimeter and other less-crowded areas, and as wilderness use lessened. All use would be kept within the capacity of resources and facilities to withstand use without impairment.

Impacts

The following impacts on the socioeconomic environment, management, land base, natural and cultural resources, visitor use, and facilities of Shenandoah National Park and its environs would occur from actions taken under this alternative.

Impacts on the Socioeconomic Environment. A limited expansion of visitor activities would not substantially increase visitor revenues to local communities.

The previsit material and other expanded information and orientation programs to improve visitor use in the park could increase numbers of visitors in local communities. Increased visitor use in the park would increase tourist revenues available to these communities. Possible establishment of new businesses could provide employment opportunities for these communities and add to the tax base of surrounding counties.

Increased expenditure of federal funds for operation, maintenance, and protection would be presumed as a potential addition to local and regional communities. This would be an irretrievable commitment of federal funds.

Increased lodging and camping opportunities in the park could result in a decrease of these business revenues in surrounding communities. However, improved perimeter access to the park could increase tourist revenues to the local communities.

Environmental education programs presented by park personnel to regional schools would provide more educational opportunities.

Increased use of national environmental study areas would provide more educational opportunities for local communities. Providing environmental education programs in local schools and at the national environmental study areas would improve the image of the National Park Service.

The cooperative development of visitor information and orientation services at Rockfish Gap could further improve relations between the National Park Service, the U.S. Forest Service, and state and local tourism-related organizations.

The continued effort to reduce and/or eliminate illegal activities could cause local adverse sentiment toward the park and the National Park Service.

An increase in park perimeter use could increase tourist traffic and parking on local roads, resulting in the possible need for a higher level of state road maintenance and an impairment of the remote setting of park neighbors.

As greater numbers of people visit the park from the perimeter, local residents would be exposed to a wide variety of lifestyles and cultural backgrounds.

Impacts on National Park Service Management. Use of regional radio and television stations and newspapers would require public information personnel to prepare the news releases and visual materials for presentation.

Use of the TIS would require the purchase and use of radio equipment. The purchase and operation of this equipment would require long-term maintenance, with increased costs and staff. Use of the TIS could also require use permits from appropriate agencies, e.g., Federal Communications Commission.

Installation of direct telephone systems would require concurrence at facilities operated by the Virginia Department of Transportation and Virginia Travel Service.

The previsit programs to inform and orient persons to Shenandoah National Park would improve the image of the National Park Service.

Funding for additional facilities and/or personnel for improved visitor contact services related to interpretation and conducted services at Skyland, Thornton Gap, and Rockfish Gap, the Wilderness Interpretive Living Demonstration program (WILD), and the environmental education programs within and outside the park would be required. This would be an irretrievable commitment of federal funds.

Use of snowmobiles on the Skyline Drive would require supervision, necessitating a need for snowmobiles and accessory equipment and the training of personnel in their use.

Additional funding and personnel would be required to implement and manage a sightseeing transportation system. Efforts to reduce illegal or destructive visitor use activities in the park could require an increase in personnel and funding.

Increased perimeter visitor access and use would require additional staffing for patrol and protection.

Management efforts to provide accessibility for handicapped visitors to park programs, services, resources, and experiences would be in compliance with the Rehabilitation Act of 1973. Improvement of unassisted access for handicapped visitors to park programs, services, resources, and experiences would require additional funding.

Increased interpretation of Camp Hoover could increase conflicts with VIP use.

Updating of orientation, information, and interpretive programs would require additional funding.

Information and education programs that required increased National Park Service travel would increase the use quota for petroleum products included in energy conservation goals.

Impacts on Land Base. Expanded visitor use and access at the park perimeter would require donation of additional lands and/or access easements. These lands would be required for access and trail use around the park and information service at Rockfish Gap.

Impacts on Natural Resources. The level and distribution of visitor use could increase effects (such as interaction between wildlife and visitors which could alter animal habits, movements, and distribution) in some areas and reduce effects in other areas.

Improved information and education programs and services would better protect the flora and fauna of the park.

Possible increased visitor use levels would not induce additional impacts on endangered or threatened plant or wildlife species, since none are known to exist in or adjacent to the park.

The reduction or elimination of illegal activities such as vandalism, collecting ginseng, and hunting would help protect vegetation and wildlife of the park.

Local opposition to park efforts to control illegal activities could result in the destruction of natural resources by fires, vandalism, etc.

Snowmobiles wandering off Skyline Drive could adversely affect vegetation.

Increased interpretation of cultural sites (such as Corbin Cabin) could decrease the "wildness" experience of wilderness areas in those portions of the park.

The WILD program would assist in protecting vegetation and wildlife by reducing harmful camping practices.

The possibility of resource erosion or the damage or destruction of natural resources due to vandalism, littering, or man-caused fires could occur at the park perimeter.

The levels of sound and of air and water pollution would increase with increased visitation.

If the stables at Big Meadows were not relocated, the present problems of stable drainage pollution in the wet meadow environment would continue.

Impacts on Cultural Resources. Greater emphasis on the use and interpretation of cultural resources would result in better protection and understanding of those features that qualified (or might qualify) the cultural resource for consideration for the National Register.

Increased interpretation of cultural sites could result in increased damage and vandalism or could lead to greater protection.

Increased visitation from the park perimeter would increase the possibility of damage to or destruction of cultural resources through vandalism, looting, man-caused fires, or resource erosion.

Opposition to park efforts to control detrimental or illegal use activities could result in retaliation in the form of destroying cultural resources by fire, vandalism, etc.

Impacts on Visitors. An improvement in issuing backcountry camping permits would make this procedure more convenient for visitors.

The use of improved visitor information and orientation programs (TIS, direct telephone systems, etc.) would tend to direct motorists to the park, which could increase visitation.

The continued updating and expansion of information, orientation, and interpretive programs would provide more visitor enjoyment of the park.

Increasing and improving visitor information and orientation, including previsit programs such as TIS and direct telephone communications, would expand visitor knowledge of the park and allow visitors to better plan their visits in regards to time and travel distances. Better the planning by visitors could reduce travel costs and use of petroleum products and would provide broader knowledge of park recreational opportunities.

The expanded family camping reservation system would guarantee more visitors campsites upon their arrival. However, visitors who like a first-come/first-served access to campsites could be disappointed.

In spite of previsit informational programs, park-external factors (decreased availability and increased cost of petroleum products) could cause a decrease in the numbers of visitors in automobiles on the Skyline Drive. However an increase in other forms of travel such as bicycles, motorbikes, and bus tours could result.

In spite of park-external factors, the activities and programs to inform visitors could encourage greater visitation levels.

Better previsit information could increase the length of time the visitor remains in the park.

The use of staffed visitor services at Skyland, Thornton Gap, and Rockfish Gap would contribute to the enjoyment of visitors.

The development of a "five senses" interpretation program could improve the use and enjoyment of the park for all visitors.

Increased interpretation of Camp Hoover could increase conflicts with VIP use.

Broadened winter activities could increase visitor use during this period of least use.

Permitting use of snowmobiles in the park could create criticism with user groups mainly interested in encouraging unmechanized uses of the park.

The noise of snowmobiles on a portion of Skyline Drive could affect the solitude of visitors in certain wilderness areas.

Restricting automobile use on portions of Skyline Drive for snowmobile use during the winter and bicycle use in the summer could be an irritant to motoring visitors who would have to change their travel plans.

Sightseeing transportation services would increase visitor enjoyment by providing an uninterrupted viewing of park scenery. Traffic could be reduced on Skyline Drive, which would improve visitor enjoyment of the park. Use of this transportation service would also allow more varied hiking on trails since it would be available to transport hikers to and from trailheads.

An expanded emphasis on hiking, with improved circuitry and a greater variety of hiking experiences throughout the park, would increase visitor appreciation and understanding of resources and the satisfaction of personal achievements.

Minimizing intrusions of nontrail users and automobiles on the Appalachian Trail would improve the safety and quality of experiences for long-distance hikers.

Improvement of horseback riding opportunities in the park would expand the rider's enjoyment of the park. Improving camping for horse riders at Big Meadows would expand visitor use of this portion of the park.

Increased emphasis on varied hiking, especially from the park perimeter, would disperse concentrations of visitors away from the Skyline Drive and other traditional high activity areas. This would result in a more uniform distribution of visitors throughout the park, especially during peak periods. Increased perimeter access would make the less accessible portions of the park available to more people.

Table 15. Summary of Actions and Impacts
Visitor Use and Interpretation Alternatives

	V1 Continued Visitor Use and Interpretation	V2 Expanded Visitor Use and Interpretation
Emphasis	Continue existing programs with minor improvements and upgrading	Same as V1, plus some change and expansion of certain park programs would occur; quality of visitor experiences would improve
Information and Orientation	Maintain present materials and services; upgrade media as necessary; improve issuance of backcountry camping permits	Same as V1, plus develop programs to inform visitors about opportunities, regulations, and patterns of use before they reach the park, at park entries, and within the park
Interpretation	Upgrade programs and media, following existing objectives of fostering understanding and awareness of the environment and maintaining opportunities for compatible public use	Same as V1, plus expand environmental education program inside and outside the park, expand conducted activities to organized group campers, backcountry users, and lodgers; increase interpretation of cultural resources
Visitor Activities	Maintain and encourage compatible existing uses; greatly reduce or eliminate illegal activities; continue to provide accessibility for handicapped; terminate horse rental at Big Meadows	Same as V1, except that horse rental would continue at Big Meadows; expand conducted activities, encourage cross-country skiing; improve hiking, bicycling, wilderness use, sightseeing, horseback riding, and camping; increase overnight stays; permit snowmobiling
Season of Use	Park to be open the year around for hiking, backcountry camping, and driving along Skyline Drive (except when unsafe in winter); family or group camping, lodging, or dining in January and February would not be offered; interpretive services might not be offered at Byrd Visitor Center in winter.	Same as V1, except keep Skyland Drive and Byrd Visitor Center open the year around
Level and Distribution of Use	Continue heavy use on Skyline Drive, along popular trails, and in developments; level would depend on park-external factors	Same as V1, except that there would be some reduced use in the wilderness and other areas as visitors are guided to less popular areas; more use from the edge of the park would occur
Impacts		
Socioeconomic Environment	No increase and possibly a decrease would occur in tourist revenues to local communities; less availability of Skyline Drive during winter could affect local communities; efforts to greatly reduce/ eliminate illegal activities could result in adverse sentiment toward National Park Service	Same as V1, except the Skyline Drive would be open the year around; cooperative efforts to expand park information could increase visitation and tourist revenues and improve the National Park Service image with local communities; educational opportunities would be expanded in the local schools and in the park; increased perimeter use would increase local resident exposure to various lifestyles

	V1 Continued Visitor Use and Interpretation	V2 Expanded Visitor Use and Interpretation
NPS Management	Continued funding would be needed to upgrade visitor information and interpretation, provide access for handicapped visitors, and continue efforts to reduce illegal use activities	Same as V1, plus expanded visitor services would require additional personnel, funding, and facilities; provisions for snowmobiling and bicycling on the Skyline Drive would require additional funding and staffing
Land Base	No changes would result	Some donation of lands and easements would be required to provide perimeter access and visitor services
Natural Resources	Efforts to greatly reduce/eliminate illegal activities could protect park resources, but local resentment could undo park effort; continued levels of visitor use would have no further effects on natural resources; removal of stables at Big Meadows could eliminate potential drainage pollution	Same as V1, plus improved information and education programs would better protect natural resources; careless snowmobile use could reduce wilderness solitude; Big Meadows stables could be located to more environmentally compatible location; redistribution of or use could increase effects in some areas and reduce effects in other areas
Cultural Resources	Local resentment to park efforts to eliminate illegal activities could result in damage or destruction of cultural resources	Same as V1, plus increased interpretation of cultural sites could increase potential damage or destruction, or afford greater protection
Visitor Use	Visitor use would continue at the same level, and illegal use would be reduced; updating information and interpretation and improving issuance of backcountry camping permits would provide more visitor enjoyment; closure of visitor services in winter might cause disappointment. Levels of enjoyment and satisfaction would not change with no new recreational opportunities; removal of stables would reduce horse use at Big Meadows; visitor use would continue to be concentrated along the Skyline Drive	Similiar to V1, with possible increases in visitor use, time spent in the park, and enjoyment, resulting from previsit information orientation programs and an extension of visitor services. Traffic patterns on the Skyline Drive would be altered by use of snowmobiles on portions of the drive during winter and by use of bicycles in summer. The use of sightseeing transportation service(s) could increase visitor enjoyment and decrease automobile use in the park. Improved hiking, horseback riding, routing, and trail circuits would heighten visitor enjoyment of the park; expanded camping would increase overnight stays; some change in distribution of visitor use would occur
Facilities	Existing facilities would remain, except that Big Meadows stables would be removed	Same as V1, except that stables at Big Meadows might be relocated; various facilities would be rehabilitated, relocated, or reconstructed

By encouraging more use in backcountry areas of the park, visitor opportunities for solitude would increase in wilderness areas.

Impacts on Facilities. Development of a traveler information system would require installation of radios and antennae.

Improvement of environmental education could require upgrading the national environmental study areas, especially at Dickey Ridge.

Development of staffed visitor services would require new facilities at Skyland, Thornton Gap, and Rockfish Gap.

Improved interpretive programs would require construction of new, and the rehabilitation of, existing amphitheaters.

Increased horseback riding opportunities would require improvement of circuit and cross-mountain trails and a group horse campground.

Improved hiking and cross-country skiing would require the upgrading and/or relocation of existing trails, as well as some new construction.

To minimize intrusions on the Appalachian Trail, some elimination of road crossings and relocation of the trail would be required.

Trails in wilderness areas would receive a reduced level of maintenance, and some trails would be eliminated in order to improve the solitude of wilderness.

Improved interpretation of cultural resources and better access from the park perimeter would require miscellaneous trails, parking areas, information and interpretation devices, and supporting administrative structures to improve park management.

Introduction of snowmobiling and bicycling would require signs and gates.

Mathews Arm campground would be enlarged for family and group camping.

All campgrounds would have sites designated for tent, RV, or combination use.

Dining/eating facilities at Big Meadows and Elkwallow would require expansion.

Additional lodging units would be required at Skyland, Big Meadows, and Lewis Mountain.

Some of the Elkwallow wayside facilities would be remodeled, and others would be relocated to Mathews Arm.

Big Meadows stables could be relocated to mitigate potential water pollution problems.

MANAGEMENT

General management of Shenandoah is provided by the director of the National Park Service and the regional director of the Mid-Atlantic Region. Onsite, day-to-day management is provided by the superintendent and the assistant superintendent, who administer direct and indirect operational programs of the four divisions of the park staff--Resource Management and Visitor Protection, Interpretation, Maintenance, and Administration.

As directed by the founding legislation of the National Park Service in 1916 and Shenandoah National Park in 1926, the direct operations or primary missions of park management are to protect existing resources, while providing for public use of the same. Choices or alternatives in the future management of these programs of the park have been discussed under the previous topics.

The remaining activities of park management are indirect operations aimed at providing the means and support for direct operations. The future of indirect operations is limited to providing whatever is required, to the greatest extent possible, commensurate with applicable laws, executive orders, departmental and bureau policies, and staffing and funding limitations. The discussion that follows focuses on certain aspects and improvements in the methods and means of managing indirect operations, fulfilling management needs, and meeting management duties, responsibilities, and concerns.

Improvement of overall park protection would require replacing existing exclusive federal jurisdiction with concurrent federal/state legislative jurisdiction, in keeping with the will of Congress expressed in the General Authorities Act, PL 94-458, approved October 7, 1976 (see appendix J). This action would require negotiations with the commonwealth of Virginia for implementation, resulting in an enforcement of both federal and state laws by both federal and state agents.

The numerous tasks involved in the operations of Shenandoah National Park must be conducted at diverse and dispersed locations, and by small groups of persons requiring an assortment of facilities and equipment. Dispersed working places, or "rally points", have been established in locations reasonably central to areas of work or responsibility. For example, management of the park and its four divisions, and administration, and maintenance of buildings, utilities, and motor vehicles are performed in or from Headquarters near Luray. Resource management, visitor protection programs, and road and trail maintenance are performed from three district worksites at Piney River, Big Meadows, and Simmons Gap. Shenandoah's interpretive program is conducted the year around from Big Meadows and seasonally from Piney River and Loft Mountain as well. In order that all tasks may be carried out effectively and efficiently, it is necessary that adequate facilities (quantity, quality, and safe working conditions) be located at various points within the park. The development alternatives that are in following section of this document will address fulfillment of these management needs.

Most of the required activities in the operation of Shenandoah can be performed during a regularly scheduled workday by National Park Service employees who reside outside the park. However, there is a need for a limited number of employees to live within the park in areas that have concentrations of buildings, equipment, and other facilities, and that have high volumes of overnight use. This 24-hour presence is essential for the protection of park resources and public property from fire, theft, and vandalism, and for ready access and availability to visitors of emergency services such as search, rescue, and medical assistance. A minimum level of onsite, round-the-clock protection capability is necessary during low visitation seasons and storms, while an increased level is required during the peak visitation season when a large number of overnight visitors are present.

Over the years, permanent and seasonal employees' residences were permitted and/or required within the park. However, changing congressional and administrative mandates (such as meeting the president's energy conservation goals) and changing conditions around parks (such as expansion of nearby communities and improved road systems) have led the Department of Interior and the National Park Service to reexamine basic requirements for within-park residency in strict accordance with PL 88-459 (an act authorizing government agencies to provide quarters and facilities to civilian officers and employees of the government) and Office of Management and Budget Circular A-18, "Policies on Construction of Family Housing." Therefore, required residencies for full-time and seasonal (subject-to-furlough and temporary) employees would be limited to those shown in the following table. While all of the park staff have obligations to protect park resources and provide visitor services, table 16 indicates additional specific purposes of required residencies at each site.

In addition, it would be necessary to continue to make optional or permitted residency within the park available to some permanent and seasonal employees because of the insufficient supply of suitable purchase and rental quarters that are within a reasonable commuting distance and a price range commensurate with employees' salaries (see appendix K). This would be especially important in the successful recruitment of highly qualified seasonal employees as well as highly mobile National Park Service career employees.

Permitted residency for seasonal and permanent employees would be limited to those shown in table 17.

Table 16. Required Employee Residencies
Within Shenandoah National Park

Sites and Purposes	Full-time Employees	Seasonal Employees		
		Furloughs	Temporaries	
Front Royal/Dickey Ridge: provide road patrol, back-country management, entrance station operations	0	2	0	
Piney River: provide road patrol, backcountry management, campground operations	2	1	3	
Headquarters: provide road patrol, entrance station operations, resource and backcountry management	1[a]	2	2	
Pinnacles/Skyland/White Oak/ Old Rag: provide road patrol, resource and backcountry management	1	0	3	
Big Meadows: provide road patrol, resource and backcountry management, campground and Camp Hoover operations	2	2	2	
Lewis Mountain: provide campground and Camp Hoover operations	0	0	1	
Simmons Gap: provide road patrol, backcountry management, entrance station operations	2	1	1	
Loft Mountain: provide road patrol, backcountry management, campground operations	0	1	3	
Rockfish Vicinity: provide for road patrol, entrance station operations	0	2	0	
Totals	8	11	15	Total 34
Typical Annual Workforce	90	75	85	Total 250
Percent of Required Residences Compared to Typical Annual Workforce	9%	11%	18%	14%

[a]This requirement could be terminated after accomplishment of concurrent legislative jurisdiction.

Table 17. Permitted Employee Residencies Within Shenandoah National Park

Sites and Purposes	Full-time Employees	Seasonal Employees		
		Furlough	Temporary	
Front Royal/Dickey Ridge: provide road patrol, entrance station and visitor center operations, interpretation	0	0	6	
Piney River: provide back-country management, campground operations	0	0	4	
Headquarters: provide entrance station (Thornton Gap) operations, resource management, and parkwide administration	3	0	7	
Pinnacles/Skyland/White Oak/ Old Rag: provide interpretation, backcountry management	0	0	4	
Big Meadows: provide campground and visitor information operation, interpretation, backcountry management	1	1	14	
Loft Mountain: campground operation, resource and backcountry management, interpretation	0	0	12	
Rockfish Vinicity: entrance station operation, visitor information operation	0	0	7[a]	
Totals	4	1	54	Total 59
Typical Annual Workforce	90	75	85	Total 250
Percent of Permitted Residences of Typical Annual Workforce	4%	1%	62%	24%

[a]If visitor information was not provided in the Rockfish vicinity, this number would be reduced to 4.

From time to time programs from the president and/or Congress involve changing the operations and management of the park. One such program is the conservation of energy. The objectives are to retrofit, remove, or

replace energy inefficient buildings and equipment, and to apply the best available technology to energy consuming activities and operations. These objectives will be accomplished in accordance with congressional and presidential guidelines and limitations, and they may include operational travel ceilings and specific mileages and consumption goals.

The management and operation of this large and popular park will continue to require the assistance of others in addition to the park staff. Cooperation with other national, state, and local agencies and organizations would continue to provide mutual benefits concerning protection of the park and surrounding resources and for visitor recreational opportunities.

The Shenandoah Natural History Association would continue to be a valuable supplement to park staff, especially in the area of interpretation and information.

Services provided by the ARA Virginia Sky-Line Company, under a concessions contract, the Shenandoah National History Association, Inc., under a memorandum of agreement, and the Potomac Appalachian Trail Club, under a concessions permit and a memorandum of understanding would continue. If conditions should change, amendments to existing or new agreements or contracts would be undertaken as appropriate, after suitable study. For example, if the sightseeing transportation service(s) proposed under alternative V2 was implemented, visitor use, demand, and/or marketing studies might be required. An economic feasibility study is always required when a capital investment is to be considered. If the sightseeing transportation service should be approved, the National Park Service would issue a statement of requirements prospectus seeking proposals from any and all interested parties, including (but not limited to) the ARA Virginia Sky-Line Company. Similarly if the proposals under V2 to expand, improve, and/or relocate existing concessioner services were determined to be necessary and appropriate, the National Park Service would inform the concessioner, and both parties would perform independent and/or cooperative financial analyses.

Other assistance to park staff would continue as available from the following special programs (or successors):

CETA - Comprehensive Educational Training Act for economically underprivileged persons, which is paid by non-NPS federal and state funds; includes Youth Conservation Corp (YCC) where youth (16 to 18 years old) participate in conservation projects, Student Youth Employment Programs (SYEP) for high school youth, and Special Program for Educational Deprived Youth (SPEDY) to provide an opportunity to gain a work experience.

College student programs operate under training/work agreements between colleges and universities and the National Park Service. The program includes the Cooperative Education Program (COOP), where students with a career interest in the National Park Service work for either salaries or the College Practicum Program as part of their school curriculum.

Volunteers-in-Parks (VIP), where volunteers of all ages donate their services and skills

Student Conservation Association (SCA), where students studying conservation provide services and receive certain living expenses from the park and small subsistence grants from the SCA.

Deputy Park Rangers (DPR), where law enforcement officers from other agencies, such as state forest wardens, provide special limited protection services.

In addition to staff responsibilities within the park, Shenandoah management has been designated by the Appalachian Trail Project Office as the government agency to provide backup support to the Potomac Appalachian Trail Club for the portions of the Appalachian National Scenic Trail between Rockfish Gap and the southern park boundary and between the northern boundary and I-66. It is expected that this support will consist primarily of consultation on planning, resource protection, visitor use, and maintenance.

The above discussion indicates some of the activities that would occur in the next decade as presidential/congressional management programs are carried out and changes are made according to National Park Service planning documents, such as the new general management plan that will result from this Environmental Assessment. Shenandoah National Park management, as well as that of other offices of the National Park Service (Mid-Atlantic Regional Office, Harpers Ferry Center, and Denver Service Center), would be involved in maintaining the continuing viability of the park. Sufficient funds, personnel, and operational ceilings, e.g., travel and energy, would be sought, but constant management vigilance and effort would be required in these times of economic uncertainty, limited budgets, and overriding national priorities.

Impacts

The following impacts on the socioeconomic environment, management, land base, natural and cultural resources, visitor use, and facilities of Shenandoah National Park and its environs would occur from park management actions.

Impacts on the Socioeconomic Environment. Establishment of concurrent jurisdiction could result in better cooperation between the National Park Service and state and county officials since federal and state officers could enforce both federal and state laws. Establishment would require agreement on procedural details and acceptance by the commonwealth of Virginia.

Special programs, such as the Comprehensive Educational Training Act, would continue to provide training and employment for people in adjacent communities, thereby benefiting those communities and developing better relationships between the communities and the National Park Service. These programs would require continuing federal funds. However, the

only allocation provided by the National Park Service would be for supervisory personnel.

The Volunteers-in-Parks program would continue to provide opportunities for some people to donate their skills and talents. Other people could gain an opportunity to acquire practical experience, and local residents would better understand the park and its policies.

The college student programs would continue to provide practical experience for college or university students interested in careers with the National Park Service.

The continuing policy of providing required and permitted park residencies could tend to restrict informal communication of information, concerns, and knowledge between park employees and citizens in the local communities, and it would result in withholding some opportunities for real estate rentals and other transactions in local communities.

Continuing energy conservation programs would set an example of efficient use and husbanding of natural resources.

Impacts on National Park Service Park Management. Establishment of concurrent jurisdiction in Shenandoah National Park would be in accord with congressional mandates as defined in the General Authorities Act (PL 94-458) and the expressed desires of the Secretary of the Interior.

Establishment of concurrent jurisdiction could result in better law enforcement within the park since federal and state laws could be enforced by both federal and state officers.

The determination to allow certain National Park Service employees to reside in the park would be in compliance with PL 88-459 and Office of Management and Budget guidelines.

National Park Service personnel residing in the park would continue to provide round-the-clock protection for visitors, the resources, and public property.

Continuation of residencies could help in the recruitment of more qualified persons for seasonal and full-time positions.

National Park Service personnel residing in the park could reduce commuting, and therefore reduce energy consumption, provide for better communications between employees, and provide more effective contacts with visitors because employees would have a greater understanding of the park.

Employees required to reside in the park would be restricted in the opportunity to acquire real estate equity, and the opportunity to interact in local community affairs.

Continuation of programs, such as the Comprehensive Educational Training Act, would provide some park maintenance and clerical work at reduced costs to the National Park Service.

The VIP program would continue to provide interpretive/information services at reduced costs to the National Park Service.

The DPR program would continue to provide park protection at a minimum cost to the National Park Service.

Energy conservation programs could restrict some operational services such as offsite interpretation, employee training, interagency coordination, and road patrol. Funds saved would be available for other purposes.

Impacts on Land Base. No changes in the park land base would be required, except that needs for park residencies in the Rockfish and Old Rag areas could require additional land.

Impacts on Natural Resources. The continued presence of National Park Service personnel living within the park would help provide some protection for natural resources.

Impacts on Cultural Resources. The continued presence of National Park Service personnel living within the park would help provide protection for cultural resources.

Impacts on Visitors. The continued presence of National Park Service personnel living within the park would provide protection for visitors through readily available emergency services.

National Park Service personnel living within the park would continue to provide high-level interpretation, information, and orientation services.

The services provided by the ARA Virginia Sky-Line Company, the Potomac Appalachian Trail Club, the Shenandoah Natural History Association, Volunteers-in-Parks, and the Student Conservation Association would continue to enhance visitor experiences.

Impacts on Facilities

Energy conservation programs would require that inefficient buildings and equipment be retrofitted, replaced, or removed.

Employee residency needs would require construction of new quarters in certain areas, upgrading in other areas, and removal or conversion to different uses in other areas.

Certain maintenance and administrative facilities would need to be either replaced or removed and new ones constructed to provide efficient operation of the park.

DEVELOPMENT

Development within Shenandoah National Park is limited to those facilities necessary for the resource protection, visitor enjoyment, and management of the park. Facilities provide access to sections of the park, different types of accommodations for visitors, and the infrastructure for park operations and administration. As mentioned earlier, changing uses, general deterioration, old temporary structures, and increasing health, safety, accessibility, and energy standards have made many facilities inadequate.

The three development alternatives offer reasonable courses of action available to park management for the next ten years. The primary difference between the alternatives is the level of intensity. The first alternative would involve continued maintenance, repair, and adaptive use of facilities through normal, routine procedures within the park's operating budget or as special programs became available. The second alternative would , focus on improvement or replacement of existing facilities beyond the level of routine maintenance, without increasing the overall amount of development in Shenandoah. The third alternative would include some new construction, mostly within existing developed areas, which would improve and slightly expand visitor use and management operations.

All proposed facilities would be constructed with universal, barrier-free designs, making facilities accessible to all people in accordance with the existing official standard, ANSI A 117.1, R1980, American National Standard specifications, for making buildings and facilities accessible and usable by the physically handicapped. Applicable sections of the Rehabilitation Act of 1973 would be followed, and up-to-date guides and codes would be incorporated as they were established.

All actions proposed under these alternatives would comply with the regulations of the president's Advisory Council on Historic Preservation, the National Historic Preservation Act of 1966, and section 2(b) of Executive Order 11593 as appropriate. Mitigating measures, such as archeological surveys of proposed development sites, compatible and complementary designs of new facilities, and the screening of potential intrusive developments are described in further detail in appendix I.

Any site proposed for development changes would be surveyed for any possible endangered plant and animal habitats (PL 93-205, Endangered Species Act) and wetlands (EO 11990, Wetlands Protection) so that damage to habitats would be minimized or avoided. Normal construction disturbance would be minimized, and disturbed areas would be restored by revegetation with native plants. Similarly all actions proposed would comply with the National Trail Systems Act of 1968 and Executive Order 12088, Federal Compliance with Pollution Control Standards.

The design of new facilities would be of high aesthetic and functional quality. New facilities of contemporary design would be in harmony with the landscape and other existing structures through the studied use of proportion, color, and texture. Energy conservation would be applied

through use of state-of-the-art technology and maximum site orientation possibilities. New and replacement electric and telephone utility lines would be installed underground.

ALTERNATIVE D1 - CONTINUED REPAIR AND ADAPTATION OF EXISTING FACILITIES

Under this alternative, the existing facilities would continue to be patched, repaired, and adapted under normal, routine maintenance. This maintenance would include minor rehabilitation and improvement whenever possible, such as upgrading water supplies, making designated comfort stations accessible to the handicapped, increasing energy efficiency, lessening general deterioration, making modifications to overcome poor siting or inadequate size, and adding smoke detectors and other safety improvements. The functions and services of most facilities would continue at present levels and at existing locations.

An energy demonstration project begun in September 1979 identified operational, administrative, and physical modifications to reduce the overall consumption of energy for existing facilities. Insulation, weatherstripping, storm windows, heat pumps, flourescent lighting, vestibules, air curtains, and clock thermostats would continue to be installed as energy conservation measures.

Roads and Trails

The Skyline Drive would continue to be patched and repaired as needed when funds were available. Signs and guardrails would be improved as needed.

The Appalachian Trail would be maintained in its present location. Other park trails, including nine existing stroller trails, would continue to be maintained and adjusted, while the circulation pattern would remain basically unchanged. Deteriorating and poorly located trails would be repaired or relocated as possible. Except for Weakly and Berry hollows, trailhead parking around the park perimeter would continue to be along roadsides.

Information, Orientation, and Interpretation Facilities

The interior space of the entrance station at Thornton Gap and Rockfish would be remodeled to accommodate backcountry permit distribution. The lobbies of the Byrd Visitor Center and Headquarters would be remodeled to improve information, distribution of permits, sales, and directions. The Headquarters lobby and adjacent restrooms would be made accessible to the handicapped.

The audiovisual room of the Dickey Ridge Visitor Center would receive new seating, drapes, and other improvements. Projection booths in both visitor centers would be remodeled and provided with new movies. At Big Meadows, some exhibits and lighting would be improved.

Thirteen new orientation shelters with visitor information would be located near entry points or high use areas such as the Headquarters, Skyland, and McCormick Gap (first overlook from the south entrance). At 30 overlooks parkwide, exhibits would relate such features as natural and human histories, and would replace existing routed wood signs. New exhibits would also be produced to interpret the Big Meadows, Skyland, and Camp Hoover areas. About 30 new trailhead exhibits would recommend hiking routes and destinations with pertinent information. Five of these exhibits would require new trailhead parking areas.

Campgrounds and Picnic Sites

Campsites and picnic sites would be routinely maintained and repaired, including thinning trees, regrading existing tent pads, and adding new tent pads. Deteriorated stone fireplaces would be replaced with steel fireplaces. Several camp and picnic sites would be improved and reserved for handicapped use at each area. At least one washroom in each picnic area and family campground would be accessible to the handicapped. Through observation of use patterns, single picnic tables adjacent to some overlooks would be added or relocated.

Campground reservation outlets at Headquarters and the trailer at Big Meadows would be continued, with additional trailers at Mathews Arm and Loft Mountain if the program was extended.

Concession Operations

Cabins and huts operated by the Potomac Appalachian Trail Club would be maintained.

Of the ARA Virginia Sky-Line Company facilities, one washroom would be made accessible to the handicapped in the Skyland restaurant and the Panorama wayside. Other facilities have at least one restroom fully accessible now. One lodging room at Big Meadows and two at Skyland would continue to be accessible. These would be reserved for handicapped visitors until all other units were full. Also, accessibility would be improved in the Skyland restaurant. As the need arose, rehabilitation of concession employee housing at Big Meadows and Skyland would take place.

The Elkwallow wayside building would be remodeled to expand and improve food service. Other facilities would receive minor changes in decor, furnishings, and layout to improve usefulness.

NPS Operations and Employee Housing

Existing maintenance shops, storage space, and vehicle storage bays would be improved and slightly expanded at Headquarters, Piney River, Big Meadows, and Simmons Gap. Temporary operational buildings such as office trailers would continue to be used, maintained, and replaced with similar temporary facilities as necessary.

As indicated in table 18, the best existing employee quarters within each area of the park would be maintained and improved in energy efficiency for required employee occupancy (see discussion in "Management" section). Other quarters would be maintained for seasonal employee occupancy. In areas where residency needs could not be met, quarters for permitted residency of temporary employees would not be fully available. Temporary residential trailers would continue to be used, relocated, maintained, or replaced with surplus government trailers as necessary and available, although energy efficiency of these structures would not be achieved. Unneeded quarters would be converted to other maintenance or administrative uses.

Subject to the availability of existing facilities, quarters for full-time employees would consist of a two- or three-bedroom unit, while temporary employee quarters would consist of an efficiency/one bedroom apartment or dormitory (bedroom) type unit. For half the subject-to-furlough employees, quarters would be as for full-time employees, with the other half as for temporary employees.

Miscellaneous Buildings

The unused USDA Beef Cattle Research Station structures and the Snead Farm barn would be allowed to deteriorate. The U.S. Customs Detector Dog Training Center would continue, and if ever abandoned, other uses or removal would be considered.

Utilities

Sewage collection and septic systems would be repaired or replaced as problems arose, or as part of routine maintenance where 30- to 40-year old systems were replaced at a rate of around 2,000 feet of collection pipe per year and one septic system per year. If any phosphate problems arose at the Skyland or Big Meadows wastewater treatment facilities because of concessioner laundries, the laundry operations would be returned to Panorama.

Water supplies would be improved to meet increasing state standards by modifying intakes, repairing pipes, and disinfection. This project is to be completed by 1983.

A continuing effort would be made to improve telephone service by negotiating with the several telephone companies for additional lines and equipment to increase service.

All existing borrow pits and sites used for fill dirt would be phased out in five years, and new sites or pits would not be initiated. Future needs for fill would be met from sources outside the park.

Table 18. Employees Quarters, Alternative D1

Area	Needed Units		Existing Units (no. of bedrooms)			Proposed Units			Remarks
	Family	Apt.	Family	Apt.	Trailer	Family	Apt.	Trailers	
Front Royal	1	7	2 (6)	-	-	1	3	-	
Dickey Ridge			-	-	4 (11)	-	-	4 apts	Move 2 trailers to Big Meadows
Piney River	3	7	-	-	6 (15)	-	-	3 family 7 apts	
Headquarters	5	10	11 (34)	-	-	5	10	-	Convert 3 houses to other uses
Pinnacles	1	7	1 (2)	-	3 (6)	-	-	4 apts	Remove 1 house; move 1 trailer to Big Meadows
Skyland			-	2 (2)	-	-	-	-	
White Oak			1 (2)	1 (1)	-	1	1	-	
Old Rag			-	-	-	-	-	-	
Big Meadows	5	17	1 (2)	8 (8)	3 (6)	1	8	1 family 11 apts	Three trailers moved in from other areas; shortage of quarters for 1 permitted temporary employee
Lewis Mountain	-	1	-	-	-	-	-	-	Shortage of quarters for 1 required temporary employee
Simmons Gap	3	1	1 (3)	-	2 (6)	1	-	1 family 2 apts	
Loft Mountain	1	15	-	-	5 (12)	-	-	1 family 10 apts	Shortage of quarters for 5 permitted temporary employees
Sawmill Run	1	5[a]	-	-	1(3)	-	-	1 family	Shortage of quarters for 1 required and 4 temporary employees
TOTALS	20	70	17 (49)	11 (11)	24 (59)	9	24	45 (7 family 38 apts)	Shortage of 12 quarters

[a]Without a visitor information facility in the Rockfish vicinity

Impacts

The following impacts on the socioeconomic environment, management, land base, natural and cultural resources, visitor use, and facilities of Shenandoah National Park and its environs would occur from actions taken under this alternative.

Impacts on the Socioeconomic Environment. Expenditure of federal funds for operation, maintenance, and construction would be presumed to continue as an addition to local and regional economies, resulting in an irretrievable commitment of federal funds.

Maintenance of park employee quarters would hinder opportunities for local businesses to rent or sell real estate.

Providing quarters for some park employees could restrict informal communications between local communities and National Park Service employees.

Trail trespass over adjacent private land would increase when trail access along the park perimeter was eliminated.

The continued closing of perimeter accesses across private property would make the park less accessible to local residents and would reduce visitor traffic, and therefore reduce revenue for tourist-related services on local roads. Lack of perimeter parking facilities would cause continued parking on local roads, adversely affecting the traffic conditions.

Parking areas at Weakly and Berry hollows would partially relieve traffic conditions in the vicinity of these areas.

Reduction of energy consumption would set an example for local communities, the state and the nation.

Impacts on National Park Service Management. Only small expenditure of additional capital funds would be required because only minor improvements would be accomplished. The commitment of funds for operation and maintenance of park facilities would be an irretrievable loss.

The various methods of conserving energy in existing buildings, such as insulation, weatherstripping, storm windows, vestibules, air curtains, flourescent lighting, and clock thermostats, would result in short-term costs and long-term energy savings.

The upgrading of water supply systems and improving wastewater treatment would require compliance with state regulations.

Improved access for handicapped visitors to park programs, services, resources, and experiences would be in compliance with PL 93-112 (Rehabilitation Act of 1973).

Maintenance shops and storage areas that would be upgraded or expanded would improve the maintenance and operations of the park.

Significant deterioration of the Skyline Drive's foundation would continue to tax the capability of the park's maintenance staff to continue the road's usability.

Provision of quarters within the park for certain National Park Service employees would be in compliance with PL 88-459, which authorizes government agencies to provide quarters and facilities to civilian officers and employees, and the Office of Management and Budget guidelines.

Some employees would continue to be required to live in less than satisfactory housing.

Lack of quarters for two required employee residences in the Lewis Mountain and Sawmill Run (Rockfish) areas could affect adequate resource and visitor protection in these areas after regularly scheduled work hours.

Lack of quarters for ten permitted employee residences in the Big Meadows, Loft Mountain, and Sawmill Run (Rockfish) areas could affect the recruitment of temporary employees to work in these areas. People employeed in temporary positions may also be required to commute beyond maximum guidelines outlined in the Office of Management and Budget Circular A-18.

Impacts on Land Base. Continued maintenance and operation of existing park developments would require no change in the existing park land base.

Impacts on Natural Resources. Temporary disruptions of the natural environment would occur at specific locations of certain rehabilitation and maintenance operations.

No net permanent loss of natural vegetation would result from actions under this alternative.

Discontinuation of borrow pits would allow these areas to revegetate.

NPS employees residing in the park would help protect natural resources.

Impacts on Cultural Resources. National Park Service employees residing in the park would help protect cultural resources.

Routine maintenance of the Skyline Drive would be inadequate for its long-term preservation.

Impacts on Visitors. Overall use of the park, including opportunities for solitude, would remain at present levels.

National Park Service employees residing in the park would provide readily available emergency services to visitors.

Because routine maintenance cannot keep pace with the deterioration of the Skyline Drive's foundation, visitor enjoyment and safety would become increasingly impaired.

The repair of some trials and relocation of others could improve visitor safety and offer more opportunities for enjoyment.

The continued use and/or extension of campground reservation facilities would improve enjoyment of the park by allowing people to better plan their visits.

Continued improvement of campsites and picnic sites would enhance visitor camping and picnicking.

Campers at Mathews Arm would continue to experience some inconvenience because camping supplies and showers would not be available at the campground .

Horseback riding campers would be required to take care of their own water supply and sewage disposal needs.

Picnicking could be interrupted by unexpected inclement weather, except at Pinnacles.

Upgrading at Elkwallow wayside would improve food service.

During peak periods, visitors would continue to experience congestion and inconvenience at Thornton Gap and Rockfish. Waiting lines for dining at Big Meadows would also inconvenience visitors as would lack of space at Dundo group campground, Big Meadows amphitheater, Skyland conference hall, and upper level parking at Panorama.

Insufficient previsit and entrance area sources of information/orientation would hinder visitor knowledge of road closures, lodging availability, and opportunities for enjoyment, thus affecting use of the park. Similarly, lack of an information/orientation/ interpretation facility at Skyland would limit the opportunity for overnight guests to use the park more fully. The continued updating of existing facilities and new orientation/information shelters would alleviate this to some degree.

Improving access and other facilities for handicapped visitors would permit unassisted use of more areas within the park. These facilities would offer a convenience to senior citizens, parents with children, and others, but some visitors might consider them an inconvenience.

Impacts on Facilities. Continued maintenance and repair of existing structures would help maintain their long-term existence.

Efforts of the National Park Service to reduce energy consumption through the use of storm windows, caulking, and insulation would improve the use and extend the longevity of existing structures.

ALTERNATIVE D2 - IMPROVE AND REPLACE EXISTING FACILITIES

In addition to normal, routine maintenance and minor rehabilitation as described under D1, existing facilities would be improved or replaced under this alternative. Some structures, notably temporary buildings,

would be replaced with more permanent structures of a similar size. The increase in the overall amount of development within Shenandoah would be minimal.

Roads and Trails

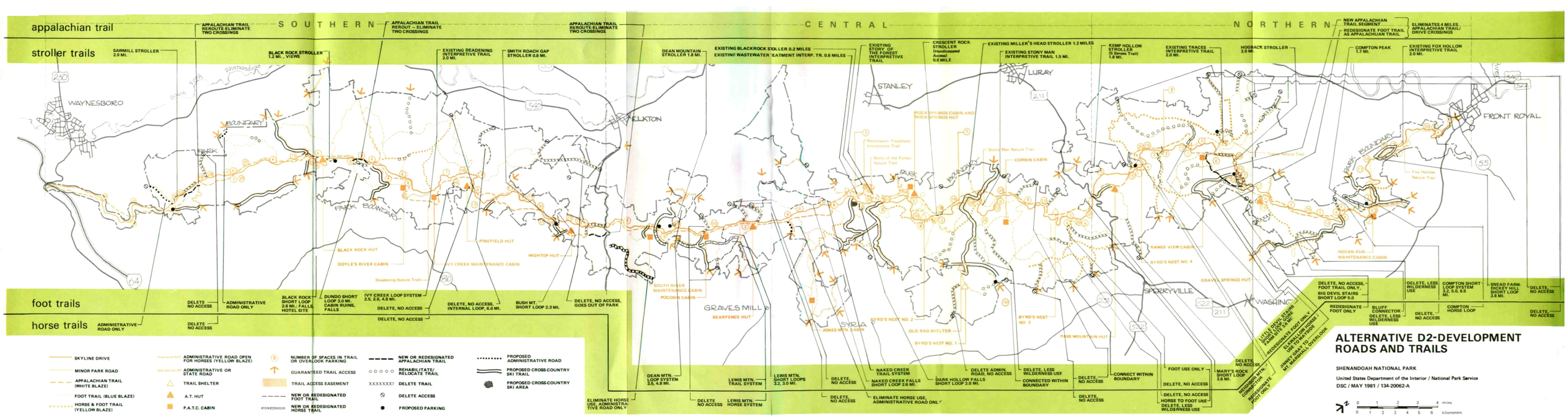
Skyline Drive's deteriorated chestnut cribbing, crushed drainage structures, and crumbling guardwalls would be totally rehabilitated. The base and drainage structures would be replaced along the same road alignment. Stone guardwalls would be reconstructed and added as required; the design would be of similar stone character, and safety benefits would be increased. Directional and safety signs would be improved. To reduce disruptions to visitors, actual work would be scheduled for nonpeak visitation periods to the greatest extent possible.

Most of the Appalachian Trail would be maintained in its present location, except that the number of trail crossings of the Skyline Drive would be reduced from 29 to 19 by rerouting 6 miles of trail. The overall length of the trail would be decreased by approximately 1 mile, and about 4 miles of new trail would be constructed.

There would be little change (about 1 mile) in the overall length of other park trails under this alternative, but circulation would be modified. In addition to designating nine existing short trails (under 2 miles) as strollers, eight new strollers would be created from overlooks and other points along the Skyline Drive. Short, easy hiking trails approximately every 6 miles along the drive would be provided. Increased facilities of this type would offer visitors an opportunity to see the views, cultural resources and natural features that were previously only available to those visitors who were willing to take more lengthy and difficult hikes. A few trails, such as Crescent Rocks, would be paved and made relatively level for the handicapped. One stroller, such as Kemp Hollow, would encourage visitors to use all of their senses and would be negotiable by all people.

Nineteen new short loops (2 to 5 miles long) would be created outside the designated park wilderness areas and would be accessible from the drive. Some hiking trails in the wilderness, such as the Hazel Mountain area, would be eliminated. Other hiking trail systems in areas such as Lewis Mountain and Dean Mountain would be improved. Similarly, some horse trails in wilderness areas, such as below Mount Marshall, would be eliminated; other areas, such as South River and Neighbor Mountain, would be improved by adding more trails and connections to permit better circuitry and viewing opportunities. Sixteen miles of hiking and horse trails would be rehabilitated to improve standards or relocated so that visitors could get closer to nearby features. There would be a net loss of 8 miles of hiking trails and 6 miles of horse trails in wilderness areas.

Park perimeter trail accesses that require crossing private land would be discouraged by eliminating the corresponding trail within the park, and by marking only guaranteed access points in park literature. This action would eliminate 31 access points and 20 access trails.



ALTERNATIVE D2-DEVELOPMENT ROADS AND TRAILS

SHENANDOAH NATIONAL PARK

United States Department of the Interior / National Park Service

DSC / MAY 1981 / 134-20062-A

About 65 miles of cross-country ski trails would be designated along certain existing trails and along administrative and fire roads that have appropriate width and grade. These would be cleared of treefalls and other impediments before each snow season, signed for easy identification, and indicated in park literature.

A new 100-car parking area would be constructed on existing park land at Weakly Hollow to replace the facility that is currently located on leased property. Vault toilets would be installed at Weakly and Upper Berry hollows trailhead parking areas.

Under this alternative, the net change in the overall length of trails would remain about the same, with a reduction of about 15 miles of trail in wilderness areas (shown on the Development: Roads and Trails map). Circulation would become more internalized, with greater emphasis upon access from the Skyline Drive. Ten new small trailhead parking areas (5 to 25 cars) along the Skyline Drive would help to accommodate visitors, and there would be increased facilities for hikers on short-loop trails, strollers, and horseback riders.

Information, Orientation, and Interpretation Facilities

At the Front Royal entrance station, ten additional parking spaces would be provided for employees and for people obtaining backcountry permits.

The Thornton Gap entrance station building would be remodeled and slightly expanded to better accommodate backcountry campers who were planning trips or acquiring permits. A fee collection booth would be added, and one booth would be moved to form three inbound lanes to separate moving traffic from the building and to provide for ten parking spaces for employees and people obtaining backcountry permits. Improved signs would notify motorists in advance of the entrance station, parking for permits, and the immediate road split for north- or south-bound traffic along the Skyline Drive.

About ten additional parking spaces would be provided at the Rockfish entrance station for visitors obtaining permits. The Rockfish entrance station would be lengthened to provide counter space for issuing backcountry permits. The road would be widened to provide two inbound lanes and ten parking spaces for employees and people obtaining permits.

The Snead Farm barn would be converted into an environmental education classroom (with restrooms) for use by school groups and others during the warm seasons. A visitor contact station would be established in the Massanutten Cabin at Skyland.

As described under alternative D1, the visitor center lobby at Big Meadows and the audiovisual room at Dickey Ridge would be remodeled and movies would be updated. Accessibility for the handicapped to the Headquarters lobby and adjacent restrooms would be improved. Also, a new permanent, year-round comfort station would be constructed at Dickey Ridge to replace the existing portable facility.

Thirteen new orientation shelters, 30 overlook exhibits, and about 30 trailhead exhibits would be installed throughout the park as described under alternative D1.

Interpretive displays at the Big Meadows wastewater treatment plant would be improved.

Improvements would be made in amphitheater facilities. At Mathews Arm, the amphitheater would be regraded and surfaced for wheelchairs. At Skyland, a rustic amphitheater without audiovisual capabilities would be constructed. Within the existing site, the Big Meadows amphitheater would be reconstructed with a capacity for 400, an improved stage, upgraded lighting, and circulation and access for wheelchairs.

Travel information stations would be established along interstates or major highways leading to the park to provide short, taped AM radio messages to people approaching the park. Each installation would consist of an antenna or buried cable, message player, a power source, and at least one roadside sign to advise motorists of the facility and its frequency. Stations would also be provided at the four park entrances.

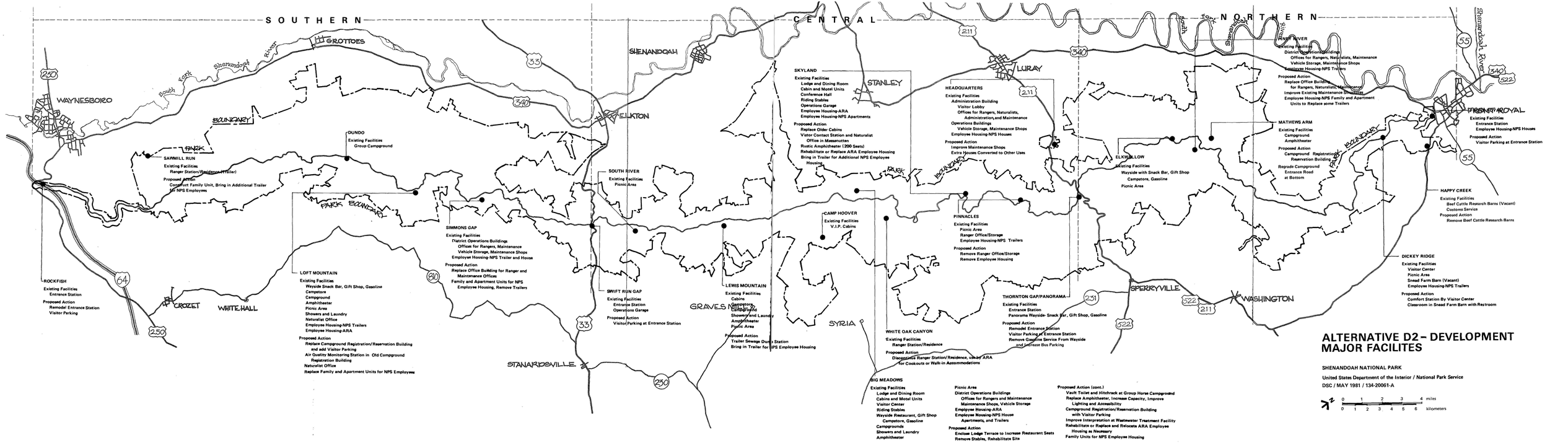
Several direct telephone lines would be established along interstates or major highways leading to the park to provide longer and more detailed taped messages directly from the park. They would be located at places along Interstate 66, such as near Manassas. Further study and coordination with the Virginia Travel Service, Virginia Department of Transportation, and other appropriate agencies would finalize locations.

Campgrounds and Picnic Sites

Campsites and picnic sites would be routinely maintained and repaired, additional tent pads built, deteriorated stone fireplaces replaced, several handicapped accessible sites designated at each area, and isolated picnic tables located adjacent to some overlooks, as described under alternative D1. One comfort station in each picnic area, two in each family campground, and the Dundo vault toilet would be made accessible to people using wheelchairs.

Other improvements would include providing wheelchair accessibility at all Dundo group campsites, lessening the steep grade of the Mathews Arm access road, adding hitch racks and a vault toilet (without running water) at the Big Meadows group campground for horseback riders, and constructing a trailer sewage dump station at Lewis Mountain campground.

The campground reservation outlet at Big Meadows would be located in a new permanent building, incorporating campground registration and adequate adjacent parking. New buildings for this function would also be constructed at Mathews Arm and Loft Mountain if the program is expanded. The reservation outlet at Headquarters would continue. If, however, the reservation program was not expanded, a new registration building would be constructed at Loft Mountain, and if the entire reservation program should be terminated, a new registration building would be constructed at Big Meadows.


SOUTHERN
CENTRAL
NORTHERN
South Fork Shenandoah River
North Fork Shenandoah River
WAYNESBORO
GROTTOES
SHENANDOAH
ELKTON
STANLEY
LURAY
FRONT ROYAL
BOUNDARY
PARK
SAWMILL RUN
Existing Facilities
Ranger Station/Residence (Trailer)
Proposed Action
Construct Family Unit, Bring in Additional Trailer for NPS Employees
DUNDO
Existing Facilities
Group Campground
SOUTH RIVER
Existing Facilities
Picnic Area
SIMMONS GAP
Existing Facilities
District Operations Buildings
Offices for Rangers, Maintenance
Vehicle Storage, Maintenance Shops
Employee Housing-NPS Trailer and House
Proposed Action
Replace Office Building for Ranger and Maintenance Offices
Family and Apartment Units for NPS Employee Housing, Remove Trailers
LOFT MOUNTAIN
Existing Facilities
Wayside Snack Bar, Gift Shop, Gasoline
Campstore
Campground
Amphitheater
Picnic Area
Showers and Laundry
Naturalist Office
Employee Housing-NPS Trailers
Employee Housing-ARA
Proposed Action
Replace Campground Registration/Reservation Building and add Visitor Parking
Air Quality Monitoring Station in Old Campground Registration Building
Naturalist Office
Replace Family and Apartment Units for NPS Employees
ROCKFISH
Existing Facilities
Entrance Station
Proposed Action
Remodel Entrance Station
Visitor Parking
CROZET
WHITE HALL
SWIFT RUN GAP
Existing Facilities
Entrance Station
Operations Garage
Proposed Action
Visitor Parking at Entrance Station
GRAVES MOUNTAIN
LEWIS MOUNTAIN
Existing Facilities
Cabins
Campstore
Campground
Showers and Laundry
Amphitheater
Picnic Area
Proposed Action
Trailer Sewage Dump Station
Bring in Trailer for NPS Employee Housing
STANARDSVILLE
SYRIA
SKYLAND
Existing Facilities
Lodge and Dining Room
Cabin and Motel Units
Conference Hall
Riding Stables
Operations Garage
Employee Housing-ARA
Employee Housing-NPS Apartments
Proposed Action
Replace Older Cabins
Visitor Contact Station and Naturalist Office in Massanutten
Rustic Amphitheater (200 Seats)
Rehabilitate or Replace ARA Employee Housing
Bring in Trailer for Additional NPS Employee Housing
HEADQUARTERS
Existing Facilities
Administration Building
Visitor Lobby
Offices for Rangers, Naturalists, Administration, and Maintenance
Operations Buildings
Vehicle Storage, Maintenance Shops
Employee Housing-NPS Houses
Proposed Action
Improve Maintenance Shops
Extra Houses Converted to Other Uses
CAMP HOOVER
Existing Facilities
V.I.P. Cabins
PINNACLES
Existing Facilities
Picnic Area
Ranger Office/Storage
Employee Housing-NPS Trailers
Proposed Action
Remove Ranger Office/Storage
Remove Employee Housing
WHITE OAK CANYON
Existing Facilities
Ranger Station/Residence
Proposed Action
Discontinue Ranger Station/Residence, Use by ARA for Cookouts or Walk-in Accommodations
THORNTON GAP/PANORAMA
Existing Facilities
Entrance Station
Panorama Wayside- Snack Bar, Gift Shop, Gasoline
Proposed Action
Remodel Entrance Station
Visitor Parking at Entrance Station
Remove Gasoline Service From Wayside and Increase Bus Parking
SPERRYVILLE
WASHINGTON
BIG MEADOWS
Existing Facilities
Lodge and Dining Room
Cabins and Motel Units
Visitor Center
Riding Stables
Wayside Restaurant, Gift Shop
Campstore, Gasoline
Campgrounds
Showers and Laundry
Amphitheater
Picnic Area
District Operations Buildings
Offices for Rangers and Maintenance
Maintenance Shops, Vehicle Storage
Employee Housing-ARA
Employee Housing-NPS House Apartments, and Trailers
Proposed Action
Enclose Lodge Terrace to Increase Restaurant Seats
Remove Stables, Rehabilitate Site
Proposed Action (cont.)
Vault Toilet and Hitchrack at Group Horse Campground
Replace Amphitheater, Increase Capacity, Improve Lighting and Accessibility
Campground Registration/Reservation Building with Visitor Parking
Improve Interpretation at Wastewater Treatment Facility
Rehabilitate or Replace and Relocate ARA Employee Housing as Necessary
Family Units for NPS Employee Housing
ELKWALLOW
Existing Facilities
Wayside with Snack Bar, Gift Shop
Campstore, Gasoline
Picnic Area
MATHEWS ARM
Existing Facilities
Campground
Amphitheater
Proposed Action
Campground Registration/Reservation Building
Regrade Campground Entrance Road at Bottom
HAPPY CREEK
Existing Facilities
Beef Cattle Research Barns (Vacant)
Customs Service
Proposed Action
Remove Beef Cattle Research Barns
DICKEY RIDGE
Existing Facilities
Visitor Center
Picnic Area
Snead Farm Barn (Vacant)
Employee Housing-NPS Trailers
Proposed Action
Comfort Station By Visitor Center
Classroom in Snead Farm Barn with Restroom
ALTERNATIVE D2 – DEVELOPMENT
MAJOR FACILITES
SHENANDOAH NATIONAL PARK
United States Department of the Interior / National Park Service
DSC / MAY 1981 / 134-20061-A
0 1 2 3 4 miles
0 1 2 3 4 5 6 kilometers

Concession Operations

The cabins and huts operated by the Potomac Appalachian Trail Club would be maintained in place.

Of the ARA Virginia Sky-Line Company facilities, a comfort station at the Panorama wayside would be made accessible to the handicapped, and the gasoline service would be eliminated to provide more parking and reduce congestion. The Elkwallow building would be remodeled so that food service could be expanded and improved. Other facilities would receive minor changes in decor, furnishings, and layout to improve usefulness.

At Big Meadows the horse stable operation would be removed and its site rehabilitated to a natural condition. The terrace of the Big Meadows Lodge would be enclosed to provide more space for dining.

Deteriorated cottages at Skyland, such as Maple and Wildwood (but not the historic cabins listed in appendix D), would be replaced with new units containing the same number of rooms and at the same location.

The White Oak ranger station would be rented to the ARA Virginia Sky-Line Company to use for walk-in/horse-in concession sponsored outings or walk-in overnight lodging.

As described under alternative D1, handicapped people would have access to washrooms at Big Meadows and Skyland lodges and lodging units at Big Meadows and Skyland would be reserved until all other units were full. In addition, two lodging units at Lewis Mountain would be made accessible and reserved-until-last for handicapped visitors. The Skyland restaurant would have improved handicapped accessibility.

Concessioner employee housing at Big Meadows and Skyland would be rehabilitated or replaced as needed, without exceeding the present capacity. Some replacements may be apartments for older and/or married employees. Any replacement housing at Skyland would be located in the same area as present housing, but any replacement housing at Big Meadows would be constructed farther away from the visitor lodging and would include removal of existing units. Loft Mountain housing would be terminated and the structure turned over to the National Park Service.

NPS Operations and Employee Housing

As described under alternative D1, existing maintenance shops, storage space, and vehicle storage bays would be improved and slightly expanded at Piney River, Headquarters, Big Meadows, and Simmons Gap.

Temporary office trailers and buildings would be replaced with new, permanent, energy-efficient structures. At Piney River, maintenance, ranger, and interpreter offices would be housed in a building possibly combined with employee quarters. All Pinnacles structures would be removed and the site rehabilitated. At Skyland, an interpreter's office would be established in the existing Massanutten Lodge, and a ranger office would be established with a new residence. At Big Meadows the

old schoolhouse residence would be used for a replacement ranger office. A new building would be constructed at Simmons Gap for a maintenance office, ranger office, personnel rally space, and equipment storage. At Loft Mountain, interpreter offices would be combined into a new campground registration/reservation building. The existing campground registration building would be converted to an air quality monitoring station.

The need for park housing is described under the "Management" section. As shown in table 19, this alternative would propose that structurally sound and energy-efficient quarters be maintained and/or constructed for required and permitted full-time and subject-to-furlough employees. Permitted temporary employees would continue to use temporary trailers that would be repaired and replaced as necessary. Unneeded quarters would be converted to other uses or removed. Quarters for full-time employees would consist of two- or three-bedroom units suitable for families such as single family houses, duplexes, or four-unit family complexes (quadraplex). Quarters for temporary employees would consist of efficiency/one-bedroom apartments or dormitory type facilities, subject to the availability of existing facilities. For half the subject-to-furlough employees, quarters would be the same as for full-time employees, with the other half in apartment-type facilities.

Miscellaneous Buildings

As described under alternative D1, the U.S. Detector Dog Training Center would continue, and if abandoned, it would be considered for other uses or removal. The USDA Beef Cattle Research Station structures would be removed and the site restored.

Utilities

An active inspection program of sewage collection and septic systems would be implemented, using television and other inspection methods. Based on findings, deteriorated systems would be replaced and repaired. A new septic system would be constructed at Piney River, the septic systems at Dickey Ridge and Simmons Gap would be upgraded, and the system at Lewis Mountain would be expanded to accommodate the proposed trailer dump station. A septic system would be installed for the Snead Farm barn classroom.

Grease traps would be installed at all food-serving facilities. As described under alternative D1, if any phosphate problems arose at the Big Meadows or Skyland wastewater treatment facility, concession laundry operations would be returned to Panorama. At Skyland, winter wastewater treatment would be provided for the ranger residence. All other new proposed facilities would be connected to existing systems.

Water systems would be improved to meet increasing state standards and would be completed by 1982. A backup well at Loft Mountain and a well for Sawmill Run would be drilled, and a 50,000-gallon storage tank would be constructed at Simmons Gap. Other proposed developments would be provided water from existing sources.

Table 19. Employees Quarters, Alternative D2

Area	Needed Units		Existing Units (no. of bedrooms)			Proposed Units			Remarks
	Family	Apt.	Family	Apt.	Trailer	Family	Apt.	Trailers	
Front Royal	1	7	2 (6)	-		1	3	4 apts	Move 1 trailer to Skyland; surplus 1 trailer
Dickey Ridge			-	-	4 (11)	-	-		
Piney River	3	7	-	-	6 (15)	3	3	4 apts	Move 2 trailers to Big Meadows; move 1 trailer to Lewis Mtn.; move 1 trailer to Sawmill Run
Headquarters	5	10	11 (34)	-	-	5	10	-	Convert 3 houses to other uses
Pinnacles	1	7	1 (2)	-	3 (6)	-	-	-	Remove house; surplus 3 trailers
Skyland			-	1 (1)	-	1	4	3 apts	Massanutten quarters removed for visitor contact station
White Oak			-	-	-	-	-	-	White Oak Ranger station for concessioner use
Old Rag			-	-	-	-	-	-	
Big Meadows	5	17	-	8 (8)	3 (6)	5	8	9 apts	Existing residence used for office; move 3 trailers from Piney River and Simmons Gap; move 1 trailer to headquarters; surplus 1 trailer
Lewis Mountain	-	1	-	-	-	-	-	1 apt	Move trailer from Piney River
Simmons Gap	3	1	1 (3)	-	2 (6)	3	1	-	Move 1 trailer to Big Meadows and 1 trailer to Loft Mountain
Loft Mountain	1	15	-	4 (4)	5 (12)	1	4	11 apts	4 apts from former concessioner facilities; move in 1 trailer from Simmons Gap; surplus 2 trailers
Sawmill Run	1	5a	-	-	1 (3)	1	-	5 apts	Move in 1 trailer from Piney River
TOTALS	20	70	15 (45)	14 (14)	24 (59)	20	33	37 apts	

[a]Without a visitor information facility in the Rockfish vicinity

Telephone systems would be improved in the same manner as described under alternative D1. A radio frequency, known as Common Use, would be added to the park station-to-station radio frequencies for emergency use. To improve backcountry and emergency services, three portable and temporary repeater stations, one in each park section, would be set up from April through December, subject to the requirements of the U.S. Navy Green Bank, WV, Radio Astronomy Observatory Telescopes, Naval Restricted Quiet Zone.

All existing borrow pits and sites used for fill dirt would be phased out over the next five years, and no new sites or pits would be initiated. Future needs for fill would be met from sources outside the park.

Impacts

The following impacts on the socioeconomic environment, management, land base, natural and cultural resources, visitor use, and facilities of Shenandoah National Park and its environs would be impacted from actions taken under this alternative.

Impacts on the Socioeconomic Environment. Expenditure of federal funds for operation, maintenance, and construction would be presumed as a potential addition to local and regional communities, resulting in an irretrievable commitment of federal funds.

Maintenance of existing, and construction of new, park employee quarters would withhold some opportunities for real estate rentals and other transactions from local communities.

Continuation of some park employee quarters could tend to restrict the informal communications between local communities and the National Park Service.

Elimination of trails with perimeter accesses across private land would reduce visitor trespass on these private lands and make the park less accessible to local residents.

Reduced perimeter facilities would lessen tourist traffic and tourist-related revenues outside the park.

Continuation of a parking area for visitors at Weakly Hollow and a new parking area at Berry Hollow would relieve traffic conditions for residents living in the vicinity of these areas.

Development of an environmental study area classroom at the Snead Farm site could provide more educational opportunities for local communities as well as improve the image of the National Park Service.

Reduced energy consumption would set an example for the local communities, state, and nation.

Impacts on National Park Service Management. Improvement of existing facilities, replacement of temporary structures, upgrading of all trails, rehabilitation of the Skyline Drive, increasing energy efficiency,

improving safety, and providing new information facilities and better handicapped access would require additional funding and personnel. The cost of these changes would be an irretrievable commitment of federal funds.

Developments and modifications that would provide accessibility for handicapped visitors to park programs, services, resources, and experiences would be in compliance with the Rehabilitation Act of 1973.

Improvement and/or replacement of offices, maintenance shops, storage areas, and telephone and radio communication systems would improve the maintenance and operations of the park.

Complete rehabilitation of the Skyline Drive would allow the park staff to provide better upkeep of trails and other facilities.

Provision of quarters for certain National Park Service employees would be in compliance with PL 88-459 and Office of Management and Budget guidelines. Some employees would be required to live in less than satisfactory housing.

Coordination with other agencies and organizations would be required for some of the following improvements:

Item	Agencies/Organizations
Water supply and wastewater treatment	Virginia Water Control Board
Appalachian Trail	Appalachian National Scenic Trail Project Office, Potomac Appalachian Trail Club, Appalachian Trail Conference
Travel Information Stations	Federal Communications Commission, Virginia Travel Service, Virginia Dept. of Transportation, and others
Direct telephone lines	Telephone companies, Virginia Travel Service, and others
Common Use radio frequency	U.S. Navy, National Telecommunications and Information Administration

Impacts on Land Base. New facilities and continued maintenance and operation of facilities would require no change in the existing park land base.

Impacts on Natural Resources. Improvement of wastewater disposal and septic systems could improve water quality in park streams.

Removal of the horse stables from Big Meadows would terminate a potential water pollution source and potential contamination of a natural wetland.

Removal of trailers at Pinnacles, the stables at Big Meadows, the barns of the beef cattle research station, and rehabilitation of the sites and the reduction of wilderness trails would return these areas to a natural condition.

The reduction of access and the quantity of hiking and horse trails in wilderness would enhance wilderness values.

Relocations of hiking and horse trails would decrease visitor-induced deterioration of natural resources in some areas and increase it in other areas.

Improved access to specific natural features of the park could result in the deterioration of these features.

Temporary disruptions of the natural environment would occur at the specific locations of proposed new developments, rehabilitations of existing developments, and maintenance operations.

An estimated permanent loss of less than 30 acres (0.015 percent of total existing park) of natural vegetation would occur as a result of the development of new facilities.

Discontinuation of borrow pits would allow these areas to revegetate.

National Park Service employees residing in the park would help protect natural resources.

Impacts on Cultural Resources. National Park Service employees residing in the park would help protect cultural resources.

Rehabilitation of the Skyline Drive would ensure the long-term preservation of the road.

Adaptive use of Massanutten Lodge as a visitor contact site would result in greater protection of this structure.

Replacement of offices at Piney River would eliminate structures of Civilian Conservation Corps vintage.

The appearance of two cabins at Lewis Mountain and the Massanutten and Big Meadows lodges would be slightly altered as a result of improvements for handicapped accessibility and enclosure of the dining terrace.

Impacts on Visitors. Use of the park perimeter and wilderness areas would be reduced, with a compensating or slight increase in use adjacent to the Skyline Drive.

National Park Service employees residing in the park would provide readily available emergency services to visitors.

Rehabilitation of the Skyline Drive, including reconstruction of guardwalls with improved directional and safety signs, would increase visitor safety.

During the rehabilitation, there would be temporary disruptions of traffic and possible closings of sections of the drive for a period.

Continued repair and relocation of park trails would maintain and improve visitor safety, e.g., reducing the Appalachian Trail crossings of the Skyline Drive.

Improvement in trail circuitry would enhance the hiking experience for all visitors by providing greater opportunities to see more of the park without shuttling cars and doubling back over the same trail.

Development of new stroller and short-loop trails would allow a greater selection for day hikers and encourage more sedentary visitors to partake in activities off the Skyline Drive.

Improved and expanded trailhead facilities would enhance hiking and horseback riding experiences.

Improved and expanded facilities for cross-country skiing and horseback riding would provide additional opportunities for outdoor recreation.

Elimination of the stables at Big Meadows would reduce rental horseback riding in this area.

Elimination of perimeter trails and accesses would be an inconvenience to some visitors by requiring additional travel and entry onto the Skyline Drive. Winter hiking opportunities would be reduced when the Skyline Drive was closed because of snow.

Those visitors who would continue to use closed perimeter trail accesses could be jeopardized by actions of adjacent private landowners.

Continued improvements in campgrounds and picnic areas would enhance camping and picnicking experiences.

Improvements in facilities for backcountry permits at the entrance stations at Thornton Gap, Swift Run Gap, and Rockfish would provide greater convenience for visitors.

Continued updating and expansion of information, orientation, and interpretation facilities (including amphitheaters, visitor centers, orientation shelters, and overlook and trailhead exhibits) would provide greater convenience and understanding of the park.

Increasing and improving visitor information and orientation through traveler information stations and direct telephone communications would expand visitor knowledge of the park and allow them to better plan their visits in regards to time, travel distances, and availability of facilities.

Visitors would continue to be inconvenienced by lack of space at Dundo group campground during peak visitation periods.

Horseback riding campers would be required to take care of their own water supply needs at Big Meadows.

Except at Pinnacles, the picnicking experience would continue to be interrupted by unexpected inclement weather.

Upgrading at Elkwallow wayside would improve food service.

Elimination of gasoline services at Panorama would be an inconvenience to some visitors but would reduce parking congestion on the upper level.

Use of the White Oak Cabin by the ARA Virginia Sky-Line Company for a more remote walk-in or horseback outing and lodging site would provide a new, enjoyable visitor experience.

Improvement and expansion of facilities for handicapped visitors would permit unassisted use of more areas within the park. Convenience to senior citizens, parents with children, and others would also be offered; however, these facilities might be considered an inconvenience by some visitors.

Impacts on Facilities. Continued maintenance and repair of existing structures would help maintain their long-term existence.

Efforts by the National Park Service to reduce energy consumption, through the use of storm windows, caulking, and insulation would improve the use and extend the longevity of existing buildings.

New construction would replace some of the older, deteriorated, and inadequate facilities.

ALTERNATIVE D3 - CONSTRUCT NEW FACILITIES

In addition to normal, routine maintenance, as described under alternative D1, existing facilities would be improved and replaced, and certain new facilities would be constructed under this alternative. The overall amount of development would increase, and visitor services and park operations would be improved. The parkwide trail system would be expanded by about 23 percent, and the total number of overnight lodging units at Skyland, Big Meadows, and Lewis Mountain would be increased by over 20 percent. New facilities outside existing developed areas would be trailhead parking areas or comfort stations and visitor information facilities at Thornton and Rockfish gaps. Some of the proposals would depend on the donation of nonpark land in fee or easement. (See description under alternative L1.)

Roads and Trails

The Skyline Drive would be totally rehabilitated as described under alternative D2. If congestion at the north entrance to the drive, or within Front Royal became a problem, a new entrance road would be constructed between north Dickey Ridge and Virginia 55 on the park right-of-way, as shown on the following map.

Most of the Appalachian Trail would be maintained in its present alignment except that the points where the trail crosses the Skyline Drive would be reduced from 29 to 11 through 17 miles of trail rerouting (some on other existing trails). In addition, the trail would be rerouted at Compton Gap to avoid an administrative road and horse trail, and at Skyland, the trail would be rerouted to avoid visitor development. New trail construction would be about 14 miles, and the total length of the Appalachian Trail would be shortened by approximately 1 mile.

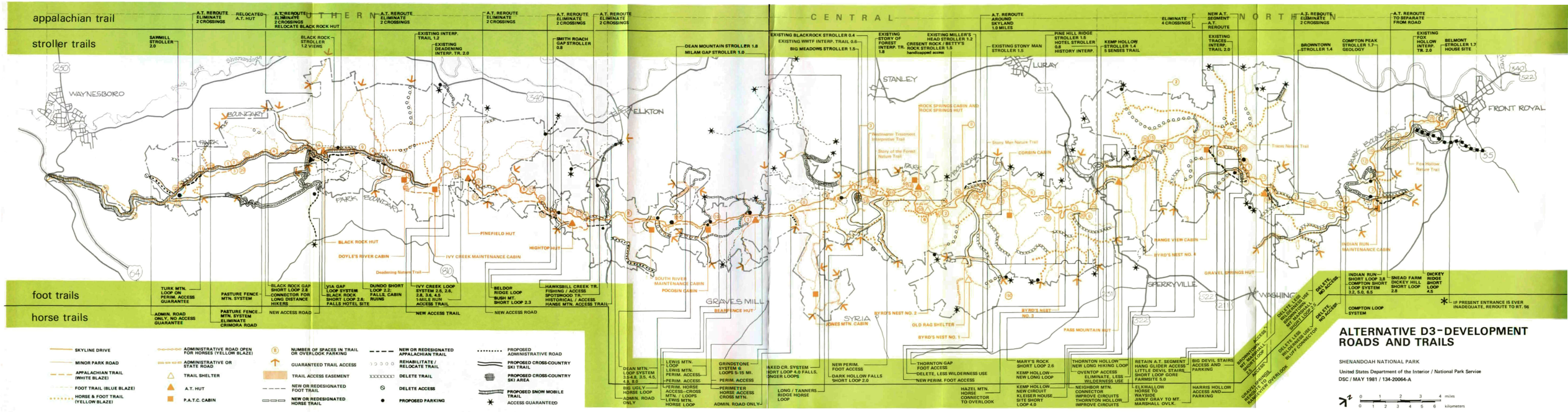
Circulation and access of other trails in the park would be greatly improved under this alternative, with a total increase in trail length of approximately 105 miles. The perimeter accesses of this alternative would depend on the donations or exchanges of easements and land, as described under alternative L1.

In addition to nine existing short trails (under 2 miles) being designated as strollers, 13 new stroller trails would be created from overlooks and other points along the Skyline Drive, providing a short, easy hiking facility approximately every 5 miles. A few would be paved and relatively level for handicapped accessibility, such as at Crescent Rocks. One stroller, such as Kemp Hollow, would encourage visitors to use all of their senses and would be negotiable by all people.

New short loops (25 trails ranging from 2 to 5 miles each) would be created near Skyline Drive outside designated wilderness areas, such as at Compton Gap. Foot trails would be reduced in wilderness areas, such as the Hazel Mountain area, while new hiking systems with perimeter and Skyline Drive accesses would be developed in areas like Grindstone Ridge, Via Gap, and Naked Creek. Also, horse trails would be reduced in wilderness areas such as the Hazel Mountain area. Better connections and new trails would provide better horseback riding opportunities and more features in areas such as Pasture Fence Mountain and Long Ridge. Sixteen miles of hiking and horse trails would be rehabilitated or relocated to correct deterioration or take visitors closer to the features of the park. There would be a net loss of 11 miles of hiking trails and 2 miles of horse trails in wilderness areas.

New access points (32) on the perimeter would be guaranteed through proposals in alternative L1, permitting most existing trails to be maintained. A few existing accesses would be closed, but 16 new ones would be constructed. Several guaranteed access points would remain with no trails provided; this would occur in wilderness areas. Under this alternative, nearly 23 new, small trailhead parking areas (5 to 25 cars) would be provided along the Skyline Drive and around the park perimeter. Vault toilets would be provided at Big Devil Stairs, Weakly Hollow, and Upper Berry Hollow trailheads. If lands became available, vault toilets could be provided at Big Devil Stairs and Lower Berry Hollow trailheads.

About 90 miles of cross-country ski trails would be designated on certain existing and proposed trails and along administrative and fire roads which have appropriate width and grade. These would be cleared of treefalls and other impediments before each snow season, signed for easy identification, and indicated in park literature



ALTERNATIVE D3-DEVELOPMENT ROADS AND TRAILS

SHENANDOAH NATIONAL PARK

United States Department of the Interior / National Park Service

DSC / MAY 1981 / 134-20064-A

0 1 2 3 4 miles

0 1 2 3 4 5 6 kilometers

During periods of snow, the unplowed Skyline Drive from Rockfish Gap to Loft Mountain wayside, a distance of approximately 25 miles, would be designated as a snowmobile trail.

This alternative would increase the total length of park trails by about 105 miles, or about 23 percent, and reduce wilderness trails by about 10 miles. From Skyline Drive there would be many more opportunities for short hikes, both strollers under 2 miles and loops under 5 miles. New circuits and opportunities would be opened up outside of wilderness areas for hikers and horseback riders. Perimeter access would be guaranteed at many points around the park with provisions for parking.

Information, Orientation, and Interpretation Facilities

A new visitor contact facility would be constructed at Thornton Gap and would be accessible before visitors arrived at the entrance station. This facility, located at the mostly heavily used park entrance, would provide information, literature sales, backcountry permits, and campground reservations, expanding and replacing all visitor functions at Headquarters. Improvements at the entrance station at Thornton Gap would include one additional fee collection booth and adjustments to inbound and outbound lanes.

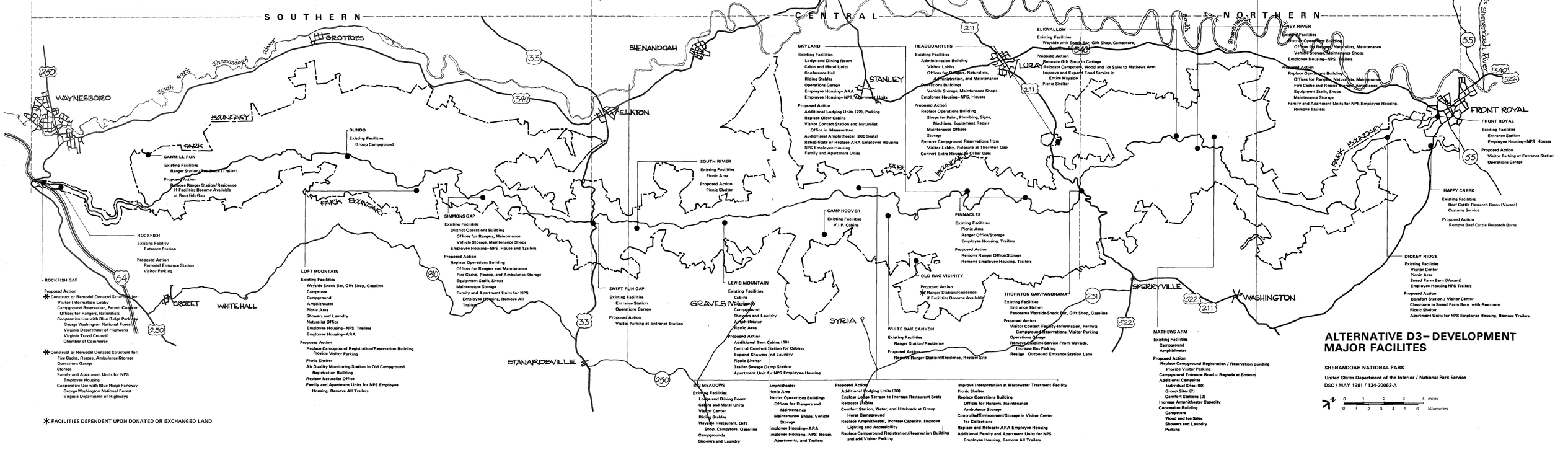
About ten additional parking spaces would be provided at the Front Royal and Swift Run entrance stations for employees and visitors obtaining permits.

The Rockfish entrance would be widened for two inbound lanes and employee parking. A new visitor information facility would be located at Rockfish Gap. Through new facilities or rehabilitated existing donated structures, information and interpretation would be provided for Shenandoah, the Blue Ridge Parkway, George Washington National Forest, and the surrounding region. This facility would also serve as a point to issue backcountry permits, campground reservations, and long distance hiker information.

The Snead Farm barn would be converted into an environmental education classroom (with restrooms) for use by school groups and others during warm seasons.

As described under alternative D1, the lobby of the Byrd Visitor Center and the audiovisual room of the Dickey Ridge Visitor Center would be remodeled and both movies updated. Also, a new permanent year-round comfort station would be constructed at Dickey Ridge to replace the existing portable facilities. The Headquarters lobby and adjacent restrooms would be made accessible to the handicapped.

Thirteen orientation shelters would be located near entry points, 30 new overlook exhibits would replace the overlook signs, and 30 new trailhead exhibits would be installed. New exhibits would also interpret the Big Meadows, Skyland, and Camp Hoover areas.


SOUTHERN
CENTRAL
NORTHERN
WAYNESBORO
South Fork Shenandoah River
HIGGOTTOES
SHENANDOAH
ELKTON
STANLEY
LURAY
South Fork Shenandoah River
SPERRYVILLE
WASHINGTON
FRONT ROYAL
North Fork Shenandoah River
PARK BOUNDARY
ROCKFISH GAP
Proposed Action
Construct or Remodel Donated Structure for:
Visitor Information Lobby
Campground Reservation, Permit Control
Offices for Rangers, Naturalists
Cooperative Use with Blue Ridge Parkway
George Washington National Forest
Virginia Department of Highways
Virginia Travel Council
Chamber of Commerce
Construct or Remodel Donated Structure for:
Fire Cache, Rescue, Ambulance Storage
Operations Garage
Storage
Family and Apartment Units for NPS Employee Housing
Cooperative Use with Blue Ridge Parkway
George Washington National Forest
Virginia Department of Highways
CROZET
WHITE HALL
ROCKFISH
Existing Facility
Entrance Station
Proposed Action
Remodel Entrance Station
Visitor Parking
SAWMILL RUN
Existing Facilities
Ranger Station/Residence (Trailer)
Proposed Action
Remove Ranger Station/Residence
If Facilities Become Available
at Rockfish Gap
DUNDO
Existing Facilities
Group Campground
LOFT MOUNTAIN
Existing Facilities
Wayside Snack Bar, Gift Shop, Gasoline
Campstore
Campground
Amphitheater
Picnic Area
Showers and Laundry
Naturalist Office
Employee Housing--NPS Trailers
Employee Housing--ARA
Proposed Action
Replace Campground Registration/Reservation Building
Provide Visitor Parking
Picnic Shelter
Air Quality Monitoring Station in Old Campground
Registration Building
Replace Naturalist Office
Family and Apartment Units for NPS Employee
Housing, Remove All Trailers
SIMMONS GAP
Existing Facilities
District Operations Building
Offices for Rangers, Maintenance
Vehicle Storage, Maintenance Shops
Employee Housing--NPS House and Trailers
Proposed Action
Replace Operations Building
Offices for Rangers and Maintenance
Fire Cache, Rescue, and Ambulance Storage
Equipment Stalls, Shops
Maintenance Storage
Family and Apartment Units for NPS
Employee Housing, Remove All
Trailers
SOUTH RIVER
Existing Facilities
Picnic Area
Proposed Action
Picnic Shelter
SWIFT RUN GAP
Existing Facilities
Entrance Station
Operations Garage
Proposed Action
Visitor Parking at Entrance Station
GRAVES MTN.
LEWIS MOUNTAIN
Existing Facilities
Cabins
Campground
Showers and Laundry
Amphitheater
Picnic Area
Proposed Action
Additional Tent Cabins (10)
Central Comfort Station for Cabins
Expand Showers and Laundry
Picnic Shelter
Trailer Sewage Dump Station
Apartment Unit For NPS Employee Housing
STANARDSVILLE
SYRIA
BIG MEADOWS
Existing Facilities
Lodge and Dining Room
Cabins and Motel Units
Visitor Center
Riding Stables
Wayside Restaurant, Gift
Shop, Campstore, Gasoline
Campgrounds
Showers and Laundry
Amphitheater
Picnic Area
District Operations Buildings
Offices for Rangers and
Maintenance
Maintenance Shops, Vehicle
Storage
Employee Housing--ARA
Employee Housing--NPS House,
Apartments, and Trailers
Proposed Action
Additional Lodging Units (30)
Enclose Lodge Terrace to Increase Restaurant Seats
Relocate Stables
Comfort Station, Water, and Hitchrack at Group
Horse Campground
Replace Amphitheater, Increase Capacity, Improve
Lighting and Accessibility
Replace Campground Registration/Reservation Building
and add Visitor Parking
Improve Interpretation at Wastewater Treatment Facility
Picnic Shelter
Replace Operations Building
Offices for Rangers, Maintenance
Ambulance Storage
Controlled Environment Storage in Visitor Center
for Collections
Replace and Relocate ARA Employee Housing
Additional Family and Apartment Units for NPS
Employee Housing, Remove All Trailers
SKYLAND
Existing Facilities
Lodge and Dining Room
Cabin and Motel Units
Conference Hall
Riding Stables
Operations Garage
Employee Housing--ARA
Employee Housing--NPS Apartment Units
Proposed Action
Additional Lodging Units (22), Parking
Replace Older Cabins
Visitor Contact Station and Naturalist
Office in Massanutten
Auditorium Amphitheater (200 Seats)
Rehabilitate or Replace ARA Employee Housing
NPS Employee Housing
Family and Apartment Units
HEADQUARTERS
Existing Facilities
Administration Building
Visitor Lobby
Offices for Rangers, Naturalists,
Administration, and Maintenance
Operations Buildings
Vehicle Storage, Maintenance Shops
Employee Housing--NPS, Houses
Proposed Action
Replace Operations Building
Shops for Paint, Plumbing, Signs,
Machines, Equipment Repair
Maintenance Offices
Storage
Remove Campground Reservations from
Visitor Lobby, Relocate at Thornton Gap
Convert Extra Houses to Other Uses
CAMP HOOVER
Existing Facilities
V.I.P. Cabins
PINNACLES
Existing Facilities
Picnic Area
Ranger Office/Storage
Employee Housing, Trailers
Proposed Action
Remove Ranger Office/Storage
Remove Employee Housing, Trailers
OLD RAG VICINITY
Proposed Action
Ranger Station/Residence
if Facilities Become Available
WHITE OAK CANYON
Existing Facilities
Ranger Station/Residence
Proposed Action
Remove Ranger Station/Residence, Restore Site
THORNTON GAP/PANORAMA
Existing Facilities
Entrance Station
Panorama Wayside-Snack Bar, Gift Shop, Gasoline
Proposed Action
Visitor Contact Facility-Information, Permits
Campground Reservations, Visitor Parking
Operations Garage
Remove Gasoline Service From Wayside,
Increase Bus Parking
Realign Outbound Entrance Station Lane
ELKWALLOW
Existing Facilities
Wayside with Snack Bar, Gift Shop, Campstore,
Gasoline, Picnic Area
Proposed Action
Relocate Gift Shop in Cottage
Relocate Campstore, Wood and Ice Sales to Mathews Arm
Improve and Expand Food Service in
Entire Wayside
Picnic Shelter
MATHEWS ARM
Existing Facilities
Campground
Amphitheater
Proposed Action
Replace Campground Registration / Reservation Building
Provide Visitor Parking
Campground Entrance Road -- Regrade at Bottom
Additional Campsites
Individual Sites (50)
Group Sites (7)
Comfort Stations (2)
Increase Amphitheater Capacity
Concession Building
Campstore
Wood and Ice Sales
Showers and Laundry
Parking
SHENANDOAH NATIONAL PARK
Existing Facilities
Visitor Center
Offices for Rangers, Naturalists, Maintenance
Vehicle Storage, Maintenance Shops
Employee Housing--NPS Trailers
Proposed Action
Replace Operations Building
Offices for Rangers, Naturalists, Maintenance
Fire Cache and Rescue Storage, Ambulance
Equipment Stalls, Shops
Maintenance Storage
Family and Apartment Units for NPS Employee Housing,
Remove Trailers
FRONT ROYAL
FRONT ROYAL
Existing Facilities
Entrance Station
Employee Housing--NPS Houses
Proposed Action
Visitor Parking at Entrance Station
Operations Garage
HAPPY CREEK
Existing Facilities
Beef Cattle Research Barns (Vacant)
Customs Service
Proposed Action
Remove Beef Cattle Research Barns
DICKEY RIDGE
Existing Facilities
Visitor Center
Picnic Area
Snead Farm Barn (Vacant)
Employee Housing-NPS Trailers
Proposed Action
Comfort Station / Visitor Center
Classroom in Snead Farm Barn with Restroom
Picnic Shelter
Apartment Units for NPS Employee Housing, Remove Trailers
ALTERNATIVE D3- DEVELOPMENT MAJOR FACILITES
SHENANDOAH NATIONAL PARK
United States Department of the Interior / National Park Service
DSC / MAY 1981 / 134-20063-A
0 1 2 3 4 miles
0 1 2 3 4 5 6 kilometers
FACILITIES DEPENDENT UPON DONATED OR EXCHANGED LAND

The Massanutten Lodge at Skyland would be improved and remodeled for a visitor contact lobby and interpreter office.

Interpretive exhibits at the Big Meadows wastewater treatment plant would be improved.

Amphitheater improvements at Mathews Arm would include expansion to accommodate additional campers and regrading and surfacing to accommodate handicapped visitors. At Skyland a new amphitheater with audiovisual capabilities for 200 people would be constructed. The existing Big Meadows amphitheater would be reconstructed, providing for a capacity of 400 people with improved stage, lighting, circulation, and access.

As described under alternative D2, travel information stations would be developed, and direct telephone lines would provide visitors with information before arrival at Shenandoah.

Campgrounds and Picnic Sites

Campsites and picnic sites would be routinely maintained, additional tent pads built, deteriorated stone fireplaces replaced, several accessible sites for the handicapped designated at each area, and isolated picnic tables located at some overlooks, as described under alternative D1.

Two comfort stations in each family campground, one in each picnic area, and the Dundo vault toilet would be made accessible to wheelchairs. As described under alternative D2, Dundo campsites would be made fully accessible, a trailer sewage dump station would be installed at Lewis Mountain campground, and the Mathews Arm campground entrance road grade would be lessened.

One covered picnic shelter, with 4 to 6 somewhat separated picnic tables, would be constructed at each picnic area, except for Pinnacles which already has a shelter.

At Mathews Arm campground, 50 additional individual campsites would be developed on a new loop, a separate area would be designated for seven group campsites, and two new comfort stations would be added--one for the individual sites and one for groups.

At Big Meadows, the existing undeveloped group campground for horseback riders would be improved with hitch racks, running water, and a comfort station.

The campground reservation outlet at Big Meadows would be located in a new permanent building, incorporating campground registration and adjacent adequate parking. New buildings for this function would be constructed at Mathews Arm and Loft Mountain, if the program was expanded. The present outlet at Headquarters would be moved to the new Thornton Gap visitor contact facility, and a new outlet would also be located at the new Rockfish Gap visitor information facility. If the reservation program was not expanded, a new registration building would

be constructed at Loft Mountain, and if the entire reservation program was terminated, a new registration building would be constructed at Big Meadows.

Concessioner Operations

The cabins and huts operated by the Potomac Appalachian Trail Club would continue to be maintained in place.

The gift shop at the Elkwallow wayside would be moved into an existing employee cottage. The campstore and wood and major ice sales would be moved from Elkwallow into a new building incorporating showers and a laundry at Mathews Arm campground. The entire existing wayside building would then be converted to an efficient and fully accessible food service facility with limited seating and counterspace.

As described under alternative D2, a comfort station at Panorama wayside would be made fully accessible, and gasoline service would be removed to provide more parking and to reduce congestion.

The horse stable at Big Meadows would be relocated south of the lodge entrance road within the existing developed area so runoff would not drain into the Big Meadows swamp, and so it would not be as close to employee housing. The abandoned site would be restored to a natural condition.

At Big Meadows, three new ten-unit motel type buildings (standard units with room and bath) would be constructed, and existing parking and utilities would be used. The terrace at Big Meadows Lodge would be enclosed to provide an additional dining area. The existing older small, wooden concession employee housing units would be replaced by new units that would be located behind the recently constructed masonry units. They would be both dormitory type accommodations and apartments for couples and/or older employees.

At Skyland, one new 16-unit motel type building (standard units with room and bath) and one 6-unit building would be built. Parking for an additional 22 vehicles would be provided. Older, deteriorated cottages in Skyland, such as the Maple and Wildwood (but not the historic cabins listed in appendix D), would be replaced with new units of the same number and approximate location.

Concessioner apartment units for couples or older and/or married employees would be constructed in the existing residential area. The existing dorm facilities would be rehabilitated or replaced as necessary.

At Lewis Mountain, ten new housekeeping "tent cabins" would be constructed. These would be lower-priced accommodations with outside sheltered cooking grills. A centralized comfort station, shower, and laundry facilities could possibly be located at the campstore, which could be enlarged to accommodate extra visitors.

At Loft Mountain, concession employee housing would be terminated and the structure turned over to the National Park Service.

As described under alternative D2, handicapped people would have access to Elkwallow and Loft Mountain waysides, Big Meadows and Skyland lodges, and the lodging units at Skyland, Big Meadows, and Lewis Mountain, which would be reserved until all other units were full.

NPS Operations and Employee Housing

Most temporary and deteriorated quarters would be replaced with new facilities, and a few new facilities would be added to improve operations. A garage would be constructed in the Front Royal residential area to protect a snowplow and patrol car (with a hoist to install chains).

At Piney River, a new operations building would replace existing structures. It would house a district ranger office, an information counter for the public, a rescue and fire cache with a workshop, an ambulance garage, a district naturalist's office with a workshop, a district maintenance office, a shared rally room, and storage for maintenance tools, supplies, materials, oil, and paint. Eight equipment stalls would have the capability for minor auto repair; plumbing, electric, and welding repair; and vehicle washing. Locker rooms and restrooms would also be included.

In conjunction with the new visitor contact facility at Thornton Gap, a garage for a snowplow and patrol car (with a hoist to install chains) and an area for stockpiling sand would be provided.

Temporary, substandard shops in the Headquarters maintenance area would be replaced with a permanent building without increasing the overall size of the maintenance yard. The new building would house a paint shop, plumbing shop, sign shop, machine shop, equipment repair shop, rally room, bulk paper storage for publications, foreman offices, locker rooms, and restrooms. The fuel house at Headquarters would receive a stone veneer that never was completed at the time of original construction.

At Pinnacles, all existing structures would be removed and the site rehabilitated and allowed to return to natural conditions.

At Skyland, a ranger office would be combined with a proposed residence and an interpreter office would be associated with the visitor contact lobby in the Massanutten Lodge.

At Big Meadows, a small new building to replace some older structures, would include a district ranger office, a district maintenance office, ambulance storage, and a shared rally room. A controlled environment storage room for collections would be installed within the Byrd Visitor Center.

Temporary structures at Simmons Gap would be replaced with a new building containing the functions described for Piney River, except that a district naturalist's office and workspace would not be included.

Table 20. Employees Quarters, Alternative D3

Area	Needed Units		Existing Units (no. of bedrooms)			Proposed Units		Remarks
	Family	Apt.	Family	Apt.	Trailer	Family	Apt.	
Front Royal	1	7	2 (6)	-	-	1	7	
Dickey Ridge			-	-	4 (11)	-	-	Remove trailers
Piney River	3	7	-	-	6 (15)	3	7	
Headquarters	5	10	11 (34)	-	-	5	10	Convert 3 houses to other uses
Pinnacles	1	7	1 (2)	-	3 (6)	-	-	Remove house; remove 3 trailers
Skyland			-	1 (1)	-	1	5	Massanutten quarters used for visitor contact facility; remove Boulder Cabin
White Oak			1 (2)	1 (1)	-	-	-	Remove all structures
Old Rag			-	-	-	-	2[a]	
Big Meadows	5	17	1 (2)	8 (8)	3 (6)	5	17	Remove trailers
Lewis Mountain	-	1	-	-	-	-	1	
Simmons Gap	3	1	1 (3)	-	2 (6)	3	1	Remove trailers
Loft Mountain	1	15	-	4 (4)	5 (12)	1	15	Four apts. from concessioner; remove trailers
Sawmill Run	1	8	-	-	1 (3)	-	-	Remove trailer if facilities become available at Rockfish Gap
Rockfish Gap			-	-	-	1[a]	8[a]	
TOTALS	20	73	17 (49)	14 (14)	24 (59)	20	73	

[a]Dependent on availability of donated/exchanged lands

At Loft Mountain a naturalist's office would be included in the new campground registration/reservation building. An air quality monitoring station would be established in the former campground registration building.

If donated or exchanged land and facilites became available at Rockfish Gap, the proposed visitor information facility would also serve many operational functions for Shenandoah, as well as for the Blue Ridge Parkway, George Washington National Forest, and the Virginia Department of Highways. For the park, this would include a ranger office, fire and rescue cache with workshop, a first-aid room, covered vehicle parking for snowplows and patrol car, a naturalist's office, bulk paper storage, and a sand and chemical storage bin. These would be either new facilities or rehabilitated existing structures.

Utilities

An active inspection program of sewage collection and septic systems would be implemented, using television and other inspection methods. Based on findings, deteriorated systems would be repaired or replaced. Some systems would require upgrading to accommodate new or increased uses.

The septic systems at Dickey Ridge and Simmons Gap would be upgraded. A new septic system would serve the proposed Piney River maintenance area and residences. A new septic system would also serve the Snead Farm barn classroom. New campground and concession facilities at Mathews Arm would be connected to the existing wastewater treatment facility. If phosphate problems ever arise at Skyland or Big Meadows wastewater treatment facilites, concession laundry operations would be moved back to Panorama. Provisions would be made for treating wastewater from year-round residents in the winter at Skyland. A new septic system would be installed at the Big Meadows group horse campground. The Lewis Mountain septic system would be improved to accommodate the trailer dump station and expanded lodging facilities. All other new proposed facilities would be connected to existing systems. Grease traps would be installed at all food serving facilities.

Water systems would be improved as described under alternative D1. A new backup well would be drilled at Loft Mountain, and a 50,000-gallon storage tank would be constructed at Simmons Gap. Existing water sources would be extended to new facilities, including from Dickey Ridge to the Snead Farm barn classroom, and from the existing Big Meadows development to the improved group horse campground.

Telephone systems would be improved, as described under alternative D1. An additional Common Use radio frequency as well as three portable repeater stations would be as described in Alternative D2, subject to U.S. Navy restrictions.

Borrow pits, or sites used to obtain fill dirt, would be phased out over the next five years as described under alternative D1.

Impacts

The socioeconomic environment, management, land base, cultural and natural resources, visitor use, and facilities of Shenandoah National Park and its environs would be impacted from the actions that would be taken under this alternative.

Impacts on the Socioeconomic Environment. Expenditure of federal funds for operations, maintenance, and construction would presumably continue as an addition to local and regional economies, resulting in an irretrievable commitment of federal funds.

Maintenance of existing, and construction of new, park employee quarters would withhold some opportunities for real estate rentals and other transactions from local communities.

Continuing the furnishing of quarters for some park employees could tend to restrict the informal communications between local communities and the National Park Service.

Development of trailhead facilities would reduce the incidence of visitors parking along local roads or on private property along the park boundary and decrease visitor trespass on private adjacent property.

Trailhead facilities at guaranteed access points along the perimeter of the park would increase visitor traffic and tourist-related revenues on local roads.

Better access points along the perimeter would make the park more accessible to local residents.

New parking areas for visitors at Weakly and Berry hollows would relieve traffic conditions for residents living in the vicinity of these areas.

An environmental study area at the Snead Farm site could provide more educational opportunities for local communities. Providing this environmental education could improve the image of the National Park Service.

An increase in the number of overnight lodging units could increase tax revenues and travel-related expenditures in local communities.

Programs to reduce energy consumption would set an example for the local communities, state, and the nation.

Impacts on National Park Service Management. The improvement of existing facilities, replacement of temporary structures, increased energy efficiency, improved safety and handicapped accessibility, rehabilitation of the Skyline Drive, and new developments for visitor use and convenience, park operations, maintenance, and protection would require additional funding and staffing. This would be an irretrievable commitment of federal funds.

Developments and modifications to facilities to provide accessibility for handicapped visitors to park programs, services, resources, and experiences would be in compliance with the Rehabilitation Act of 1973.

Improvement and/or replacement of offices, maintenance shops, storage areas, and telephone and radio communication systems would enhance the operation and maintenance of the park.

Complete rehabilitation of the Skyline Drive would allow the park staff to provide better upkeep of trails and other facilities.

Provision of quarters for certain National Park Service employees would be in compliance with PL 88-459 (authorizing government agencies to provide quarters and facilities to civilian officers and employees) and Office of Managment and Budget guidelines. All housing would be of acceptable quality.

Coordination with other agencies and organizations would be required for the following improvements:

Item	Agencies/Organizations
Water supply and wastewater treatment	State Water Control Board
Appalachian Trail	Appalachian National Scenic Trail Project Office, Potomac Appalachian Trail Club, Appalachian Trail Conference
Travel Information Stations	Federal Communications Commission, Virginia Travel Service, Virginia Dept. of Transportation; and others
Direct telephone lines	Telephone Companies, Virginia Travel Service; and others
Common Use radio frequency	U.S. Navy, National Telecommunications and Information Administration
Rockfish visitor information facility	Blue Ridge Parkway, George Washington National Forest, Virginia Travel Service; and others

Impacts on Land Base. The development of facilities along the park perimeter would require the donation/exchange of additional lands and/or access easements (see alternative L1.)

Impacts on Natural Resources. Improving wastewater disposal and septic systems could improve water quality in park streams.

Relocation of the horse stables at Big Meadows would remove a potential water pollution source and potential contamination of a natural wetland.

Removal of structures at Pinnacles, Dickey Ridge, the beef cattle research station, White Oak, and rehabilitation of the sites and the reduction of wilderness trails would return these areas to a natural condition.

The reduction of access and the quantity of hiking and horse trails in wilderness would enhance wilderness values. Relocations of the trails could decrease visitor-induced deterioration of natural resources in some areas and increase it in others.

Providing improved access to specific natural features of the park could result in deterioration of these features.

Temporary disruptions of the natural environment would occur at the specific locations of proposed new developments, rehabilitations of existing developments, and maintenance operations.

Discontinuation of borrow pits would allow these areas to revegetate.

An estimated, permanent loss of less than 200 acres (0.07 percent of total existing park land) of natural vegetation would occur as a result of development of new facilities.

Continued full-time presence of National Park Service employees residing in the park would help protect natural resources.

Impacts on Cultural Resources. Full-time presence of National Park Service employees in the park would help protect cultural resources.

Rehabilitation of the Skyline Drive would ensure long-term preservation of the road.

The adaptive use of Massanutten Lodge as a visitor contact site would result in greater protection for this structure.

Replacement of the offices at Piney River would eliminate structures of Civilian Conservation Corps vintage.

Construction of a new permanent building in the Headquarters maintenance area would result in the loss of certain temporary Civilian Conservation Corps vintage buildings.

The appearance of the Massanutten and Big Meadows lodges would be slightly altered as a result of improvements for handicapped access and enclosure of the dining terrace.

Improvement of the maintenance area would enhance the visual scene of the Simmons Gap Mission.

Stone veneering the gas/oil house at the Headquarters maintenance area would complete the original architectural design concept.

Impacts on Visitors. Use of wilderness areas would be reduced with a compensating or modest increase of use in other areas of the park.

Full-time National Park Service employees residing in the park would provide readily available emergency services to visitors.

Rehabilitation of the Skyline Drive, including reconstruction of guardwalls with improved directional and safety signs, would increase visitor safety. During the rehabilitation, there would be temporary disruptions of traffic, and possibly closing of sections of the drive for a period.

Continued repair and relocation of park trails would maintain and improve visitor safety, e.g., reducing the Appalachian Trail crossings of Skyline Drive.

Improvement in trail circuitry would enhance the hiking experience for all visitors by providing greater opportunities to see more of the park without shuttling cars and doubling back over the same trail.

Development of new stroller and short-loop trails would allow a greater selection for day hikers and encourage more sedentary visitors to partake in activities off the Skyline Drive.

Improved and expanded trailhead facilities would enhance the hiking/ horseback riding experiences.

Improved, expanded, and new facilities for cross-country skiing and horseback riding would provide additional opportunities for outdoor recreation.

Continued improvements in campsites and picnic sites would enhance camping and picnicking.

The expansion of campground reservation outlet locations to Mathews Arm, Big Meadows, and Loft Mountain, and relocation of the Headquarters terminal to Thornton Gap, would be a greater convenience for visitors.

Improvements in facilities for issuance of backcountry permits at entrance stations at Thornton Gap, Swift Run Gap, and the new information facility at Rockfish Gap would be a greater convenience for visitors.

Expansion of the Mathews Arm campground would increase the availability of family and group camping opportunities.

Relocation of camping supply sales from Elkwallow to Mathews Arm, including the provision of showers, would be a convenience to campers in this area.

Upgrading and expansion of food services at Elkwallow would improve visitor convenience at this wayside.

Elimination of gasoline services at Panorama would be an inconvenience to some visitors but would reduce parking congestion on the upper level.

The updating and expansion of information, orientation, and interpretation facilities (including amphitheaters, visitor centers, orientation shelters, and overlook and trailhead exhibits) would provide greater convenience and understanding of the park.

New information facilities at Thornton and Rockfish gaps would provide more convenient information and readily accessible personal services.

Increasing and improving previsit information and orientation, through traveler information stations and direct telephone communications, would expand visitor knowledge of the park and allow people to better plan their visits in regards to time and travel distances.

Improving and expanding accessibility and other facilities for handicapped visitors would permit unassisted use of more areas within the park. This would also offer a convenience to senior citizens, parents with children, and others. These facilities might be considered an inconvenience by some visitors.

Impacts on Facilities. The continued maintenance and repair of existing structures would help maintain their long-term existence.

The efforts of the National Park Service to reduce energy consumption through storm windows, caulking, and insulation would improve the use and extend the longevity of existing buildings.

New construction would replace some of the older, deteriorated and inadequate facilities and increase the inventory of facilities within the park.

Table 21. Summary of Actions and Impacts-Development Alternatives

	Alternative D1	Alternative D2	Alternative D3
Emphasis	Maintain, repair, and adapt existing facilities; retrofit for energy efficiency	Same as D1, plus replace temporary and some energy-inefficient structures with only a minimal increase in overall development	Same as D2, plus replace most energy-inefficient structures and develop new facilities for visitor use and park management; some facilities, especially trails, would depend on land or easement donations and exchanges
Roads and Trails			
Skyline Drive	Patch and repair when possible	Complete rehabilitation to correct structural and drainage problems	Same as D2
Trails			
Appalachian Trail	Maintain in place with 29 crossings of the Skyline Drive	Same as D1, except reroute 6 miles to eliminate 10 crossings of the Skyline Drive	Same as D1, except reroute 17 miles to eliminate 18 crossings of the Skyline Drive
Other Hiking and Horse Trails	Maintain and rehabilitate as needed	Same as D1, plus improve circulation from the Skyline Drive	Same as D1, plus improve circulation from the Skyline Drive and the park perimeter
Stroller trails	9 trails	17 trails	22 trails
Short loop trails	26 loops	45 loops	51 loops
Horse loop trails	50 loops	52 loops	61 loops
Cross-country skiing trails	0 (but permitted on all trails)	65 miles (designated on certain trails)	90 miles (designated on certain trails)
Bicycle trail	0 (but permitted on existing roads)	Same as D1	30 miles (designated on Skyline Drive during certain times)
Snowmobile trail	0	0	25 miles (designated on Skyline Drive during certain times)
Perimeter Trail Accesses	50 accesses guaranteed, 37 accesses subject to neighboring landowner agreement	50 accesses guaranteed	50 accesses guaranteed 32 accesses subject to neighboring landowner agreement or donations and exchanges of land easements
Trailhead parking areas	120	130	143
Total Trail Lengths	455 miles	456 miles	560 miles
Hiking trails	280 miles	284 miles	352 miles
Horse trails	175 miles	172 miles	208 miles

	Alternative D1	Alternative D2	Alternative D3
Information, Orientation, and Interpretation Facilities			
Entrance Stations	Remodel interiors at Thornton Gap and Rockfish	Same as D1, plus increase parking at Front Royal and Swift Run Gap	Improve traffic access at Thornton Gap and Rockfish; increase parking at Front Royal and Swift Run
Waysides, exhibits, and visitor center lobbies	Maintain existing facilities; construct 13 new orientation shelters, 30 new wayside exhibits, and 30 new trailhead exhibits; remodel lobbies at Big Meadows and Headquarters	Same as alternative D1, plus improve displays at Big Meadows wastewater treatment plant	Same as alternative D2, except Headquarters lobby would not be remodeled
Visitor contact facilities	Maintain Byrd and Dickey Ridge Visitor Centers and Headquarters desk	Same as D1, plus establish a visitor contact station in the Massanutten Lodge (Skyland)	Same as D2, plus develop visitor information facilities at Thornton and Rockfish gaps
Amphitheater facilities	Maintain existing facilities at Mathews Arm, Skyland (conference hall), Big Meadows, Lewis Mountain, and Loft Mountain	Same as D1, plus regrade and resurface Mathews Arm, reconstruct Big Meadows, and develop an additional rustic facility at Skyland	Same as D2, except additional facility at Skyland would have full audiovisual capabilities and Mathews Arm would be expanded
Travel Information facilities	Provide one recorded telephone message	Provide travel information radio stations on outlying major roads and at park entrances; provide direct telephone service to park	Same as alternative D2
Campgrounds and Picnic Areas	Routinely maintain and repair; improve handicapped accessibility	Same as D1, plus expand handicapped accessibility	Same as D2, plus expand facilities
Picnic Areas	7 areas (292 sites) and 1 shelter	Same as D1	Same as D1, plus one shelter per area
Campgrounds			
Family	4 areas - 702 sites	Same as D1	4 areas - 752 sites
Tent Only	138 sites		188 sites
Trailer Only	23 sites		23 sites
Tent or Trailer	541 sites		541 sites
Group	1 area - 7 sites	Same as D1	2 areas - 14 sites
Horse	1 area - undeveloped	Same as D1, plus hitch racks and vault toilet	Same as D1, plus hitch racks, water, and comfort station

	Alternative D1	Alternative D2	Alternative D3
Reservation Facilities	Maintain existing facilities at Headquarters and trailer at Big Meadows; add trailers at Mathews Arm and Loft Mountain if program was expanded	Same as D1, except construct a permanent reservation/registration building at Big Meadows and if necessary at Mathews Arm and Loft Mountain	Same as D2, except relocate Headquarters outlet to new Thornton Gap information facility; add reservation outlet at Rockfish Gap
Handicapped Access			
Picnic sites and campsites	Several at each area	Same as D1	Same as D1
Comfort Stations	One at each area, except Dundo	Two at each area, plus vault toilet at Dundo	Same as D2
Concession-Operated Facilities			
Potomac Appalachian Trail Club	Routinely maintain and repair 6 cabins and 7 huts	Same as D1	Same as D1
ARA Virginia Sky-Line Company	Maintain and improve service and operations	Same as D1	Same as D1, plus expand park facilities for additional visitors
Lodging Rooms	3 areas (261 rooms)	Same as D1, plus replace older units in kind	3 areas (323 rooms), plus replace older units in kind
Dining Facilities	2 areas (374 seats)	Same as D1	2 areas (454 seats)
Waysides	4 areas (310 seats); remodel Elkwallow to improve service	Same as D1	4 areas (350 seats); remodel Elkwallow for expanded service
Other		Remove gasoline service at Panorama	Same as D2, plus relocate camping sales from Elkwallow to Mathews Arm
Horse Stables	One each at Big Meadows and Skyland	Retain one at Skyland; remove one at Big Meadows	Same as D1, except relocate Big Meadows stable
Handicapped Accessibility			
Lodging rooms	One room reserved-until-last at Skyland and Big Meadows	Same as D1, plus two rooms at Lewis Mountain and all replacement rooms	Same as D1, plus all new and replaced facilities
Waysides (including restrooms)	All accessible	Same as D1	Same as D1
Employee Housing	Maintain and rehabilitate as necessary	Same as D1, plus replace as necessary and turn over Loft Mountain units to National Park Service	Same as D2

	Alternative D1	Alternative D2	Alternative D3
National Park Service Facilities			
Operations	Improve and slightly expand outmoded maintenance shops and storage at Piney River, Headquarters, Big Meadows, and Simmons Gap	Same as D1, plus replace temporary office structures with new buildings at Piney River and Simmons Gap; provide interpreter and ranger offices at Skyland and interpreter office at Loft Mountain; remove structures at Pinnacles; replace registration building at Loft Mountain campground	Same as D2, except major replacement of existing facilities at Piney River, Headquarters, and Simmons Gap; minor replacement of facilities at Big Meadows
Employee Housing	Continue to maintain and repair existing quarters to meet management requirements	Same as D1, except replacement and improvement to higher standards	Same as D2, plus replacement of all trailers
Family Quarters	9 units	20 units	20 units
Apartment Quarters	24 units	33 units	73 units
Trailers (# of quarters)	45 units	37 units	--
Shortage of Quarters	12 units	--	--
Utilities			
Water	Maintain to meet state regulations	Same as D1, plus extend existing services to new facilities; new wells at Loft Mountain and Sawmill Run	Same as D1, plus extend existing services to new facilities; new well at Loft Mountain
Wastewater	Maintain and replace facilities as needed and as possible	Same as D1, plus active inspection; upgrade Dickey Ridge system; expand existing systems for new facilities	Same as D2
Communications	Improve as possible	Same as D1, plus add an additional radio frequency with portable repeater stations	Same as D2
Impacts			
Socioeconomic	Federal expenditures would be continued as an addition to local economies	Same as D1	Same as D1
	Reductions of energy consumption would set an example	Same as D1	Same as D1
	Losses of perimeter access would result in increased trespass over adjacent private land and less accessibility for local residents; lack of perimeter parking would cause continued visitor parking on local roads	Elimination of perimeter trails would decrease visitor trespass, traffic on local roads, local citizens' accessibility, and parking problems	Improved trail accesses would decrease visitor trespass and parking problems and increase accessibility for local residents and traffic on local roads

	Alternative D1	Alternative D2	Alternative D3
NPS Management	Minor need for additional funding	Additional funding and staff would be required, resulting in improved maintenance and operations of the park	Same as D2
Land Base	No changes would result	Same as D1	Donations or exchanges of land and easements would be required as described under alternative L1
Natural Resources	Temporary disruptions would occur at specific locations during maintenance operations	Same as D1, plus removal of Big Meadows stable would terminate a potential pollution source in a sensitive area; removal of certain facilities would allow certain sites to revegetate; new facilities would result in a permanent loss of less than 30 acres of vegetation	Same as D2, except relocation of Big Meadows stable would terminate a potential pollution source in a sensitive area; new facilities would result in a permanent loss of less than 200 acres of vegetation
Cultural Resources	Routine maintenance of the Skyline Drive would be inadequate for long-term preservation	Rehabilitation of the Skyline Drive would provide long-term preservation	Same as D2
		Certain temporary CCC-vintage temporary structures at Piney River would be lost	Certain temporary CCC-vintage buildings at Piney River and headquarters maintenance area would be lost
		External appearances of the Massanutten and Big Meadows lodges and 2 cabins at Lewis Mountain would be slightly altered	External appearances of the Massanutten and Big Meadows lodges would be slightly altered; visual scene of the Simmons Gap Mission would be enhanced
Visitor Use	Overall use would remain at present levels	Park perimeter and wilderness use would be reduced; increased use along Skyline Drive would result	Wilderness use would be reduced; modest increase in overall use in other areas of the park
	More areas of the park would be accessible to handicapped visitors	Same as D1	Same as D1
	Visitor enjoyment, understanding, and knowledge would be slightly increased by routinely maintained and slightly expanded facilities; certain inconveniences, lack of information, temporary traffic congestion, and lack of space would continue	Better previsit planning, enhanced park experiences, and less inconveniences would result from the improved and modestly expanded facilities	Same as D2, plus greater convenience and certain new experiences would result
Facilities	Retrofitting for energy conservation would improve use and extend longevity of existing facilities	Same as D1, plus deteriorated and inadequate facilities would be replaced	Same as D2, plus some parkwide inventory would be expanded

INTERCOMPATIBILITY AND COSTS OF ALTERNATIVES

INTERCOMPATIBILITY

To form a general management plan, it will be necessary to combine one alternative from each of the topics previously discussed. Because of differing intents and proposals, not every topical alternative will intermesh perfectly with every other topical alternative. For example, compare alternatives L2 and V2; the latter proposes an increase in park perimeter visitor access, thus requiring better and more guaranteed pedestrian and/or auto routes from public roads than exist today. However, alternative L2 proposes that the park land base be frozen as is, thus eliminating the possibility of acquiring any new land or easements. Therefore, the intercompatibility of L2 and V2 would be considered low; the two alternatives would not be considered totally incompatible because existing accesses could be used, and minor modifications of each alternative could be possible to make a better fit. The following matrix suggests how well the intent and proposals of one alternative will fit with every other alternative within a ten-year span, and it is offered as a guide for the consideration of every reviewer.

Matrix of General Intercompatibility of Alternatives

Natural Resources	N1	M	M	H							
	N2	M	M	H							
Cultural Resources	C1	H	H	H	H	H					
	C2	H	H	H	H	H					
Visitor Use & Interp.	V1	M	M	H	H	H	H	M			
	V2	M	L	H	H	H	M	H			
Management		M	L	M	H	H	H	M	H	M	
Development	D1	H	H	M	H	H	H	H	M	L	L
	D2	H	H	M	H	H	H	H	M	M	M
	D3	M	L	H	H	H	H	H	M	H	H
		L1	L2	Opt	N1	N2	C1	C2	V1	V2	
ALTERNATIVES		Land Base			Natural Resources		Cultural Resources		Visitor Use & Interp.		Mgt

H = high compatibility M = medium compatibility L = low compatibility

COSTS

The alternatives presented have been concerned with differing emphases and specific proposals to achieve the missions and operations of Shenandoah. However it will also be necessary to consider the costs of, and thereby the ability of the National Park Service to afford, each alternative. There is no certainty that funds will be made available.

Table 22 presents total estimated costs that would occur over a ten-year period. (See appendix L for a more detailed description.)

Realization of the alternatives would of course be phased over the ten-year period; however, for comparison purposes, costs are given on a 1980 base. Operational costs are estimated as if an alternative was to be implemented within the first year of the ten-year period.

Table 22. Summary of Ten-Year Costs by Alternative
(in thousands)

Alternatives		Existing and New Fixed Assets[a]	Equipment[b]	Operations[c] (Annual 10 years)	Total	Change from Current Costs
Land	L1	$194,973	$ 29	$ 870	$196,187	NA
Base	L2	194,598	29	780	195,407	$ -780
	Opt.	Costs will vary according to alternative selected				
Natural	N1	Included under Land	35	1,650	1,685	NA
Resources	N2	Base Alternatives	75	3,160	3,235	+1,550
Cultural	C1	260[d]	11	550	821	NA
Resources	C2	596[d]	22	1,273	1,891	+1,070
Visitor Use & Interp.	V1	Included under	359	10,454	10,813	NA
	V2	Development	399	13,810	14,209	+3,396
Management	M	Alternatives	35	2,640	2,675	NA
Development	D1	130,576	1,046	24,880	156,502	NA
	D2	203,067	1,100	25,951	230,118	+73,616
	D3	$216,845	$1,155	$27,981	$245,981	$+89,479

[a]Capital Investments - Value of existing land, buildings, roads, and trails, etc; indirect costs of donations and exchanges; construction costs of new developments; and costs of related surveys, appraisals, planning, supervision, preservation services, and other implementation costs

[b]Value of existing and new vehicles, dozers, binoculars, audiovisual equipment, etc., necessary for operations, programs, and their administration

[c]Personnel salaries and materials for operations and maintenance of the park and its programs

[d]New improvements only; existing assets included under development alternatives

CONSULTATION AND COORDINATION IN THE DEVELOPMENT OF THE ENVIRONMENTAL ASSESSMENT

EARLY PLANNING EFFORTS

In 1972, the National Park Service recognized that the approved 1967 Master Plan was out of date. Increasing visitation and overnight stays, expanding backcountry use, constantly improving highway access from large regional metropolitan areas, as well as changing land uses around the park, led to concerns about the park's perimeter, appropriate types and quantities of recreational opportunities, park access, and the amount of possible new development.

In March 1973, a planning team was assembled to work with the park staff gathering information and identifying problems and possible solutions. On May 9, 1973, a public meeting for citizen participation was held in Luray, Virginia. Representatives of horseback riding groups, Shenandoah Wilderness Coalition, Trout Unlimited, Potomac Appalachian Trail Club, Sierra Club, and other citizens presented their ideas for protecting park resources and providing suitable uses and facilities. Elected officials were invited for a meeting on May 10, 1973; however, attendance was meager.

Data gathering and planning continued until October 1973, when demands for Bicentennial projects required a reassignment of the planning team. Work resumed in November 1974, with emphasis on assembling necessary data and following the revised Department of the Interior and National Park Service planning process that resulted from closer adherence to the National Environmental Policy Act of 1969, Executive Order 11593 (1971), and section 106 of the National Historic Preservation Act of 1966.

As this planning effort was underway, so too was consideration of designating wilderness areas within Shenandoah under provisions of the 1964 Wilderness Act. Planning for wilderness had started in 1967 and was the subject of considerable discussions between the National Park Service, conservation groups, and neighboring communities. In order to eliminate inevitable confusion between the separate wilderness and master plan efforts, it was decided in August 1975 to discontinue the latter until legislation was passed by the Congress, and wilderness areas were established.

PRESENT PLANNING EFFORT

In early 1976, Superintendent Jacobsen and his staff prepared a "Statement for Management" to meet the requirements of park management and in anticipation of resuming planning for Shenandoah. This document received policy review by the Washington Office, National Park Service, in March and April 1976, and public review between March and June 1977

by conservation groups, district and local planning agencies, and interested individuals.

This general management plan (formerly called master plan) effort was begun in March 1978. Previously collected data were reviewed, new data collected, public information sought, problems identified, and alternative solutions developed for this Environmental Assessment (formerly called assessment of alternatives).

Public involvement was incorporated into the planning process through three means. First, in May 1978 a preplanning workbook for Shenandoah National Park was distributed to inform people of the beginning management planning process as well as seek their input. This workbook briefly described the evolution of Shenandoah and what the park is today, explained the planning process step-by-step, and asked the public to express their ideas and concerns improvements and problems by filling and returning a response form. The form suggested eleven general categories to stimulate thoughts about aspects of the park, and comments were received until the end of November 1978.

A total of 1,400 copies of the workbook and response form were distributed by the National Park Service to people on the mailing list of the park, attendees at public workshops held between May 18 and June 8, 1978, visitors at park entrance stations, and various other interested citizens, organizations and governmental agencies. Approximately six percent of the forms were returned.

A few other organizations and individuals became interested in stimulating input for the planning process. The Potomac Appalachian Trail Club summarized the preplanning workbook and reprinted the public response form in the June 1978 issue of the Potomac Appalachian, which is sent to the regular membership. Seven response forms were received from a distribution of an unknown quantity.

The ARA Virginia Sky-Line Company, the major concessioner in Shenandoah National Park, reprinted the entire workbook at the company's expense. Around July 14, 1978, 980 copies were mailed to a random sample taken from the company's registration lists of past visitors who had stayed in lodges and cabins in the park during the last two years. Sixty-five forms were received for a 6.6 percent response.

A Madison County citizen modified the public response form with a yes or no question regarding land acquisition, reproduced the form, and distributed it to local people. The number and manner of distribution are unknown, and 38 of these forms were received.

Planning was the topic of a campfire program given several times in the park during the summer of 1978, and copies of the form were made available to the audience. Eight of these forms were received from a distribution of an unknown quantity.

Seven organizations submitted official statements about their ideas and concerns for Shenandoah on response forms or in letters. In addition, letters expressing concern for the future of the park or specific suggestions were received from nine interested individuals.

The results of the preplanning workbook indicated a general satisfaction with the current state of the park. Access, circulation, traffic, concession facilities, trails, expectations and experiences, solitude, information and interpretation, natural resource management, and the land base in relation to access were all considered adequate to excellent by over 40 percent of the 200 forms received. (Not all respondents expressed their concern on each of the topics.) The overwhelming concern was that the park would become overdeveloped and commercialized, and that it should be preserved in its natural state for future generations. Yet, most respondents offered at least one suggestion for new development or improvements ranging from additional picnic tables to new lodging areas. Concern for development around the park was expressed, particularly the negative influences it has or could have on the park. The one topic that drew the most dissatisfaction was the current management of historic resources.

The second means of public involvement in the planning process consisted of ten public planning workshops, which were held between May 18 and June 2, 1978. The schedule of meetings was announced through newspapers, radio and television stations, and letters to conservation organizations, interested groups and citizens, and local, state, and federal agencies and officials. The following table indicates the workshops and attendance.

Table 23. Summary of Workshops

Date	Workshop Location	Attendance	No. of Groups
5/18/78	Page County (Luray, VA.)	16	2
5/22/78	Rockingham County (Montevideo, VA.)	27	2
5/23/78	Madison County (Madison, VA.)	21	2
5/24/78	Augusta County (Fishersville, VA.)	11	1
5/25/78	Greene County (Stanardsville, VA.)	9	1
5/26/78	Richmond metro area (Richmond, VA.)	12	1
5/30/78	Rappahannock County (Washington, VA.)	25	2
5/31/78	Albemarle & Nelson Counties (Charlottesville, VA.)	31	3
6/1/78	Warren County (Front Royal, VA.)	14	1
6/2/78	Washington D.C. metro area (Wash., D.C.)	20	2

The workshops were directed to finding out the concerns of participants about Shenandoah. To this end, the following questions were used to foster discussion:

What kind of place should Shenandoah National Park be?

What problems do you see now and in the future?

Should Shenandoah be changed? How?

After individually answering each question, participants prepared group lists, discussed them, and then determined the group "top-ten." More importantly, groups identified their individual goals, problems, and possible changes. The expression of the groups varied from general to specific issues.

Most responses to the first question concerned preservation of nature and wilderness, maintaining the park as a place to relax and learn of nature, and keeping the park as a place of appropriate simple uses, yet available for diversified public recreation. In response to the second question, workshops saw insufficient enforcement and maintenance caused by the lack of and less than perfect distribution of staff and funds, limitations of the existing park land base, excessive park auto traffic, and certain environmental damage as the major problems. To the third question of possible changes, the most emphasis was put on controlling use, expanding facilities for horseback riders, improving perimeter access, enforcing better regulations, providing more selected facilities, and selective expanding of the park land base.

The third method of public and outside agency involvement was to enter into consultations concerning specific topics as well as overall planning concerns. Initiated by either interested parties or the National Park Service, these consultations included private citizens and the following organizations or representatives.

ARA Virginia Sky-Line Company, Inc.
Beldor Hollow Citizens (ad hoc)
Central Shenandoah Planning District Commission
Commonwealth of Virginia
  Commission of Outdoor Recreation
  Commission of Game & Inland Fisheries
  Department of Highways & Transportation
  Department of Taxation
Congressman J. Kenneth Robinson's Office
Conservation Council of Virginia
Izaak Walton League
Lord Fairfax Planning District Commission
Madison County Farm Bureau Federation
National Parks & Conservation Association
Piedmont Environmental Council
Potomac Appalachian Trail Club
Rappahannock-Rapidan Planning District Commission
Rockingham County Board of Supervisors
Sierra Club - Old Dominion Chapter
  - Potomac Chapter
Staunton/Augusta/Waynesboro Taxpayers Organization
Thomas Jefferson Planning District Commission
Trout Unlimited
U.S. Department of Agriculture
  George Washington National Forest
  Soil Conservation Service
U.S. Department of the Interior
  Appalachian Trail Central Land Acquisition Office

Appalachian Trail Project Office
Blue Ridge Parkway
Virginia Farm Bureau Federation
Virginia Wilderness Committee

COORDINATION IN THE REVIEW OF THE ENVIRONMENTAL ASSESSMENT

Information Copies of the Summary will be sent to the following:*

Federal Officials

U.S. Congress -- Senate
Harry F. Byrd, Jr.
John W. Warner

U.S. Congress -- House of Representatives
M. Caldwell Butler
J. Kenneth Robinson

State Officials

Governor John N. Dalton
Virginia General Assembly--Senate
Nathan H. Miller
J. Harry Michael, Jr.
Frank W. Nolen
William A. Truban

Virginia General Assembly--House of Delegates
George P. Beard, Jr.
Arthur R. Giesen, Jr.
Raymond R. Guest, Jr.
Joan S. Jones
Thomas J. Michie, Jr.
Clinton Miller
Kevin G. Miller
James B. Murray
Alson H. Smith, Jr.
Erwin S. Solomon
S. Vance Wilkins, Jr.

Media -- Newspapers and Magazines

The Alexandria Gazette, VA
Alexandria Journal Standard, VA
Appalachian Trail Conference Newsletter, Harpers Ferry, WV
The Associated Press, Richmond, VA
The Baltimore News American, MD
The Baltimore Sun, MD
The Christian Science Monitor, Boston, MA
The Clarke Courier, Berryville, VA
The Daily Advance, Lynchburg, VA
Daily News-Record, Harrisonburg, VA

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* Copies of the Environmental Assessment will be available upon request.

The Daily Progress, Charlottesville, VA
The Danville Register, VA
The Enterprise, Stuart, VA
Fauquier Democrat, Warrenton, VA
The Fincastle Herald, VA
Free-Lance Star, Fredericksburg, VA
Globe Newspaper, Fairfax, VA
The Greene County Record, Stanardsville, VA
The Independent Messenger, Emporia, VA
Madison County Eagle, VA
The Martinsville Bulletin, VA
The National Observer, Silver Springs, MD
National Parks & Conservation Magazine, Washington, DC
New York Post, NY
The News-Virginian, Waynesboro, VA
Northern Virginia Daily, Strasburg, VA
Page News & Courier, Luray, VA
The Philadelphia Bulletin, PA
The Philadelphia Daily News, PA
The Philadelphia Inquirer, PA
The Pittsburgh Press, PA
The Portsmouth Star, VA
The Potomac News, Woodbridge, VA
The Progress Index, Petersburg, VA
The Pulaski Southwest Times, VA
The Rappahannock News, Washington, VA
Richmond News Leader, VA
The Roanoke Times, VA
The Shenandoah Valley Herald, Woodstock, VA
The Shenandoah Valley Historian, Front Royal, VA
Skyline, Annandale, VA
Star-Exponent, Culpeper, VA
The Staunton Leader, VA
Times Dispatch News Bureau, Staunton, VA
Trail Camping Magazine, Quincy, CA
United Press International, Richmond, VA
The Valley Banner, Elkton, VA
The Vinton Messenger, VA
The Warren Sentinel, Front Royal, VA
The Washington Post, DC
The Washington Star, DC
Winchester Evening Star, VA
The World News, Roanoke, VA

Media -- Radio and T.V.

WANV Radio, Waynesboro, VA
WAYB Radio, Waynesboro, VA
WBTX Radio, Broadway, VA
WCHV/3WV Radio, Charlottesville, VA
WCVA/WCUL-FM, Culpeper, VA
WDBJ TV, Roanoke, VA
WFTR, Inc., Front Royal, VA

WFFV Radio, Middletown, VA
WHBG Radio, Harrisonburg, VA
WHSV TV, Harrisonburg, VA
WINA Radio, Charlottesville, VA
WINC-AM/WQUS-FM, Winchester, VA
WJLA TV, Washington, DC
WJMA Radio, Orange, VA
WKCY Radio, Harrisonburg, VA
WKCW Radio, Warrenton, VA
WLCC-FM, Luray, VA
WLVA Radio - TV, Lynchburg, VA
WMBG Radio, Richmond, VA
WMRA-FM Radio, Harrisonburg, VA
WPEP Radio, Crozet, VA
WRAA Radio, Luray, VA
WRC TV, Washington, DC
WRNL, Richmond, VA
WRVA Radio, Richmond, VA
WSIG Radio, Mt. Jackson, VA
WSVA-AM/FM/TV, Harrisonburg, VA
WTON Radio, Staunton, VA
WTOP Radio, Washington, DC
WTTG TV 5, Washington, DC
WTVR AM/FM, Richmond, VA
WUVA, Charlottesville, VA
WWBT, Richmond, VA
WXAM, Charlottesville, VA
WXEX TV, Richmond, VA
WXEX TV, Petersburg, VA

Information copies of the Environmental Assessment will be sent to the following:

Offices of Clerks

Albemarle County, Charlottesville, VA
Augusta County, Staunton, VA
City of Charlottesville, VA
City of Staunton, VA
City of Waynesboro, VA
Greene County, Stanardsville, VA
Madison County, Madison, VA
Nelson County, Lovingston, VA
Page County, Luray, VA
Rappahannock County, Washington, VA

Libraries

Augusta County Library, Fishersville, VA
Jefferson-Madison Regional Library, Charlottesville, VA
Madison County Library, Madison, VA
Page County Library, Luray, VA

Rappahannock County Library, Washington, VA
Rockingham Public Library, Harrisonburg, VA
Samuels Public Library, Front Royal, VA
Staunton Public Library, Staunton, VA
Virginia State Library, Richmond, VA
Waynesboro Public Library, Waynesboro, VA

Copies of the Environmental Assessment will be sent to the following for review:

Federal Agencies

Advisory Council on Historic Preservation
Environmental Protection Agency
Executive Office of the President, Council on Environmental Quality
The Smithsonian Institution, National Zoological Park,
    Conservation and Research Center
Department of Agriculture
    Forest Service - George Washington National Forest
                   - Region 8, Southern
                   - Jefferson National Forest
    Soil Conservation Service - State Conservationist
                              - Area I Conservationist
                              - Area 2 Conservationist
Department of Interior
    Fish and Wildlife Service
    Heritage, Conservation, and Recreation Service
    National Park Service - Appalachian Trail Project Office
                          - Blue Ridge Parkway
Department of Transportation, Federal Highway Administration,
    Region I5
Department of Treasury, U.S. Customs Service, Dog Training Center

State Agencies

Commission of Game and Inland Fisheries
Commission of Outdoor Recreation
Council on the Environment
Department of Conservation and Economic Development
    Division of Forestry
    Division of Parks
    Virginia State Travel Service
Department of Health
Department of Highways and Transportation
Department of Intergovernmental Affairs (state A-95 clearinghouse)
Department of Taxation, Div. of Real Estate and Mapping
Division of Industrial Development
State Air Pollution Control Board
State Water Control Board

Virginia Historic Landmarks Commission (state historic preservation officer)
Virginia Outdoors Foundation
Virginia Soil and Water Conservation Commission
- Culpeper Soil & Water Conservation District
- Headwaters Soil and Water Conservation District
- Lord Fairfax Soil and Water Conservation District
- Shenandoah Valley Soil and Water Conservation District
- Thomas Jefferson Soil and Water Conservation District

Regional and Local Agencies

Albemarle County
Board of Supervisors
Executive
Planning Commission
Augusta County
Administrator
Board of Supervisors
Planning Commission
Central Shenandoah Planning District Commission (areawide A-95 clearinghouse for Augusta and Rockingham Counties and Independent Cities of Harrisonburg, Staunton, and Waynesboro)
City of Charlottesville
Manager
Mayor
Planning Commission
City of Harrisonburg
Manager
Mayor
Planning Commission
City of Staunton
Manager
Mayor
Planning Commission
City of Waynesboro
Manager
Mayor
Planning Commission
Greene County
Administrator
Board of Supervisors
Planning Commission
Lord Fairfax Planning District Commission (areawide A-95 clearinghouse for Page and Warren Counties)
Madison County
Administrator
Board of Supervisors
Planning Commission
Nelson County
Administrator
Board of Supervisors
Planning Commission

Page County
- Administrator
- Board of Supervisors
- Planning Commission

Rappahannock County
- Board of Supervisors
- Planning Commission

Rappahannock-Rapidan Planning District Commission (areawide A-95 clearinghouse for Madison and Rappahannock Counties)

Rockingham County
- Administrator
- Board of Supervisors
- Planning Commission

Thomas Jefferson Planning District Commission (areawide A-95 clearinghouse for Albemarle, Greene, and Nelson Counties and Independent City of Charlottesville)

Town of Bridgewater
- Mayor
- Superintendent

Town of Broadway
- Manager
- Mayor

Town of Craigsville
- Mayor

Town of Dayton
- Mayor
- Superintendent

Town of Elkton
- Mayor
- Planning Commission
- Superintendent

Town of Front Royal
- Manager
- Mayor
- Planning Commission

Town of Grottoes
- Mayor
- Planning Commission

Town of Luray
- Manager
- Mayor
- Planning Commission

Town of Madison
- Mayor

Town of Mount Crawford
- Mayor

Town of Scottsville
- Mayor
- Planning Commission

Town of Shenandoah
- Mayor
- Superintendent

Town of Stanardsville
- Mayor

Town of Stanley
    Mayor
Town of Timberville
    Mayor
Town of Washington
    Mayor
Warren County
    Administrator
    Board of Supervisors
    Planning Commission

Citizen and Business Groups

American Automobile Association, Falls Church
American Rivers Conservation Council
Annapolis Wilderness Hiking Club
Appalachian Mountain Club
Appalachian Trail Conference
Augusta County Taxpayers Association
Automobile Club of Virginia, Richmond
Audubon Society, N. Shenandoah Valley
Blue Ridge Saddle Club
Capital Hang Gliders Association
Capital Hiking Club
Capitol Hill Equestrian Society
Center Hiking Club
Charlottesville/Albemarle Chamber of Commerce
Concerned Citizens of Rockingham County
Conservation Council of Virginia, Inc.
Defenders of Wildlife
Dry Run Falls Property Owners Association
Easy Riders Club
Explorers Club of Pittsburgh
Friends of the Earth Foundation
Front Royal/Warren Chamber of Commerce
Girls Scouts, Elkton
Greene County Farmers Association
Greene County Historical Society
Harrisonburg/Rockingham Chamber of Commerce
Izaak Walton League of America, Inc, Virginia Division
Keystone Trails Association
Luray Chamber of Commerce
Madison County Farm Bureau Federation
Mobility on Wheels
Mountain Club of Maryland
Nature Conservancy - Southeast Regional Office
    - Virginia Chapter
National Parks and Conservation Association
National Recreation and Parks Association
National Wildlife Federation
Northern Virginia Conservation Council
Old Dominion Appalachian Trail Club
Old Rag Mountain Sportsman Club

Piedmont Environmental Council
Potomac Appalachian Trail Club
Potomac Speological Club
Rappahannock League for Environmental Protection
Ruritan Club, Wolftown
Shenandoah Valley Travel Association
Shenandoah Wilderness Coalition
Sierra Club
    Old Dominion Chapter
    Potomac Chapter
Staunton/Augusta Chamber of Commerce
Staunton/Augusta/Waynesboro Taxpayers Organization
Sun Valley Property Owners Association
The Conservation Foundation
Trail Riders of Rappahannock
    Massanutten Chapter
    Rapidan Chapter
Trout Unlimited - Virginia Council
Urban Environmental Conference & Foundation
Valley Environmental Council
Valley Saddle Club
Virginia Farm Bureau Federation
Virginia Forestry Association
Virginia Horse Council
Virginia Society of Ornithology
Virginia State Chamber of Commerce
Virginia State Travel Association
Virginia Trails Association
Virginia Travel Council
Virginia Wilderness Committee
Virginia Wildlife Federation, Inc.
Wanderbirds Hiking Club
Waynesboro/East Augusta Chamber of Commerce
West Penn Motor Club
Wilderness Society
Wildlife Society, Northern Virginia Chapter

Shenandoah Concessioners and Cooperating Association

ARA Virginia Sky-Line Company, Inc.
Potomac Appalachian Trail Club
Shenandoah Natural History Association

Copies of the Summary will be sent to the following for review:*

All individuals and companies who are on the park mailing list (approximately 950).

* Copies of the Environmental Assessment will be available upon request.

An Act To provide for the securing of lands in the southern Appalachian Mountains and in the Mammoth Cave regions of Kentucky for perpetual preservation as national parks, approved February 21, 1925 (43 Stat. 958)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Interior is hereby authorized and directed to determine the boundaries and area of such portion of the Blue Ridge Mountains of Virginia lying east of the South Fork of the Shenandoah River and between Front Royal on the north and Waynesboro on the south as may be recommended by him to be acquired and administered as a national park, to be known as the Shenandoah National Park, and such portion of the Smoky Mountains lying in Tennessee and North Carolina as may be recommended by him to be acquired and administered as a national park, to be known as the Smoky Mountains National Park, and in the Mammoth Cave regions of Kentucky and also such other lands in the southern Appalachian Mountains as in his judgment should be acquired and administered as national parks, and to receive definite offers of donations of lands and moneys, and to secure such options as in his judgment may be considered reasonable and just for the purchase of lands within said boundaries, and to report to Congress thereon: *Provided*, That the Secretary of the Interior may, for the purpose of carrying out the provisions of this Act, appoint a commission of five members, composed of a representative of the Interior Department and four national park experts, said four members to serve without compensation. (U.S.C., 6th supp., title 16, sec. 403c.)

National Parks. Determination of areas to be acquired for Shenandoah, Va., and Smoky Mountains, Tenn. and N.C.

Lands in Mammoth Cave regions of Kentucky, etc.

Securing options, etc.

Proviso.

Commission to be appointed. (Referred to in sec. 4, vol. 44, p. 616. See p. 285.

SEC. 2. A sum sufficient to secure options and to pay the necessary expenses of the commission in carrying out the provisions of this Act, including the salary of one clerk to the commission at a rate not to exceed $2,000 per annum, necessary traveling expenses of the members of the commission, and $10 per diem in lieu of actual cost of subsistence, in all, not to exceed $20,000 is hereby authorized to be appropriated.

Amount authorized for expenses.

An Act To provide for the establishment of the Shenandoah National Park in the State of Virginia and the Great Smoky Mountain National Park in the States of North Carolina and Tennessee, and for other purposes, approved May 22, 1926 (44 Stat. 616)

National Parks. Shenandoah, Va., and Great Smoky Mountains, N.C., and Tenn., set apart as, when lands therefor vested in United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That when title to lands within the areas hereinafter referred to shall have been vested in the United States in fee simple there shall be, and are hereby, established, dedicated, and set apart as public parks for the benefit and enjoyment of the people, the tract of land in the Blue Ridge, in the State of Virginia, being approximately five hundred and twenty-one thousand acres recommended by the Secretary of the Interior in his report of April 14, 1926, which area, or any part or parts thereof as may be accepted on behalf of the United States in accordance with the provisions hereof, shall be known as the Shenandoah National Park; and the tract of land in the Great Smoky Mountains in the States of North Carolina and Tennessee being approximately seven hundred and four thousand acres, recommended by the Secretary of the Interior in his report of April 14, 1926, which area, or any part or parts thereof as may be accepted on behalf of the United States in accordance with the provisions hereof, shall be known as the Great Smoky Mountains National Park: *Provided*, That the United States shall not purchase by appropriation of public moneys any land within the aforesaid areas, but that such lands shall be secured by the United States only by public or private donation. (U.S.C., 6th supp., title 16, sec. 403.)

Tract in the Blue Ridge, Va. See p. 283.

In the Great Smoky Mountains, N.C. and Tenn.

Proviso. Lands to be secured only by donation.

SEC. 2. The Secretary of the Interior is hereby authorized, in his discretion, to accept as hereinafter provided on behalf of the United States title to the lands referred to in the previous section hereof and to be purchased with the $1,200,000 which has been subscribed by the State of Virginia and the Shenandoah National Park Association of Virginia and with other contributions for the purchase of lands in the Shenandoah National Park area, and with the $1,066,693 which has been subscribed by the State of Tennessee and the Great Smoky Mountains Conservation Association and by the Great Smoky Mountains (Incorporated) (North Carolina) and with other contributions for the purchase of lands in the Great Smoky Mountains National Park area. (U.S.C., 6th supp., title 16, sec. 403a.)

Acceptance of title of lands in Shenandoah Park area in Virginia.

In Smoky Mountain Park area in Tennessee and North Carolina.

SEC. 3. That the administration, protection, and development of the aforesaid parks shall be exercised under the direction of the Secretary of the Interior by the National Park Service, subject to the provisions of the Act of August 25, 1916, entitled "An Act to establish a National Park Service, and for other purposes," as amended: *Provided*, That the provisions of the Act approved June 10, 1920, known as the Federal Water Power Act, shall not apply to these parks: *And provided further*, That the minimum area to be administered and protected by the National Park Service shall be for the Shenandoah National Park area two hundred and fifty thousand acres[1] and for the Great Smoky Mountains National Park area one hundred and fifty thousand acres: *Provided further*, That no general development of either of these areas shall be undertaken until a major portion of the remainder in such area shall have been accepted by said Secretary. (U.S.C., 6th supp., title 16, sec. 403b.)

National Park Service to administer, etc. Vol. 39, p. 535. See p. 9.

Proviso. Water Power Act not applicable. Vol. 41, p. 1063.

Minimum area specified.

Area to be accepted before any development made.

SEC. 4. The Secretary of the Interior may for the purpose of carrying out the provisions of this Act employ the commission authorized by the Act approved February 21, 1925. (U.S.C., 6th supp., title 16, sec. 403c.)

Commission employed. Vol. 43, p. 968. See p. 253.

An Act To establish a minimum area for a Shenandoah National Park, for administration, protection, and general development by the National Park Service, and for other purposes, approved February 16, 1928 (45 Stat. 109)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the minimum area for administration, protection, and general development by the National Park Service in the Shenandoah National Park, the establishment of which is provided for by the Act of Congress approved May 22, 1926 (Forty-fourth Statutes, page 616), be, and the same is hereby, established as three hundred and twenty-seven thousand acres, and so much of the said Act of May 22, 1926, as is inconsistent herewith is hereby repealed. (U.S.C., 6th supp., title 16, sec. 403d.)

Shenandoah National Park, Va. Minimum area of, established.[1] Vol. 44, p. 616, amended. See p. 284.

SEC. 2. That the Secretary of the Interior is hereby authorized to lease lands within the Shenandoah National Park and Great Smoky Mountains National Park for periods not exceeding two years, upon such conditions as he may in his discretion deem proper, to persons and educational or religious institutions occupying same or who had or claim to have had some interest in the title to the same prior to the establishment of the park. (U.S.C., 6th supp., title 16, sec. 403e.)

Leases authorized to prior occupants of lands in Shenandoah and Great Smoky Mountains Parks.

An Act To establish a minimum area for a Shenandoah National Park, for administration, protection, and general development by the National Park Service, and for other purposes, approved February 4, 1932 (47 Stat. 37)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the minimum area for administration, protection, and general development by the National Park Service in the Shenandoah National Park, the establishment of which is provided for by the Act of Congress approved May 22, 1926 (44 Stat. 616), be, and the same is hereby, established as one hundred and sixty thousand acres, and so much of the said Act of May 22, 1926, and of the Act of February 16, 1928 (45 Stat. 109), as is inconsistent herewith is hereby repealed. (U.S.C., 6th supp., title 16, sec. 403d.)

Shenandoah National Park. Area for development by National Park Service, established. Vol. 44, p. 616. See p. 284. Vol. 45, p. 109. See p. 285.

SEC. 2. That the Secretary of the Interior be, and he is hereby, authorized in his discretion to accept title to lands tendered without cost to the United States within the areas of the Shenandoah National Park, the Great Smoky Mountains National Park, Mammoth Cave National Park, and the Isle Royale National Park, subject to leases entered into and granted as part consideration in connection with the purchase of said land for tender to the United States for park purposes, but not exceeding in length of term the life of the particular grantor or grantors: *Provided*, That said leases and the terms and conditions thereof shall have previously been submitted to and approved by said Secretary: *And provided further*, That he may lease upon such terms and conditions as he deems proper any lands within the aforesaid areas when such use shall not be deemed by him inconsistent with the purposes for which the lands were acquired on behalf of the United States, to persons, educational or religious institutions, private corporations, associations, and partnerships previously occupying such land for terms not exceeding the particular lifetime in the case of natural persons, and not exceeding twenty years in all other cases, which latter leases may be renewed in the discretion of said Secretary: *And provided further*, That the Secretary of the Interior may accept lands for these parks subject to reservations of rights of way and easements. (U.S.C., 6th supp., title 16, sec. 403f.)

Acceptance of title to land, subject to leases.

Provisos. Approval of Secretary of the Interior, required.

Authority to lease lands.

Acceptance of lands subject to easements, etc.

An Act To direct the Secretary of the Interior to notify the State of Virginia that the United States assumes police jurisdiction over the lands embraced within the Shenandoah National Park, and for other purposes, approved August 19, 1937 (50 Stat. 700)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Interior be, and is hereby, directed to give notice to the State of Virginia through its Governor, as contemplated by the Act of the General Assembly of the State of Virginia approved March 28, 1928, that the United States assumes police jurisdiction over lands lying in the State of Virginia and included within the Shenandoah National Park, title to and exclusive jurisdiction over said lands having been conveyed and ceded under and by authority of said Act and accepted by the Secretary of the Interior, saving, however, to the State of Virginia the right to serve civil or criminal process within the limits of the aforesaid park in suits or prosecutions for or on account of rights acquired, obligations incurred, or crimes committed in said State outside of said park; and saving further to the said State the right to tax persons and corporations, their franchises and property on the lands included in said park; and saving also to the persons residing in said park now, or hereafter, the right to vote at all elections held within the county or counties in which said park is situated; and saving further to the said State the right to tax sales of gasoline and other motor vehicle fuels and oil for use in motor vehicles. The Secretary is further directed to give like notice as to lands hereafter conveyed to the United States under like authority at such time or times as he shall determine to be consistent with the interests of the United States. All the laws applicable to places under sole and exclusive jurisdiction of the United States shall have force and effect in said park. All fugitives from justice taking refuge in said park shall be subject to the same laws as refugees from justice found in the State of Virginia. (16 U.S.C. 403c-1.)

Shenandoah National Park, Va.

Police jurisdiction assumed by United States.

Exceptions.

Service of process, suits, etc., arising outside.

State tax powers.

Franchise.

Gasoline, etc., tax.

Provisions applicable to future conveyances.

Application of laws.

Fugitives from justice.

SEC. 2. That said park shall constitute a part of the United States judicial district for the western district of Virginia, and the district court of the United States in and for said district shall have jurisdiction of all offenses committed within the boundaries of the said park. (16 U.S.C. sec. 403c-2.)

District court for western district of Virginia, jurisdiction of.

SEC. 3. That all hunting or the killing, wounding, or capturing at any time of any wild bird or animal, except dangerous animals when it is necessary to prevent them from destroying human lives or inflicting personal injury, is prohibited within the limits of said park; nor shall any fish be taken out of any of the waters of the said park, in any other way than by hook and line, and then only at such seasons and at such times and in such manner as may be directed by the Secretary of the Interior. That the Secretary of the Interior shall make and publish such general rules and regulations as he may deem necessary and proper for the management and care of the park and for the protection of the property therein, especially for the preservation from injury or spoliation of all timber, mineral deposits, natural curiosities, or wonderful objects within said park, and for the protection of the animals and birds in the park from capture or destruction, and to prevent their being frightened or driven from the said park; and he shall make rules and regulations governing the taking of fish from the streams or lakes in the said park. Possession within said park of the dead bodies or any part thereof of any wild

Protection of birds and animals.

Unlawful fishing.

Administrative rules, etc.

Unlawful acts, evidence of violations.

bird or animal shall be prima-facie evidence that the person or persons having same are guilty of violating this Act. Any person or persons, or stage or express company, or railway company, who knows or has reason to believe that they were taken or killed contrary to the provisions of this Act, and who receives for transportation any of said animals, birds, or fish so killed, caught, or taken, or who shall violate any of the other provisions of this Act, or any rule or regulation that may be promulgated by the Secretary of the Interior, with reference to the management and care of the said park, or for the protection of the property therein for the preservation from injury or spoliation of timber, mineral deposits, natural curiosities, or wonderful objects within said park, or for the protection of the animals, birds, or fish in the said park, or who shall within said park commit any damage, injury or spoliation to or upon any building, fence, sign, hedge, gate, guide post, tree, wood, underwood, timber, garden, crops, vegetables, plants, land, springs, mineral deposits, natural curiosities, or other matter or thing growing or being thereon, or situated therein, shall be deemed guilty of a misdemeanor and shall be subject to a fine of not more than $500 or imprisonment not exceeding six months, or both, and be adjudged to pay all the costs of the proceedings. (16 U.S.C. sec. 403c-3.)

Penalty provisions.

SEC. 4. That all guns, traps, nets, seines, teams, horses, or means of transportation of every nature or description, used by any person or persons within the limits of said park when engaged in killing, trapping, ensnaring, taking, or capturing such wild beasts, birds, fish, or animals, shall be forfeited to the United States and may be seized by the officers in said park and held pending prosecution of any person or persons arrested under the charge of violating the provisions of this Act, and upon conviction under this Act of such person or persons using said guns, traps, nets, seines, teams, horses, or other means of transportation, such forfeiture shall be adjudicated as a penalty in addition to the other punishment prescribed in this Act. Such forfeited property shall be disposed of and accounted for by and under the authority of the Secretary of the Interior. (16 U.S.C. sec. 403c-4.)

Guns, traps, teams, etc., forfeiture or seizure for violations.

Disposition of.

SEC. 5. That upon the recommendation and approval of the Secretary of the Interior of a qualified candidate the United States District Court for the Western District of Virginia shall appoint a commissioner who shall have jurisdiction to hear and act upon all complaints made of any violations of law or of the rules and regulations made by the Secretary of the Interior for the government of the park and for the protection of the animals, birds, and fish, and objects of interest therein, and for other purposes, authorized by this Act. Such commissioner shall have power, upon sworn information, to issue process in the name of the United States for the arrest of any person charged with the commission of any misdemeanor, or charged with a violation of the rules and regulations, or with a violation of any of the provisions of this Act prescribed for the government of said park and for the protection of the animals, birds, and fish in said park, and to try the person so charged, and, if found guilty, to impose punishment and to adjudge the forfeiture prescribed. In all cases of conviction an appeal shall lie from the judgment of said commissioner to the United States District Court for the Western District of Virginia and the United States District Court in the aforementioned district shall prescribe the rules of procedure and practice for said commissioner in the trial of cases and for appeal to said United States District Court. (16 U.S.C. sec. 403c-5.)

United States commissioner. Appointment, jurisdiction.

Judicial powers in violation of rules, etc.

Appeals.

Duties, powers, etc.

SEC. 6. That any and all United States commissioners now or hereafter authorized to act within the western district of Virginia and any and all persons who shall hereafter succeed to the duties, powers, and authority of United States commissioners in and for said district shall have full power, authority, and jurisdiction to act, with respect to offenses or violations of law occurring within the limits of the Shenandoah National Park, as the United States commissioner for the Shenandoah National Park may act with respect to offenses or violations of law occurring within the limits of said park. (16 U.S.C. sec. 403c-6.)

Arrest and confinement of persons charged with crime.

SEC. 7. That such commissioner shall also have power to issue process as hereinbefore provided for the arrest of any person charged with the commission within said park of any criminal offense not covered by the provisions of section 3 of this Act, to hear the evidence introduced, and, if he is of the opinion that probable cause is shown for holding the person so charged for trial, shall cause such person to be safely conveyed to a secure place of confinement within the jurisdiction of the United States District Court for the Western District of Virginia, and certify a transcript of the record of his proceedings and the testimony in such case to court, which court shall have jurisdiction of the case: *Provided,* That the said commissioner shall grant bail in all cases bailable under the laws of the United States or of said State. (16 U.S.C. sec. 403c-7.)

Proviso.

Bail.

Processes directed to marshal.

SEC. 8. That processes issued by the commissioner shall be directed to the marshal of the United States for the western district of Virginia but nothing herein contained shall be so construed as to prevent the arrest by any officer or employee of the Government or any person employed by the United States, without process of any person taken in the act of violating the law or this Act or the regulations prescribed by the said Secretary as aforesaid. (16 U.S.C. sec. 403c-8.)

Salary.

SEC. 9. That the commissioner provided for in this Act shall be paid an annual salary, as appropriated for by Congress: *Provided,* That the said commissioner shall reside within the exterior boundaries of the Shenandoah National Park or at a place reasonably adjacent to the park, the place of residence to be designated by the Secretary of the Interior: *And provided further,* That all fees, costs, and expenses collected by the commissioner shall be disposed of as provided in section 11 of this Act. (16 U.S.C. sec. 403c-9.)

Provisos.

Residence.

Disposal of fees, etc.

Fees chargeable to United States, payment of.

SEC. 10. That all fees, costs, and expenses arising in cases under this Act and properly chargeable to the United States shall be certified, approved, and paid as are like fees, costs, and expenses in the courts of the United States. (16 U.S.C. sec. 403c-10.)

Deposit of fines and costs.

SEC. 11. That all fines and costs imposed and collected shall be deposited by said commissioner of the United States, or the marshal of the United States collecting the same, with the clerk of the United States District Court for the Western District of Virginia. (16 U.S.C. sec. 403c-11.)

An Act To add certain lands of the Front Royal Quartermaster Depot Military Reservation, Virginia, to the Shenandoah National Park, and for other purposes, approved June 13, 1939 (53 Stat. 815)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following-described lands of the Front Royal Quartermaster Depot Military Reservation, Virginia, are hereby made a part of the Shenandoah National Park, subject to all laws and regulations applicable thereto: Beginning at concrete monument numbered 10 in the boundary line of the Front Royal Remount Depot, and running thence along said boundary line, north 70 degrees 00 minutes west 3,465.0 feet to monument numbered 11, thence north 40 degrees 30 minutes west 1,881.0 feet to monument numbered 12, thence north 2 degrees 00 minutes west 792.0 feet to monument numbered 13, thence north 78 degrees 00 minutes west 693.0 feet to monument numbered 14, thence south 1 degree 30 minutes west 379.5 feet to monument numbered 15, thence south 61 degrees 15 minutes west 2,244.0 feet to monument numbered 16, thence south 16 degrees 00 minutes east 2,640.0 feet to monument numbered 17, thence south 61 degrees 15 minutes west 3,333.0 feet to monument numbered 18, thence south 15 degrees 00 minutes east 646.8 feet to monument numbered 19, thence south 63 degrees 00 minutes west 627.0 feet to monument numbered 20, thence south 15 degrees 00 minutes west 1,254.0 feet to monument numbered 21, thence south 48 degrees 00 minutes east 3,267.0 feet to monument numbered 22, thence north 34 degrees 00 minutes east 297.0 feet to monument numbered 23, thence north 25 degrees 00 minutes west 1,551.0 feet to monument numbered 24, thence north 67 degrees 00 minutes east 1,716.0 feet to monument numbered 25, thence north 58 degrees 00 minutes east 2,862.75 feet to monument numbered 26, thence north 79 degrees 00 minutes east 2,377.15 feet to monument numbered 27, thence south 28 degrees 30 minutes west 338.25 feet to monument numbered 28 (offset 4 feet west), thence south 30 degrees 00 minutes west 462.0 feet to monument numbered 29 (offset 14 feet east), thence south 40 degrees 00 minutes west 396.0 feet to monument numbered 30 (offset 9.0 feet east), thence south 54 degrees 00 minutes west 132.0 feet to monument numbered 31 (offset 10.0 feet east), thence south 75 degrees 00 minutes west 429.0 feet to monument numbered 32, thence south 62 degrees 00 minutes west 297.0 feet to monument numbered 33 (offset 3.0 feet southeast), thence south 41 degrees 00 minutes west 462.0 feet to monument numbered 34 (offset 5.0 feet south), thence south 53 degrees 00 minutes west 264.0 feet to monument numbered 35 (offset 4 feet south), thence south 80 degrees 00 minutes west 165.0 feet to monument numbered 36 (offset 8.0 feet south), thence north 85 degrees 00 minutes west 396.0 feet to monument numbered 37 (offset 9.0 feet

Shenandoah National Park, Va.

Certain lands of Front Royal Quartermaster Depot Military Reservation added to.

Description.

north), south 40 degrees 00 minutes west 354.75 feet to monument numbered 38, thence south 27 degrees 00 minutes east 1,023.0 feet to monument numbered 39, thence north 73 degrees 30 minutes east, 1,518.0 feet to monument numbered 40, thence north 52 degrees 00 minutes east 330.0 feet to monument numbered 41, thence along a proposed boundary line north 19 degrees 51 minutes east 1,684.5 feet to point A.1, thence north 52 degrees 20 minutes east 1,107.0 feet to point A.2, thence north 39 degrees 26 minutes east 717.5 feet to a point A.3, thence north 26 degrees 11 minutes east 1,978.0 feet to concrete monument numbered 10, the point of beginning, it being the intent of this Act to add to the Shenandoah National Park all that portion of the Front Royal Quartermaster Depot Military Reservation lying west of a line between monuments numbered 41 and 10, as described by the last four courses of the above description. The tract as described contains an area 977½ acres, more or less. (16 U.S.C. sec. 403-1.)

An Act To amend section 1 of the Act approved August 19, 1937 (50 Stat. 700), entitled "An Act to direct the Secretary of the Interior to notify the State of Virginia that the United States assumes police jurisdiction over the lands embraced within the Shenandoah National Park, and for other purposes," approved June 5, 1942 (56 Stat. 321)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 1 of the Act of August 19, 1937 (50 Stat. 700), entitled "An Act to direct the Secretary of the Interior to notify the State of Virginia that the United States assumes police jurisdiction over the lands embraced within the Shenandoah National Park, and for other purposes", is hereby amended to read as follows:

Shenandoah National Park, Va.

16 U.S.C. secs. 403c-1.

"That in order to provide for uniform Fereral jurisdiction over all of the lands now or hereafter embraced within the Shenandoah National Park, the provisions of the Act of the General Assembly of the Commonwealth of Virginia, approved April 1, 1940 (Acts of 1940, ch. 402, p. 725), fixing and defining the respective jurisdiction and powers of the Commonwealth of Virginia and the United States and ceding to the United States exclusive police jurisdiction over all lands now or hereafter included within the park are hereby accepted and such exclusive jurisdiction is assumed by the United States over such lands. From the effective date of this Act the respective jurisdiction and powers of the Commonwealth of Virginia and the United States over all lands within the Shenandoah National Park as it is now constituted or may hereafter be extended shall be as follows:

Assumption by U. S. of exclusive police jurisdiction.

State and Federal powers defined.

"(a) The United States shall have exclusive jurisdiction, legislative, executive, and judicial, with respect to the commission of crimes, and the arrest, trial, and punishment therefor, and exclusive general police jurisdiction thereover. U. S. jurisdiction and powers. Commission of crimes.

"(b) The United States shall have the power to regulate or prohibit the sale of alcoholic beverages on said lands: *Provided, however,* That, if the sale of alcoholic beverages is prohibited by general law in the Commonwealth of Virginia outside of said lands, no such alcoholic beverages shall be sold on said lands contained in said park area: *And provided further,* That, if the general laws of the Commonwealth of Virginia permit the sale of alcoholic beverages, then the regulations of the United States relating to such sales on said lands shall conform as nearly as possible to the regulatory provisions in accordance with which such sales are permitted in the Commonwealth of Virginia outside of said park lands. Nothing in this subsection shall be construed as reserving in the Commonwealth power to require licenses of persons engaged in the sale of intoxicating beverages on said lands, nor the power to require that any sales be made through official liquor stores. Sale of alcoholic beverages. *Provisos.* Effect of general laws of Virginia.

"(c) The Commonwealth of Virginia shall have jurisdiction to serve civil process within the limits of said park in any suits properly instituted in any of the courts of the Commonwealth of Virginia, and to serve criminal process within said limits in any suits or prosecutions for or on account of crimes committed in said Commonwealth but outside of said park. Jurisdiction and powers of Virginia. Service of process.

"(d) The Commonwealth of Virginia shall have the jurisdiction and power to levy a nondiscriminatory tax on all alcoholic beverages possessed or sold on said lands. Beverage tax.

"(e) The Commonwealth of Virginia shall have jurisdiction and power to tax the sales of oil and gasoline, and other motor-vehicle fuels and lubricants for use in motor vehicles. This subsection shall not be construed as a consent by the United States to the taxation by the Commonwealth of such sales for the exclusive use of the United States. Motor-vehicle fuel, etc., taxes.

"(f) The Commonwealth of Virginia shall have the jurisdiction and power to levy nondiscriminatory taxes on private individuals, associations, and corporations, their franchises and properties, on said lands, and on their businesses conducted thereon. Taxes on individuals, corporations, etc.

"(g) The courts of the Commonwealth of Virginia shall have concurrent jurisdiction with the courts of the United States of all civil causes of action arising on said lands to the same extent as if the cause of action has arisen in the county or city in which the land lies outside the park area, and the State officers shall have jurisdiction to enforce on said lands the judgments of said State courts and the collection of taxes by appropriate process. Concurrent jurisdiction in civil actions. Enforcement of judgments; collection of taxes.

"(h) Persons residing in or on any of the said lands embraced in said Shenandoah National Park shall have the right to establish a voting residence in Virginia by reason thereof, and the consequent right to vote at all elections within the county or city in which said land or lands upon which they reside are located upon like terms and conditions, and to the same extent, as they would be entitled to vote in such county or city if the said lands on which they reside had not been deeded or conveyed to the United States of America. All fugitives from justice taking refuge in the park shall be subject to the same laws as refugees from justice found in the Commonwealth of Virginia." (16 U.S.C. sec. 403c-1.) Right to vote. Fugitives from justice.

Excerpt from "An Act To authorize the disposition of recreational demonstration projects, and for other purposes," approved June 6, 1942 (56 Stat. 327)

SEC. 2. From and after the date of this Act, the lands acquired for the Acadia, French Creek, Shenandoah, and White Sands recreational demonstration projects shall be added to and become a part of Acadia National Park, Hopewell Village National Historic Site, Shenandoah National Park, and White Sands National Monument, in the order named above, subject to all laws, rules, and regulations applicable to the respective areas to which such recreational demonstration projects are added: *Provided,* That within six months after the date of this Act the Secretary of the Interior shall file with The National Archives a map of each recreational demonstration project enumerated in this section. (16 U.S.C. sec. 459s.)

An Act To provide that the United States District Court for the Western District of Virginia shall alone appoint the United States commissioner for the Shenandoah National Park, approved May 15, 1947 (61 Stat. 92)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the first sentence of section 5 of the Act entitled "An Act to direct the Secretary of the Interior to notify the State of Virginia that the United States assumes police jurisdiction over the lands embraced within the Shenandoah National Park, and for other purposes", approved August 19, 1937 (U.S.C., 1940 edition, title 16, sec. 403c–5), is amended by striking out "upon the recommendation and approval of the Secretary of the Interior of a qualified candidate". (See 28 U.S.C. § 631 note.)

Shenandoah National Park. Appointment of commissioner.

50 Stat. 702.

An Act To authorize the exchange of certain property within Shenandoah National Park, in the State of Virginia, and for other purposes, approved September 13, 1960 (74 Stat. 915)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Interior may accept title to approximately 37.44 acres of land within the authorized boundaries of the Shenandoah National Park, said land fronting on United States Highway Numbered 211 and being more particularly described as follows:

Shenandoah National Park, Va. Land exchange.

Beginning at park monument H–8, thence with the park boundary line the following courses and distances: north 51 degrees 57 minutes, east 2,242.0 feet to park monument H–9; south 26 degrees 40 minutes, east 51.0 feet to park monument H–10; south 32 degrees 40 minutes, east 340.0 feet to park monument H–11; south 11 degrees 35 minutes, east 190.0 feet to park monument H–12; south 41 degrees 26 minutes, east 329.0 feet to park monument H–13; thence crossing Pass Run south 57 degrees 00 minutes 36 seconds, west 1,871.32 feet to a marked white oak tree near the northeast edge of the fire road on top of Piney Mountain, thence north 58 degrees 36 minutes, west 771.16 feet to the point of beginning.

In exchange for the aforesaid land the Secretary is authorized to convey on the basis of approximately equal values a parcel of park land containing approximately 38.58 acres, being more particularly described as follows:

Beginning at park monument P–153, a point in the center of Route 666, Virginia Department of Highways, thence with the park boundary line the following courses and distances: north 66 degrees 27 minutes, west 345.0 feet to park monument P–152; north 41 degrees 08 minutes, east 705.0 feet to park monument P–151; north 63 degrees 01 minutes, west 302.0 feet to park monument P–150; north 30 degrees 38 minutes, east 1,110.0 feet to park monument P–149; south 74 degrees 36 minutes, east 443.0 feet to park monument P–148; north 41 degrees 33 minutes, east 109.0 feet to park monument P–147; south 69 degrees 50 minutes, east 668.0 feet to the center of the said Route 666; thence leaving the courses of the park boundary line and following the alinement of said Route 666 for the following courses and distances; south 36 degrees 26 minutes, west 436.0 feet; south 33 degrees 45 minutes, west 398.0 feet; south 29 degrees 39 minutes, west 388.0 feet; south 13 degrees 55 minutes, west 100.0 feet; south 04 degrees 16 minutes, west 70.0 feet; south 32 degrees 37 minutes, west 49.0 feet; north 89 degrees 45 minutes, west 43.0 feet; north 66 degrees 43 minutes, west 50.0 feet; north 89 degrees 26 minutes, west 100.0 feet; north 73 degrees 39 minutes, west 78.0 feet; north 84 degrees 11 minutes, west 45.0 feet; south 72 degrees 08 minutes, west 100.0 feet; south 43 degrees 17 minutes, west 50.0 feet; south 30 degrees 57 minutes, west 73.0 feet; south 47 degrees 22 minutes, west 70.0 feet; south 65 degrees 32 minutes, west 68.0 feet; south 80 degrees 05 minutes, west 130.0 feet; south 51 degrees 40 minutes, west 118.0 feet; south 66 degrees 51 minutes, west 36.0 feet; to the point of beginning. (16 U.S.C. § 403–2, [Supp. II].)

An Act To transfer a section of Blue Ridge Parkway to the Shenandoah National Park, in the State of Virginia, and for other purposes, approved June 30, 1961 (75 Stat. 192)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That subject to valid existing rights, the lands and interests in lands which comprise section 1–A of the Blue Ridge Parkway and lie between the southern boundary of the Shenandoah National Park at Jarman Gap and parkway centerline station 448+00 at Rockfish Gap are excluded from the parkway, made a part of the Shenandoah National Park, and shall be administered in accordance with the Act of August 25, 1916 (39 Stat. 535; 16 U.S.C. 1–4), as amended and supplemented. (16 U.S.C. § 403–3.)

Public Law 94–565
94th Congress

An Act

Oct. 20, 1976
[H.R. 9719]

To provide for certain payments to be made to local governments by the Secretary of the Interior based upon the amount of certain public lands within the boundaries of such locality.

Local government units.
Public lands, payments.
31 USC 1601.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That effective for fiscal years beginning on and after October 1, 1976, the Secretary is authorized and directed to make payments on a fiscal year basis to each unit of local government in which entitlement lands (as defined in section 6) are located. Such payments may be used by such unit for any governmental purpose. The amount of such payments shall be computed as provided in section 2.

Amounts, determination.
31USC 1602.

SEC. 2. (a) The amount of any payment made for any fiscal year to a unit of local government under section 1 shall be equal to the greater of the following amounts—

(1) 75 cents for each acre of entitlement land located within the boundaries of such unit of local government (but not in excess of the population limitation determined under subsection (b)), reduced (but not below 0) by the aggregate amount of payments, if any, received by such unit of local government during the preceding fiscal year under all of the provisions specified in section 4, or

(2) 10 cents for each acre of entitlement land located within the boundaries of such unit of local government (but not in excess of the population limitation determined under subsection (b)).

In the case of any payment under a provision specified in section 4 which is received by a State, the Governor (or his delegate) shall submit to the Secretary a statement respecting the amount of such payment which is transferred to each unit of local government within the State.

(b) (1) In the case of any unit of local government having a population of less than five thousand, the population limitation applicable to such unit of local government shall not exceed an amount equal to $50 multiplied by the population within the jurisdiction of such unit of local government.

(2) In the case of any unit of local government having a population of five thousand or more, the population limitation applicable to such unit of local government shall not exceed the amount computed under the following table (using a population figure rounded off to the nearest thousand):

If population equals—	Payment shall not exceed the amount computed by multiplying such population by—
5,000	$50.00
6,000	47.00
7,000	44.00
8,000	41.00
9,000	38.00
10,000	35.00
11,000	34.00
12,000	33.00
13,000	32.00

If population equals—	Payment shall not exceed the amount computed by multiplying such population by—
14,000	31.00
15,000	30.00
16,000	29.50
17,000	29.00
18,000	28.50
19,000	28.00
20,000	27.50
21,000	27.20
22,000	26.90
23,000	26.60
24,000	26.30
25,000	26.00
26,000	25.80
27,000	25.60
28,000	25.40
29,000	25.20
30,000	25.00
31,000	24.75
32,000	24.50
33,000	24.25
34,000	24.00
35,000	23.75
36,000	23.50
37,000	23.25
38,000	23.00
39,000	22.75
40,000	22.50
41,000	22.25
42,000	22.00
43,000	21.75
44,000	21.50
45,000	21.25
46,000	21.00
47,000	20.75
48,000	20.50
49,000	20.25
50,000	20.00

For the purpose of this computation no unit of local government shall be credited with a population greater than fifty thousand.

(c) For purposes of this section, "population" shall be determined on the same basis as resident population is determined by the Bureau of the Census for general statistical purposes.

(d) In the case of a smaller unit of local government all or part of which is located within another unit of local government, entitlement lands which are within the jurisdiction of both such units shall be treated for purposes of this section as only within the jurisdiction of such smaller unit.

Payments to counties.
31 USC 1603.

SEC. 3. (a) In the case of any land or interest therein, acquired by the United States (i) for the Redwood National Park pursuant to the Act of October 2, 1968 (82 Stat. 931) or (ii) acquired for addition to the National Park System or National Forest Wilderness Areas after December 31, 1970, which was subject to local real property taxes within the five years preceding such acquisition, the Secretary is authorized and directed to make payments to counties within the jurisdiction of which such lands or interests therein are located, in addition to payments under section 1. The counties, under guidelines established by the Secretary, shall distribute the payments on a proportional basis to those units of local government and affected school districts which have incurred losses of real property taxes due to the acquisition of lands or interests therein for addition to either such system. In those cases in which another unit of local government other

Distribution guidelines.

than the county acts as the collecting and distributing agency for real property taxes, the payments shall be made to such unit of local government, which shall distribute such payments as provided in this subsection. The Secretary may prescribe regulations under which payments may be made to units of local government in any case in which the preceding provisions will not carry out the purposes of this subsection.

Regulations.

(b) Payments authorized under this section shall be made on a fiscal year basis beginning with the later of—

(1) the fiscal year beginning October 1, 1976, or

(2) the first full fiscal year beginning after the fiscal year in which such lands or interests therein are acquired by the United States.

Such payments may be used by the affected local governmental unit for any governmental purpose.

(c) (1) The amount of any payment made for any fiscal year to any unit of local government and affected school districts under subsection (a) shall be an amount equal to 1 per centum of the fair market value of such lands and interests therein on the date on which acquired by the United States. If, after the date of enactment of legislation authorizing any unit of the National Park System or National Forest Wilderness Areas as to which a payment is authorized under subsection (a), rezoning increases the value of the land or any interest therein, the fair market value for the purpose of such payments shall be computed as if such land had not been rezoned.

Rezoned land.

(2) Notwithstanding paragraph (1), the payment made for any fiscal year to a unit of local government under subsection (a) shall not exceed the amount of real property taxes assessed and levied on such property during the last full fiscal year before the fiscal year in which such land or interest was acquired for addition to the National Park System or National Forest Wilderness Areas.

Payment limitation.

(d) No payment shall be made under this section with respect to any land or interest therein after the fifth full fiscal year beginning after the first fiscal year in which such a payment was made with respect to such land or interest therein.

31 USC 1604.

SEC. 4. The provisions of law referred to in section 2 are as follows:

(1) the Act of May 23, 1908, entitled "An Act making appropriations for the Department of Agriculture for the fiscal year ending June thirtieth, nineteen hundred and nine" (35 Stat. 251; 16 U.S.C. 500);

(2) the Act of June 20, 1910, entitled "An Act to enable the people of New Mexico to form a constitution and State government and be admitted into the Union on an equal footing with the original States, and to enable the people of Arizona to form a constitution and State government and be admitted into the Union on an equal footing with the original States" (36 Stat. 557);

(3) section 35 of the Act of February 25, 1920, entitled "An Act to promote the mining of coal, phosphate, oil, oil shale, gas, and sodium on the public domain", commonly known as the "Mineral Lands Leasing Act" (41 Stat. 450; 30 U.S.C. 191);

(4) section 17 of the Federal Power Act (41 Stat. 1072; 16 U.S.C. 810);

(5) section 10 of the Taylor Grazing Act (48 Stat. 1273; 43 U.S.C. 315i);

(6) section 33 of the Bankhead-Jones Farm Tenant Act (50 Stat. 526; 7 U.S.C. 1012);

(7) section 5 of the Act entitled "To safeguard and consolidate certain areas of exceptional public value within the Superior National Forest, State of Minnesota, and for other purposes", approved June 22, 1948 (62 Stat. 570; 16 U.S.C. 577g);

(8) section 5 of the Act entitled "An Act to amend the Act of June 22, 1948 (62 Stat. 568) and for other purposes" approved June 22, 1956 (70 Stat. 366; 16 U.S.C. 577g-1);

(9) section 6 of the Mineral Leasing Act for Acquired Lands (61 Stat. 915; 30 U.S.C. 355); and

(10) section 3 of the Materials Disposal Act (61 Stat. 681; 30 U.S.C. 603).

Eligibility.
31 USC 1605.

SEC. 5. (a) No unit of local government which receives any payment with respect to any land under the Act of August 28, 1937 (50 Stat. 875), or the Act of May 24, 1939 (53 Stat. 753), during any fiscal year shall be eligible to receive any payment under this Act for such fiscal year with respect to such land. Nothing in this Act shall be construed to apply to the Act of August 28, 1937 (50 Stat. 875), or the Act of May 24, 1939 (53 Stat. 753).

(b) If the total payment by the Secretary to any county or unit of local government under this Act would be less than $100, such payment shall not be made.

Definitions.
31 USC 1606.

SEC. 6. As used in this Act, the term—

(a) "entitlement lands" means lands owned by the United States that are—

(1) within the National Park System, the National Forest System, including wilderness areas within each, or any combination thereof, including, but not limited to, lands described in section 2 of the Act referred to in paragraph (7) of section 4 of this Act (16 U.S.C. 577d) and the first section of the Act referred to in paragraph (8) of this Act (16 U.S.C. 577d-1);

(2) administered by the Secretary of the Interior through the Bureau of Land Management;

(3) dedicated to the use of water resource development projects of the United States;

(4) nothing in this section shall authorize any payments to any unit of local government for any lands otherwise entitled to receive payments pursuant to subsection (a) of this section if such lands were owned and/or administered by a State or local unit of government and exempt from the payment of real estate taxes at the time title to such lands is conveyed to the United States; or

(5) dredge disposal areas owned by the United States under the jurisdiction of the Army Corps of Engineers;

(b) "Secretary" means the Secretary of the Interior; and

(c) "unit of local government" means a county, parish, township, municipality, borough existing in the State of Alaska on the date of enactment of this Act, or other unit of government below the State which is a unit of general government as determined by the Secretary (on the basis of the same principles as are used by the Bureau of the Census for general statistical purposes). Such term also includes the Commonwealth of Puerto Rico, Guam, and the Virgin Islands.

Appropriation authorization.
31 USC 1607

SEC. 7. There are authorized to be appropriated for carrying out the provisions of this Act such sums as may be necessary: *Provided*, That, notwithstanding any other provision of this Act no funds may be made available except to the extent provided in advance in appropriation Acts.

Approved October 20, 1976.

SEC. 3. The Act entitled "An Act to provide for certain payments to be made to local governments by the Secretary of the Interior based upon the amount of certain public lands within the boundaries of such locality", approved October 20, 1976 (90 Stat. 2662; 31 U.S.C. 1601) is amended as follows:

(1) in subsection (a) of section 6 delete clause (4) and insert in lieu thereof the following new clause: 31 USC 1606.

"(4) effective October 1, 1978, lands on which are located semi-active or inactive installations, not including industrial installations, retained by the Army for mobilization purposes and for support of reserve component training; or".

(2) at the end of section 5 insert the following new subsection: 31 USC 1605.

"(c) Nothing in this Act shall authorize any payments to any unit of local government for any lands otherwise entitled to receive payments pursuant to subsection (a) of section 6 if such lands were owned and/or administered by a State or unit of local government and exempt from payment of real estate taxes at the time title to such lands is conveyed to the United States, except that, beginning in fiscal year 1979, this subsection shall cease to be applicable to payments for any land which is or was acquired by a State or unit of local government from private parties for the purpose of donation of such land to the Federal Government and which is or was so donated within eight years of the date of acquisition thereof by the State or unit of local government."; 31 USC 1606.
and

(3) at the end of section 3 insert the following new subsection: 31 USC 1603.

"(c) Notwithstanding the provisions of subsection (c) of section 6 of this Act as it applies to the State of Alaska, for purposes of this section, beginning in fiscal year 1979 a unit of local government in Alaska located outside the boundaries of an organized borough which acts as the collecting and distributing agency for real property taxes shall be eligible to receive payments under the foregoing provisions of this section.".

Approved October 17, 1978.

Public Law 90-543
90th Congress, S. 827
October 2, 1968

An Act

To establish a national trails system, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

National Trails System Act.

SHORT TITLE

SECTION 1. This Act may be cited as the "National Trails System Act".

STATEMENT OF POLICY

SEC. 2. (a) In order to provide for the ever-increasing outdoor recreation needs of an expanding population and in order to promote public access to, travel within, and enjoyment and appreciation of the open-air, outdoor areas of the Nation, trails should be established (i) primarily, near the urban areas of the Nation, and (ii) secondarily, within established scenic areas more remotely located.

(b) the purpose of this Act is to provide the means for attaining these objectives by instituting a national system of recreation and scenic trails, by designating the Appalachian Trail and the Pacific Crest Trail as the initial components of that system, and by prescribing the methods by which, and standards according to which, additional components may be added to the system.

NATIONAL TRAILS SYSTEM

SEC. 3. The national system of trails shall be composed of—

(a) National recreation trails, established as provided in section 4 of this Act, which will provide a variety of outdoor recreation uses in or reasonably accessible to urban areas.

(b) National scenic trails, established as provided in section 5 of this Act, which will be extended trails so located as to provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass.

(c) Connecting or side trails, established as provided in section 6 of this Act, which will provide additional points of public access to national recreation or national scenic trails or which will provide connections between such trails.

The Secretary of the Interior and the Secretary of Agriculture, in consultation with appropriate governmental agencies and public and private organizations, shall establish a uniform marker for the national trails system.

NATIONAL RECREATION TRAILS

SEC. 4. (a) The Secretary of the Interior, or the Secretary of Agriculture where lands administered by him are involved, may establish and designate national recreation trails, with the consent of the Federal agency, State, or political subdivision having jurisdiction over the lands involved, upon finding that—

(i) such trails are reasonably accessible to urban areas, and, or

(ii) such trails meet the criteria established in this Act and such supplementary criteria as he may prescribe.

(b) As provided in this section, trails within park, forest, and other recreation areas administered by the Secretary of the Interior or the Secretary of Agriculture or in other federally administered areas may be established and designated as "National Recreation Trails" by the

appropriate Secretary and, when no Federal land acquisition is involved—

(i) trails in or reasonably accessible to urban areas may be designated as "National Recreation Trails" by the Secretary of the Interior with the consent of the States, their political subdivisions, or other appropriate administering agencies, and

(ii) trails within park, forest, and other recreation areas owned or administered by States may be designated as "National Recreation Trails" by the Secretary of the Interior with the consent of the State.

NATIONAL SCENIC TRAILS

SEC. 5. (a) National scenic trails shall be authorized and designated only by Act of Congress. There are hereby established as the initial National Scenic Trails:

(1) The Appalachian Trail, a trail of approximately two thousand miles extending generally along the Appalachian Mountains from Mount Katahdin, Maine, to Springer Mountain, Georgia. Insofar as practicable, the right-of-way for such trail shall comprise the trail depicted on the maps identified as "Nationwide System of Trails, Proposed Appalachian Trail. NST-AT-101-May 1967", which shall be on file and available for public inspection in the office of the Director of the National Park Service. Where practicable, such rights-of-way shall include lands protected for it under agreements in effect as of the date of enactment of this Act, to which Federal agencies and States were parties. The Appalachian Trail shall be administered primarily as a footpath by the Secretary of the Interior, in consultation with the Secretary of Agriculture.

Rights-of-way.

(2) The Pacific Crest Trail, a trail of approximately two thousand three hundred fifty miles, extending from the Mexican-California border northward generally along the mountain ranges of the west coast States to the Canadian-Washington border near Lake Ross, following the route as generally depicted on the map, identified as "Nationwide System of Trails, Proposed Pacific Crest Trail, NST-PC-103-May 1967" which shall be on file and available for public inspection in the office of the Chief of the Forest Service. The Pacific Crest Trail shall be administered by the Secretary of Agriculture, in consultation with the Secretary of the Interior.

Administration.

(3) The Secretary of the Interior shall establish an advisory council for the Appalachian National Scenic Trail, and the Secretary of Agriculture shall establish an advisory council for the Pacific Crest National Scenic Trail. The appropriate Secretary shall consult with such council from time to time with respect to matters relating to the trail, including the selection of rights-of-way, standards of the erection and maintenance of markers along the trail, and the administration of the trail. The members of each advisory council, which shall not exceed thirty-five in number, shall serve without compensation or expense to the Federal Government for a term of five years and shall be appointed by the appropriate Secretary as follows:

Advisory councils.

Members; term of office.

(i) A member appointed to represent each Federal department or independent agency administering lands through which the trail route passes and each appointee shall be the person designated by the head of such department or agency;

(ii) A member appointed to represent each State through which the trail passes and such appointments shall be made from recommendations of the Governors of such States;

(iii) One or more members appointed to represent private organizations, including landowners and land users, that, in the opinion of the Secretary, have an established and recognized interest in the trail and such appointments shall be made from recommendations

of the heads of such organizations: *Provided*, That the Appalachian Trail Conference shall be represented by a sufficient number of persons to represent the various sections of the country through which the Appalachian Trail passes; and

(iv) The Secretary shall designate one member to be chairman and shall fill vacancies in the same manner as the original appointment.

Additional studies.

(b) The Secretary of the Interior, and the Secretary of Agriculture where lands administered by him are involved, shall make such additional studies as are herein or may hereafter be authorized by the Congress for the purpose of determining the feasibility and desirability of designating other trails as national scenic trails. Such studies shall be made in consultation with the heads of other Federal agencies administering lands through which such additional proposed trails would pass and in cooperation with interested interstate, State, and local governmental agencies, public and private organizations, and landowners and land users concerned. When completed, such studies shall be the basis of appropriate proposals for additional national scenic trails which shall be submitted from time to time to the President and to the Congress. Such proposals shall be accompanied by a report, which shall be printed as a House or Senate document, showing among other things—

Report to President and Congress.

(1) the proposed route of such trail (including maps and illustrations);

(2) the areas adjacent to such trails, to be utilized for scenic, historic, natural, cultural, or developmental, purposes;

(3) the characteristics which, in the judgment of the appropriate Secretary, make the proposed trail worthy of designation as a national scenic trail;

(4) the current status of land ownership and current and potential use along the designated route;

(5) the estimated cost of acquisition of lands or interest in lands, if any;

(6) the plans for developing and maintaining the trail and the cost thereof;

(7) the proposed Federal administering agency (which, in the case of a national scenic trail wholly or substantially within a national forest, shall be the Department of Agriculture);

(8) the extent to which a State or its political subdivisions and public and private organizations might reasonably be expected to participate in acquiring the necessary lands and in the administration thereof; and

(9) the relative uses of the lands involved, including: the number of anticipated visitor-days for the entire length of, as well as for segments of, such trail; the number of months which such trail, or segments thereof, will be open for recreation purposes; the economic and social benefits which might accrue from alternate land uses; and the estimated man-years of civilian employment and expenditures expected for the purposes of maintenance, supervision, and regulation of such trail.

(c) The following routes shall be studied in accordance with the objectives outlined in subsection (b) of this section:

(1) Continental Divide Trail, a three-thousand-one-hundred-mile trail extending from near the Mexican border in southwestern New Mexico northward generally along the Continental Divide to the Canadian border in Glacier National Park.

(2) Potomac Heritage Trail, an eight-hundred-and-twenty-five-mile trail extending generally from the mouth of the Potomac River to its sources in Pennsylvania and West Virginia, including the one-hundred-and-seventy-mile Chesapeake and Ohio Canal towpath.

(3) Old Cattle Trails of the Southwest from the vicinity of San Antonio, Texas, approximately eight hundred miles through Oklahoma via Baxter Springs and Chetopa, Kansas, to Fort Scott, Kansas, including the Chisholm Trail, from the vicinity of San Antonio or Cuero, Texas, approximately eight hundred miles north through Oklahoma to Abilene, Kansas.

(4) Lewis and Clark Trail, from Wood River, Illinois, to the Pacific Ocean in Oregon, following both the outbound and inbound routes of the Lewis and Clark Expedition.

(5) Natchez Trace, from Nashville, Tennessee, approximately six hundred miles to Natchez, Mississippi.

(6) North Country Trail, from the Appalachian Trail in Vermont, approximately three thousand two hundred miles through the States of New York, Pennsylvania, Ohio, Michigan, Wisconsin, and Minnesota, to the Lewis and Clark Trail in North Dakota.

(7) Kittanning Trail from Shirleysburg in Huntingdon County to Kittanning, Armstrong County, Pennsylvania.

(8) Oregon Trail, from Independence, Missouri, approximately two thousand miles to near Fort Vancouver, Washington.

(9) Santa Fe Trail, from Independence, Missouri, approximately eight hundred miles to Sante Fe, New Mexico.

(10) Long Trail, extending two hundred and fifty-five miles from the Massachusetts border northward through Vermont to the Canadian border.

(11) Mormon Trail, extending from Nauvoo, Illinois, to Salt Lake City, Utah, through the States of Iowa, Nebraska, and Wyoming.

(12) Gold Rush Trails in Alaska.

(13) Mormon Battalion Trail, extending two thousand miles from Mount Pisgah, Iowa, through Kansas, Colorado, New Mexico, and Arizona to Los Angeles, California.

(14) El Camino Real from St. Augustine to San Mateo, Florida, approximately 20 miles along the southern boundary of the St. Johns River from Fort Caroline National Memorial to the St. Augustine National Park Monument.

CONNECTING AND SIDE TRAILS

SEC. 6. Connecting or side trails within park, forest, and other recreation areas administered by the Secretary of the Interior or Secretary of Agriculture may be established, designated, and marked as components of a national recreation or national scenic trail. When no Federal land acquisition is involved, connecting or side trails may be located across lands administered by interstate, State, or local governmental agencies with their consent: *Provided*, That such trails provide additional points of public access to national recreation or scenic trails.

ADMINISTRATION AND DEVELOPMENT

SEC. 7. (a) Pursuant to section 5(a), the appropriate Secretary shall select the rights-of-way for National Scenic Trails and shall publish notice thereof in the Federal Register, together with appropriate maps and descriptions: *Provided*, That in selecting the rights-of-way full consideration shall be given to minimizing the adverse effects upon the adjacent landowner or user and his operation. Development and management of each segment of the National Trails System shall be designed to harmonize with and complement any established multiple-use plans for that specific area in order to insure continued maximum benefits from the land. The location and width of such rights-of-way across Federal lands under the jurisdiction of another Federal agency shall be by agreement between the head of that agency and the appro-

Publication in Federal Register.

priate Secretary. In selecting rights-of-way for trail purposes, the Secretary shall obtain the advice and assistance of the States, local governments, private organizations, and landowners and land users concerned.

Relocation of right-of-way, determination.

(b) After publication of notice in the Federal Register, together with appropriate maps and descriptions, the Secretary charged with the administration of a national scenic trail may relocate segments of a national scenic trail right-of-way, with the concurrence of the head of the Federal agency having jurisdiction over the lands involved, upon a determination that: (i) such a relocation is necessary to preserve the purposes for which the trail was established, or (ii) the relocation is necessary to promote a sound land management program in accordance with established multiple-use principles: *Provided*, That a substantial relocation of the rights-of-way for such trail shall be by Act of Congress.

Facilities on trails.

(c) National scenic trails may contain campsites, shelters, and related-public-use facilities. Other uses along the trail, which will not substantially interfere with the nature and purposes of the trail, may be permitted by the Secretary charged with the administration of the trail. Reasonable efforts shall be made to provide sufficient access opportunities to such trails and, to the extent practicable, efforts shall be made to avoid activities incompatible with the purposes for which such trails were established. The use of motorized vehicles by the general public along any national scenic trail shall be prohibited and nothing in this Act shall be construed as authorizing the use of motorized vehicles within the natural and historical areas of the national park system, the national wildlife refuge system, the national wilderness preservation system where they are presently prohibited or on other Federal lands where trails are designated as being closed to such use by the appropriate Secretary: *Provided*, That the Secretary charged with the administration of such trail shall establish regulations which shall authorize the use of motorized vehicles when, in his judgment, such vehicles are necessary to meet emergencies or to enable adjacent landowners or land users to have reasonable access to their lands or timber rights: *Provided further*, That private lands included in the national recreation or scenic trails by cooperative agreement of a landowner shall not preclude such owner from using motorized vehicles on or across such trails or adjacent lands from time to time in accordance with regulations to be established by the appropriate Secretary. The Secretary of the Interior and the Secretary of Agriculture, in consultation with appropriate governmental agencies and public and private organizations, shall establish a uniform marker, including thereon an appropriate and distinctive symbol for each national recreation and scenic trail. Where the trails cross lands administered by Federal agencies such markers shall be erected at appropriate points along the trails and maintained by the Federal agency administering the trail in accordance with standards established by the appropriate Secretary and where the trails cross non-Federal lands, in accordance with written cooperative agreements, the appropriate Secretary shall provide such uniform markers to cooperating agencies and shall require such agencies to erect and maintain them in accordance with the standards established.

Motorized vehicles, prohibition, exceptions.

Uniform markers.

Use, acquisition of lands.

(d) Within the exterior boundaries of areas under their administration that are included in the right-of-way selected for a national recreation or scenic trail, the heads of Federal agencies may use lands for trail purposes and may acquire lands or interests in lands by written cooperative agreement, donation, purchase with donated or appropriated funds or exchange: *Provided*, That not more than twenty-five acres in any one mile may be acquired without the consent of the owner.

Acreage limitation.

(e) Where the lands included in a national scenic trail right-of-way are outside of the exterior boundaries of federally administered areas, the Secretary charged with the administration of such trail shall encourage the States or local governments involved (1) to enter into written cooperative agreements with landowners, private organizations, and individuals to provide the necessary trail right-of-way, or (2) to acquire such lands or interests therein to be utilized as segments of the national scenic trail: *Provided*, That if the State or local governments fail to enter into such written cooperative agreements or to acquire such lands or interests therein within two years after notice of the selection of the right-of-way is published, the appropriate Secretary may (i) enter into such agreements with landowners, States, local governments, private organizations, and individuals for the use of lands for trail purposes, or (ii) acquire private lands or interests therein by donation, purchase with donated or appropriated funds or exchange in accordance with the provisions of subsection (g) of this section. The lands involved in such rights-of-way should be acquired in fee, if other methods of public control are not sufficient to assure their use for the purpose for which they are acquired: *Provided*, That if the Secretary charged with the administration of such trail permanently relocates the right-of-way and disposes of all title or interest in the land, the original owner, or his heirs or assigns, shall be offered, by notice given at the former owner's last known address, the right of first refusal at the fair market price.

Right-of-way lands outside exterior boundaries.

(f) The Secretary of the Interior, in the exercise of his exchange authority, may accept title to any non-Federal property within the right-of-way and in exchange therefor he may convey to the grantor of such property any federally owned property under his jurisdiction which is located in the State wherein such property is located and which he classifies as suitable for exchange or other disposal. The values of the properties so exchanged either shall be approximately equal, or if they are not approximately equal the values shall be equalized by the payment of cash to the grantor or to the Secretary as the circumstances require. The Secretary of Agriculture, in the exercise of his exchange authority, may utilize authorities and procedures available to him in connection with exchanges of national forest lands.

Property suitable for exchange.

(g) The appropriate Secretary may utilize condemnation proceedings without the consent of the owner to acquire private lands or interests therein pursuant to this section only in cases where, in his judgment, all reasonable efforts to acquire such lands or interests therein by negotiation have failed, and in such cases he shall acquire only such title as, in his judgment, is reasonably necessary to provide passage across such lands: *Provided*, That condemnation proceedings may not be utilized to acquire fee title or lesser interests to more than twenty-five acres in any one mile and when used such authority shall be limited to the most direct or practicable connecting trail right-of-way: *Provided further*, That condemnation is prohibited with respect to all acquisition of lands or interest in lands for the purposes of the Pacific Crest Trail. Money appropriated for Federal purposes from the land and water conservation fund shall, without prejudice to appropriations from other sources, be available to Federal departments for the acquisition of lands or interests in lands for the purposes of this Act.

Use of condemnation proceedings to acquire private lands.

Limitation.

Pacific Crest Trail.

(h) The Secretary charged with the administration of a national recreation or scenic trail shall provide for the development and maintenance of such trails within federally administered areas and shall cooperate with and encourage the States to operate, develop, and maintain portions of such trails which are located outside the boundaries of federally administered areas. When deemed to be in the public interest, such Secretary may enter written cooperative agreements with the States or their political subdivisions, landowners, private organi-

Lands within federally administered areas.

zations, or individuals to operate, develop, and maintain any portion of a national scenic trail either within or outside a federally administered area.

Whenever the Secretary of the Interior makes any conveyance of land under any of the public land laws, he may reserve a right-of-way for trails to the extent he deems necessary to carry out the purposes of this Act. Right-of-way reservation.

(i) The appropriate Secretary, with the concurrence of the heads of any other Federal agencies administering lands through which a national recreation or scenic trail passes, and after consultation with the States, local governments, and organizations concerned, may issue regulations, which may be revised from time to time, governing the use, protection, management, development, and administration of trails of the national trails system. In order to maintain good conduct on and along the trails located within federally administered areas and to provide for the proper government and protection of such trails, the Secretary of the Interior and the Secretary of Agriculture shall prescribe and publish such uniform regulations as they deem necessary and any person who violates such regulations shall be guilty of a misdemeanor, and may be punished by a fine of not more than $500, or by imprisonment not exceeding six months, or by both such fine and imprisonment. Regulations. Publication. Penalty.

STATE AND METROPOLITAN AREA TRAILS

SEC. 8. (a) The Secretary of the Interior is directed to encourage States to consider, in their comprehensive statewide outdoor recreation plans and proposals for financial assistance for State and local projects submitted pursuant to the Land and Water Conservation Fund Act, needs and opportunities for establishing park, forest, and other recreation trails on lands owned or administered by States, and recreation trails on lands in or near urban areas. He is further directed, in accordance with the authority contained in the Act of May 28, 1963 (77 Stat. 49), to encourage States, political subdivisions, and private interests, including nonprofit organizations, to establish such trails. 78 Stat. 897. 16 USC 4601-4 note. 16 USC 4601-4601-3.

(b) The Secretary of Housing and Urban Development is directed, in administering the program of comprehensive urban planning and assistance under section 701 of the Housing Act of 1954, to encourage the planning of recreation trails in connection with the recreation and transportation planning for metropolitan and other urban areas. He is further directed, in administering the urban open-space program under title VII of the Housing Act of 1961, to encourage such recreation trails. 73 Stat. 678; 78 Stat. 792; 81 Stat. 262. 40 USC 461. 75 Stat. 183. 42 USC 1500 et seq.

(c) The Secretary of Agriculture is directed, in accordance with authority vested in him, to encourage States and local agencies and private interests to establish such trails.

(d) Such trails may be designated and suitably marked as parts of the nationwide system of trails by the States, their political subdivisions, or other appropriate administering agencies with the approval of the Secretary of the Interior. Suitable markings.

RIGHTS-OF-WAY AND OTHER PROPERTIES

SEC. 9. (a) The Secretary of the Interior or the Secretary of Agriculture as the case may be, may grant easements and rights-of-way upon, over, under, across, or along any component of the national trails system in accordance with the laws applicable to the national park system and the national forest system, respectively: *Provided*, That any conditions contained in such easements and rights-of-way shall be related to the policy and purposes of this Act. Easements and rights-of-way.

1. That §§ 15.1-237 and 58-769.6, as amended, of the Code of Virginia are amended and reenacted and that the Code of Virginia is amended by adding a chapter numbered 36 in Title 15.1, consisting of sections number 15.1-1506 through 15.1-1513, and sections numbered 25-46.2:2 and 33.1-89.1, as follows:

§ 15.1-237. LIMITATION ON POWER OF EMINENT DOMAIN.-- no property shall be condemned for the purposes specified in §§ 15.1-14, 15.1-15 and 15.1-292 unless the necessity therefor shall be shown to exist to the satisfaction of the court having jurisdiction of the case and no property of any public service corporation, except lands required for drains, sewers or public ducts, shall be condemned except in accordance with §§ 15.1-335 to 15.1-340 and 25-233. No property that is within an agricultural and forestal district as provided by § 15.1-1506, et seq. shall be condemned except in accordance with § 15.1-1512.

Provides that no property shall be taken by eminent domain unless the provisions of Section 15.1-1512 of the Agricultural and Forestal Districts Act are met.

CHAPTER 36.

AGRICULTURAL AND FORESTAL DISTRICTS ACT.

§ 15.1-1506. SHORT TITLE.-- This chapter shall be known and may be cited as the "Agricultural and Forestal Districts Act".

§ 15.1-1507. DECLARATION OF POLICY FINDINGS AND PURPOSE.-- It is State policy to conserve and protect and to encourage the development and improvement of its agricultural and forestal lands for the production of food and other agricultural and forestal products. It is also State policy to conserve and protect agricultural and forestal lands as valued natural and ecological resources which provide essential open spaces for clean air sheds, as well as for aesthetic purposes. It is the purpose of this chapter to provide a means by which agricultural and forestal land may be protected and enhanced as a viable segment of the State's economy and as an economic and environmental resource of major importance.

A declaration of State policy to:

- encourage the development and improvement of agricultural and forestal lands for production of food and other agricultural and forestal products
- conserve and protect agricultural and forestal lands as natural and ecological resources

Purpose of the chapter is to provide a means by which agricultural and forestal land may be protected and enhanced as:

- a viable segment of the State's economy
- an economic and environmental resource of major significance.

§ 15.1-1508. DEFINITIONS.-- For the purposes of this chapter:

A. "Advisory Committee" shall mean the agricultural and forestal advisory committee.

B. "Agricultural Products" shall mean crops, livestock and livestock products which shall include, but not be limited to, the following:

1. Field crops, including corn, wheat, oats, rye, barley, hay, tobacco, peanuts, potatoes and dry beans.

2. Fruits, including apples, peaches, grapes,

(b) The Department of Defense, the Department of Transportation, the Interstate Commerce Commission, the Federal Communications Commission, the Federal Power Commission, and other Federal agencies having jurisdiction or control over or information concerning the use, abandonment, or disposition of roadways, utility rights-of-way, or other properties which may be suitable for the purpose of improving or expanding the national trails system shall cooperate with the Secretary of the Interior and the Secretary of Agriculture in order to assure, to the extent practicable, that any such properties having values suitable for trail purposes may be made available for such use.

Cooperation of Federal agencies.

AUTHORIZATION OF APPROPRIATIONS

SEC. 10. There are hereby authorized to be appropriated for the acquisition of lands or interests in lands not more than $5,000,000 for the Appalachian National Scenic Trail and not more than $500,000 for the Pacific Crest National Scenic Trail.

Approved October 2, 1968.

3. The name, address, total acreage owned within the proposed district and signature of each landowner proposing the district; and

4. The date of application, date of final county or city action and whether approved, modified or rejected.

C. The application form shall be accompanied by a United States Geological Survey seven and one-half minute topographic map that clearly shows the boundaries of the proposed district and boundaries of properties within the proposed district owned by each applicant. A General County Highway Map showing the general location of the proposed district shall also accompany each application form.

D. A copy of the application with maps shall be submitted to the Commissioner of the State Department of Agriculture and Commerce by the local governing body together with a copy of the final approved plan. This shall be done only if the application is ultimately approved by the local governing body.

E. The following sample form is intended to illustrate the minimum requirements of this section:

APPLICATION FOR THE CREATION OF
AN AGRICULTURAL AND FORESTAL DISTRICT

(Copies of this form and required maps in a reasonable number as the local governing body may require, shall be submitted by eligible landowners to the local planning commission.)

SECTION A: TO BE COMPLETED BY APPLICANT

1. GENERAL LOCATION OF THE PROPOSED DISTRICT (CITY OR COUNTY).....

2. Each copy of this form shall be accompanied by United States Geological Survey 7.5 minute topographical maps of the area that clearly show the boundaries of the proposed district and boundaries of properties within the proposed district owned by each applicant. A General County Highway Map showing the general location of the proposed district shall also accompany each copy of this form.

3. SUMMARY OF ACREAGES:

A. Estimated total acreage in the proposed district .....

B. Acreage owned by persons proposing the district .....

Sample application forms for the creation of an Agricultural and Forestal District can be secured from the Virginia Department of Agriculture and Commerce, P. O. Box 1163, Richmond, Virginia 23209.

3. Vegetables, including tomatoes, snap beans, cabbage, carrots, beets and onions.

4. Horticultural specialties including nursery stock, ornamental shrubs, ornamental trees and flowers.

5. Livestock and livestock products, including cattle, sheep, hogs, goats, horses, poultry, furbearing animals, milk, eggs and furs.

C. "Agricultural production" shall mean the production for commerical purposes of crops, livestock and livestock products, but not land or portions thereof used for processing or retail merchandising of such crops, livestock or livestock products.

D. "Agriculturally significant land" shall mean land that has historically produced agricultural and forestal products, or land that is considered good agricultural and forestal land by an advisory committee based upon factors other than soil quality such as topography, climate, markets, farm improvements, agricultural economics and technology, and other relevant factors.

E. "Clerk" shall mean the clerk of the local circuit court or the clerk of the local governing body.

F. "Forestal products" shall include, but are not limited to, lumber, pulpwood, posts, firewood, Christmas trees and other wood products for sale or for farm use.

G. "Local governing body" shall mean the governing body of any county or city.

§ 15.1-1509. POWER TO ENACT ORDINANCES; APPLICATION FORM; MAPS; SAMPLE FORM.--

A. The local governing body shall have the authority to enact ordinances and to promulgate forms to effectuate this chapter.

B. The local governing body shall prescribe application forms for agricultural and forestal districts that include but are not limited to the following information:

1. The general location and boundaries of the district;

2. A summary of the acreage in the district including (i) estimated total acreage in the district, (ii) acreage owned by persons proposing the district, and (iii) per centum of acreage in the district owned by persons proposing the district;

Local governments empowered to:

A. Enact ordinances

B. Prescribe application forms

C. Require U.S. Geological Survey maps showing district and property boundaries and general county highway map showing the general location of the proposed district

D. Require that copies of approved district applications and maps be submitted to the Commissioner of Agriculture and Commerce.

C. Per centum of acreage in the district owned by persons proposing the district .....

4. LANDOWNERS PROPOSING THE DISTRICT:

Name	Signature	Address (legal Residence)	Total Acreage Owned In Proposed District

SECTION B: TO BE COMPLETED BY LOCAL GOVERNING BODY

1. Date submitted to local planning commission .....

2. Date submitted to local governing body .....

3. Date of local governing body action .....

☐ Approved ☐ Modified ☐ Rejected

One copy of the application with maps shall be submitted to the Commissioner of the State Department of Agriculture and Commerce by the local governing body along with the final, approved plan.

§ 15.1-1510. AGRICULTURAL AND FORESTAL DISTRICTS' ADVISORY COMMITTEE.-- Upon receipt of the first agricultural and forestal districts application, the governing body shall establish an advisory committee which shall consist of four landowners who are actively farming, four other freeholders of the locality and a member of the local governing body. The members of the committee shall be appointed by and serve at the pleasure of the local governing body. The advisory committee shall meet and organize itself by electing a chairman, a vice chairman and electing or appointing a secretary who need not be a member of the committee. The advisory committee shall serve without pay but the local governing body may reimburse each member for actual and necessary expenses incurred in the performance of his duties. The committee shall advise the local governing body and the local planning commission in relation to the proposed establishment, modification, and termination of agricultural and forestal districts. In particular, the committee shall render expert advice relating to the desirability of such action, including advice as to the nature of farming and forestry and farm and forest resources within the proposed area and the relation of such activities in such area to the entire county or city.

Agricultural and Forestal District Advisory Committee to be established by the local governing body upon receipt of the first application and to consist of:

-- four landowners who are actively farming
-- four other property owners
-- one member of the governing body

Committee to serve without pay, but may be reimbursed for actual and necessary expenses.

Committee to advise the local governing body and local Planning Commission on:

-- establishment of districts
-- modification of districts
-- termination of districts

§ 15.1-1511. AGRICULTURAL AND FORESTAL DISTRICTS; CREATION.--

A. Any owner or owners of land may submit an application to the local governing body for the creation of an agricultural, forestal, or an agricultural and forestal district within such locality, provided that the owner or owners own at least five hundred acres or more than fifty per centum of the land proposed to be included in the district, whichever is greater. Provided, how-

Creation of Agricultural and Forestal Districts

A. Any owner or owners of land may apply to the local governing body (Board of Supervisors or City Council)

-- applicant(s) must own at least 500 acres of more than 50 percent of the land, whichever is greater of the land proposed for inclusion in the district
-- no owner shall own more than 3,500 acres within proposed boundaries of all districts in the State

ever, that no owner, whether he be a person, partnership, association, corporation or other legal entity, shall own in any form more than three thousand five hundred acres of land proposed to be included within the boundaries of all districts in the State. No owner of land shall be included in any agricultural, forestal, or agricultural and forestal district without such owner's written approval or signature on such application. The proposed district may be located in more than one local jurisdiction, provided that (i) separate application is made to each city and county involved, (ii) each local governing body approves such district, and (iii) the total size of such district meets the minimum requirements set out above. The proposal shall be submitted to the local governing body in such manner and form as prescribed by this chapter.

B. Upon the receipt of such proposal, it may be referred by the local governing body to the planning commission which shall:

1. Provide notice of such proposal by publishing a notice in a newspaper having general circulation within the proposed district and by posting such notice in five conspicuous places within the proposed district. The notice shall contain the following information: (i) a statement that a proposal for an agricultural district has been filed with the local governing body and referred to the local planning commission pursuant to this chapter; (ii) a statement that the proposal will be on file open to public inspection in the office of the clerk; (iii) a statement that any municipality whose territory encompasses or is part of the proposed district or any landowner who owns land to be included within the district may propose a modification in such form and manner as may be prescribed by the local governing body; (iv) a statement that the proposed modification must be filed with the local planning commission within thirty days of the filing of the original proposal; and (v) a statement that at the termination of the thirty-day period, the proposal and proposed modifications will be submitted to the local governing body and the advisory committee, and that thereafter a public hearing will be held on the proposal, and any proposed modifications;

2. Receive any proposals for modifications of such proposal which may be submitted by such landowners within thirty days after the publication of such notice;

3. Simultaneously, upon the terminiation of the initial thirty-day period, refer such proposal and proposed modificiations to the advisory committee, which shall, within the next succeeding thirty days report to the local planning commission its recommendations concerning the proposal and proposed modifications;

— no land shall be included in a district without the owner's written approval or signature on the application.

A proposed district may be in more than one local jurisdiction if:

— a separate application is made to each county or city
— each local governing body approves
— the total district size is at least 500 acres.

B. Local governing body may refer the proposal to the Planning Commission. The Planning Commission shall publish a notice stating that:

— the proposal has been filed with the local governing body and referred to the Commission
— the proposal will be open for inspection at the Clerk's Office
— any municipality with territory in the district or any landowner with property in the district may propose modifications
— such proposed modifications must be filed with the Commission within 30 days
— at the end of 30 days, the proposal and proposed modifications will be submitted to the governing body and the advisory committee after which a public hearing will be held.

Timing:

— land owners may submit proposals for modifications during the first 30 days after the notice is published
— at the end of the first 30 days, the Commission shall refer the proposal and proposed modifications to the advisory committee for recommendations
— within the second 30 days, the advisory committee shall submit its recommendations to the Planning Commission
— within the third 30 days (not more than 90 days of original application), the Planning Commission shall report its recommendations to the local governing body and hold a public hearing in the usual manner prescribed by law
  — published notices of the hearing shall include a description of the proposed district, proposed modifications and recommendations of the Planning Commission or the advisory committee.

4. Upon the termination of the initial sixty-day period, and within the next succeeding thirty days, report the local planning commission's recommendations to the local governing body including but not limited to the potential effect of the district and proposed modifications upon the locality's planning policies and objectives; and

5. Hold a public hearing in the following manner:

   a. The hearing as prescribed by law shall be held where the local governing body usually meets or at a place otherwise readily accessible to the proposed district;

   b. The notice of the public hearing as prescribed by law shall contain a description of the proposed district, any proposed modifications and any recommendations of the local planning commission or the advisory committee; and

   c. The notice shall be published in a newspaper having a general circulation within the proposed district and shall be given in writing complete with proposed modifications to those municipalities whose territory encompasses or are part of the proposed district.

C. The following factors should be considered by the local planning commission and the advisory committee, and at any public hearing when an application that has been filed pursuant to § 15.1-1509 is being considered:

1. The agricultural and forestal significance within the proposed district and in areas adjacent thereto;

2. The presence of any significant agricultural lands or significant forestal lands within the proposed district and adjacent thereto that are not now in active farming or production;

3. The nature and extent of land uses other than active farming or forestry within the proposed district and adjacent thereto;

4. Local developmental patterns and needs; and

5. Any other matter which may be relevant.

In judging significance, any relevant agricultural maps may be considered, as well as soil, climate, topography, other natural factors, markets for farm and forest pro-

Public hearing by the Planning Commission shall consider:

- the significance of agriculture and forestry within and adjacent to the proposed district
- the presence of significant agricultural or forestal lands in the district which are not actively in production
- the nature and extent of land uses other than farming and forestry within and adjacent to the proposed district
- land development patterns and needs and other relevant matters.

ducts, the extent and nature of farm improvements, the present status of farming and forestry, anticipated trends in agricultural economic conditions and technology, and such other factors as may be relevant.

D. The local governing body, after receiving the report of the local planning commission and the advisory committee shall hold a public hearing as provided by law, and after such public hearing, may adopt as an ordinance proposal or any modification of the proposal it deems appropriate, including the inclusion, to the extent feasible, of adjacent significant farm and forest lands, and, the exclusion, to the extent feasible, of nonsignificant agricultural and nonsignificant forestal land and nonfarm and nonforest land. The local governing body shall act to adopt or reject the proposal, or any modification of it, no later than one hundred eighty days from the date the proposal was submitted to this body. Upon the adoption of a plan, the local governing body shall report it to the State Commissioner of Agriculture and Commerce for his information.

Local governing body shall receive the report of the Planning Commission and the Advisory committee, hold a public hearing and then adopt or reject as an ordinance the proposal or any modification of the proposals within 180 days of the date the original proposal was submitted.

A copy of the ordinance, if adopted, shall be sent to the Commissioner of Agriculture and Commerce for his information.

E. The local governing body shall review any district created under this section no less than four years but no more than eight years after the date of its creation and every four to eight years thereafter. In conducting such review, the local governing body shall ask for the recommendations of the local planning commission and the advisory committee in order to determine whether to terminate, modify or continue such district. If the local governing body does not act, or if a modification of a district is rejected, the district shall continue as originally constituted.

-- The local governing body shall review any district established:

  -- not less than 4 years after its creation
  -- not more than 8 years after its creation
  -- every 4 to 8 years thereafter.

In conducting the review, the Planning Commission and advisory committee will be asked for recommendations in order to determine whether the district is to be terminated, modified or continued. If the governing body does not act, the district shall continue as originally established.

§ 15.1-1512. AGRICULTURAL AND FORESTAL DISTRICTS EFFECTS.--

Effects of Agricultural and Forestal Districts.

A. Land used in agricultural and forestal production within an agricultural and forestal district shall qualify for an agricultural or forestal value assessment on such land pursuant to § 58-769.4 et seq. of the Code of Virginia, if the requirements for such assessment contained therein are satisfied.

B. No local government shall exercise any of its powers to enact local laws or ordinances within an agricultural or forestal district in a manner which would unreasonably restrict or regulate farm structures or forestry and farming practices in contravention of the purposes of this chapter unless such restrictions or regulations bear a direct relationship to public health or safety.

- land use assessment on lands in agricultural or forestal production within the district
- local ordinances shall not restrict or regulate farm structures or forestry and farming practices except for public health or safety purposes
- state agencies shall encourage farming and forestry in districts by modifying administrative regulations and procedures insofar as is consistent with public health and safety and with federal agency requirements including those for federal grants, loans or other funding.

C. It shall be the policy of all State agencies to encourage the maintenance of farming and forestry in agricultural and forestal districts and their administrative regulations and procedures shall be modified to this end insofar as is consistent with the promotion of public health and safety and with the provisions of any federal statutes, standards, criteria, rules, regulations, or policies, and any other requirements of federal agencies, including provisions applicable only to obtaining federal grants, loans or other funding.

D. Any agency of the State or any local governing body which intends to acquire land or any interest therein, except where such acquisition is by gift, devise, bequest or grant to such agency or local governing body, or any public service corporation which intends to acquire land or any interest therein for public utility facilities not subject to approval by the State Corporation Commission, provided that the acquisition from any one actively operated farm or forestry operation within the district would be in excess of ten acres or that the total acquisition within the district would be in excess of one hundred acres, or which intends to advance a grant, loan, interest subsidy or other funds within a district for the construction of dwellings commercial or industrial facilities, water or sewer facilities to serve nonfarm structures, shall at least thirty days prior to such action file a notice of intent with the local governing body containing such information and in such manner and form as it may require. Such notice of intent shall contain a report detailing all reasons in justification for the proposed action including an evaluation of alternatives which would not require action within the agricultural and forestal district.

Upon receipt of such notice, the local governing body, in consultation with the local planning commission and the advisory committee, shall review the proposed action to determine what the effect of such action would be upon the preservation and enhancement of agriculture and agricultural and forestal resources within the district and the policy of this chapter and to determine the necessity of the proposed action to provide service to the public in the most economical and practicable manner.

If the local governing body finds that such proposed action might have an unreasonably adverse effect upon such State or local policy, the local governing body shall issue an order within such thirty-day period to such agency, corporation or political subdivision directing the agency, corporation or political subdivision not to take such action for an additional period of sixty days immediately following such thirty-day period.

-- The following conditions apply to the acquisition of land or easements within a district by public service utilities not subject to State Corporation Commission approval (in excess of 10 acres per farm or forestry operation and in excess of 100 acres per district by any agency of the State or by any local governing body) and also to grants, loans, interest subsidies or other funds for construction of dwellings, commercial or industrial facilities, water or sewer facilities to serve nonfarm structures:

  -- Notice of intent shall be filed 30 days prior to action which details all reasons in justification including an evaluation of alternatives which will not require action within the district.

-- The proposed action shall be reviewed within 30 days by the local governing body in consultation with the local Planning Commission and the advisory committee to determine:

  -- the effect on preservation and enhancement of agriculture and agricultural and forestal resources in the district and the policy of this chapter

  -- the necessity of the proposed action to provide service to the public in the most practical and economical manner.

-- If the review indicates that the proposed action may have an unreasonable effect on the policy of this chapter or local policy, the governing body shall order that no action be taken for an additional 60 days

  -- during the 60-day period, the local governing body shall hold a public hearing concerning the proposed action and make its decision to the agency, corporation or political subdivision making the proposal by issuance of a final order.

during such additional sixty-day period, the local governing body shall hold a public hearing concerning such proposed action where the local governing body usually meets or at a place otherwise easily accessible to the district upon notice in a newspaper having a general circulation within the district, and individual notice, in writing, to the municipalities whose territory encompass or are part of the district, and the agency, corporation or political subdivision proposing to take such action. On or before the conclusion of such additional sixty-day period, the local governing body shall make its decision as to whether such proposed action will have an adverse effect upon such State or local policy and whether such proposed action is necessary to provide service to the public in the most economical and practicable manner, and it shall report its decision to the agency, corporation or political subdivision proposing to take such action by the issuance of a final order. In the event that such agency, corporation or political subdivision is aggrieved by the final order of the local governing body, an appeal shall lie to the circuit court where a majority of the land is located. Provided, however, if such public service corporation is regulated by the State Corporation Commission, an appeal shall be to the State Corporation Commission.

— the final order may be appealed to the circuit court where the majority of the land is located. However, a proposal by a public service corporation which is regulated by the State Corporation Commission, shall be appealed to the Commission.

E. No special district for sewer, water or electricity or for nonfarm or nonforest drainage may impose benefit assessments or special tax levies on land used for primarily agricultural or forestal production within an agricultural and forestal district on the basis of frontage, acreage, or value, except a lot not exceeding one-half acre surrounding any dwelling or nonfarm structure located on such land, unless such benefit assessment or special ad valorem levies were imposed prior to the formation of the agricultural and forestal district.

— Special tax levies or benefit assessments by special districts for sewer, water, electricity or for nonfarm or nonforest drainage will not be allowed, except for lots of 1/2 acre or less surrounding dwellings or nonfarm structures in the district, unless they were imposed prior to formation of the district.

§ 15.1-1513. DISCONTINUANCE OF ASSOCIATION IN A DISTRICT.--

A property owner may withdraw his land from the district at any time subject to the following conditions:

A. At any time after the creation of an agricultural, forestal, or an agricultural and forestal district within any locality, any owner of land lying in such district may file a written notice of termination with the local governing body which created the district, and after a hearing before such governing body for good and reasonable cause shown, such governing body may allow the applicant to withdraw his property from the district. The applicant, if denied favorable action by the governing body shall have an immediate right of appeal de novo to the circuit court wherein such applicant's land is located.

— A written notice of termination has been filed with the local governing body
— A hearing before the governing body shows good and reasonable cause for withdrawal from the district

— if the applicant who is denied favorable action by the local governing body, he has the right of appeal to the circuit court wherein the land is located.

B. Upon termination of an owner's association with any district created pursuant to this chapter, the real estate previously included in such district shall be subject to roll-back taxes as are provided in § 58-769.10.

— The real estate withdrawn is subject to roll-back taxes

C. ..y owner, upon termination of association with any agricultural, forestal or an agricultural and forestal district shall be subject to those local laws and ordinances prohibited by the provisions of § 15.1-1512 B.

-- The land is subject to local laws and ordinances which were prohibited in the district.

D. Any heir at law or devisee of an owner of land lying within an agricultural, forestal, or agricultural and forestal district shall, as a matter or right, be entitled to withdraw immediately from any such district upon the inheritance or descent of such land.

When land within the district is acquired by inheritance, the new owner has a right to withdraw it from the district immediately.

§ 25-46.2:2 LIMITATION ON POWER OF EMINENT DOMAIN.-- No property that is within an agricultural and forestal district as provided by § 15.1-1506 et seq., shall be condemned except in accordance with § 15.1-1512.

Rights of condemnation within the district through power of eminent domain are limited by restrictions of this chapter.

§ 33.1-89.1 LIMITATION ON POWER OF EMINENT DOMAIN.-- No property that is within an agricultural and forestal district as provided by § 15.1-1506 et seq., shall be condemned by the tate Highway Commissioner except in accordance with § 15.1-1512.

§ 58-769.6 AUTHORITY OF COUNTIES, CITIES AND TOWNS TO ADOPT ORDINANCES: GENERAL REASSESSMENT FOLLOWING ADOPTION OF ORDINANCE.-- Any county, city or town in the Commonwealth which has adopted a land-use plan may adopt an ordinance to provide for the use value assessment and taxation, in accord with the provisions of this article, of real estate classified in § 58-769.5. The provisions of this article shall not be applicable in any county, city or town for any year unless such an ordinance is adopted by the governing body thereof not later than June thirty of the year previous to the year when such taxes are first assessed and levied under this article, or December thirty-one of such year for localities which have adopted a fiscal year assessment date of July one, pursuant to § 58-851.7.

Land used in agricultural and forestal production within an agricultural and forestal district that has been established under § 15.1-1506 et seq. shall be eligible for the use value assessment and taxation whether or not a local land-use plan or local ordinance pursuant to § 58-769.6 has been adopted.

Adoption of a local land use plan and a local land use assessment ordinance are not required in order for land in a district to qualify for use value assessment and taxation.

Such ordinance shall provide for the assessment and taxation in accordance with the provisions of this article of any or all of the four classes of real estate set forth in § 58-769.5.

Notwithstanding any other provision of law, the governing body of any county, city or town shall be authorized to direct a general reassessment of real estate in the year following adoption of an ordinance pursuant to this article.

A local governing body may direct a general reassessment of real estate in the year following adoption of an ordinance establishing an agricultural and forestal district.

APPENDIX B: CLASSIFICATION OF STREAMS
IN THE SHENANDOAH NATIONAL PARK AREA
(by the Virginia State Water Control Board 1974)

Stream	Class[1]	Subclass[2]
RAPPAHANNOCK RIVER		
Free-flowing tributaries of the Rappahannock River from Blandfield Point to its headwaters unless otherwise designated	III	A
Trout Waters, Put and Take		
Robinson River - Route 649 to its confluence with Rose River	V	A
Trout Waters, Natural		
Rush River - from Route 628 to its headwaters	VI	A
North Fork, Thornton River - from confluence with Thornton River to its headwaters	VI	A
Piney River - from confluence with North Fork, Thornton River to its headwaters	VI	A
Hughes River - from Route 231 to its headwaters	VI	A
Brokenback Run - from its confluence with the Hughes River to its headwaters	VI	A
Robinson River - from its confluence with the Rose River to its headwaters	VI	A
Cedar Run - from its confluence with the Robinson River to its headwaters	VI	A
White Oak Canyon Run - from Town of Madison's raw water		
Rose River - from its confluence with Robinson River to its headwaters	VI	A
Hogcamp Branch - from its confluence with Rose River to its headwaters	VI	A
Rapidan River - from Graves Mill (Route 615) to its headwaters	VI	A
Staunton River - from its confluence with Rapidan River to its headwaters	VI	A
South River - from its confluence with the Rapidan River to its headwaters	VI	A
Wilson Run - from its confluence with the Staunton River to its headwaters	VI	A
Conway River - from the town of Fletcher to its headwaters	VI	A
Pocosin Creek - from its confluence with the Conway River to its headwaters	VI	A
Devils Ditch - from its confluence with the Conway River to its headwaters	VI	A
Garth Run - from its confluence with the Rapidan River to its headwaters	VI	A
JAMES RIVER		
James River and its tributaries from a point 5 miles above Richmond's raw water intake at Bosher Dam, to and including the Rockfish River, unless otherwise designated	III	A

Stream	Class[1]	Subclass[2]
Trout Waters, Put and Take		
Ivy Branch - 1½ miles upstream from the church above the Junction of Route 628 and Route 614	V	A
Swift Run - from Route 604 upstream 2½ miles to Route 810	V	A
North Fork, Moormans River - from its confluence with Moormans River to its headwaters	V	A
South Fork, Moormans River - from its confluence with Moormans River to its headwaters	V	A
Trout Waters, Natural		
Ivy Branch - from Route 810 to its headwaters	VI	A
Swift Run - from Albemarle county line to its headwaters	VI	A
SOUTH FORK, SHENANDOAH RIVER		
The South Fork, Shenandoah River and its tributaries from its confluence with the North Fork, Shenandoah River, upstream to a point 5 miles above the town of Shenandoah's raw water intake, unless otherwise designated	IV	B
Happy Creek - from Front Royal's raw water intake to its headwaters	IV	A
Dry Run - including tributaries from Luray's raw water intake to its headwaters	IV	A
East Hawskbill Creek - including tributaries from Ida's raw water intake to its headwaters	IV	A
Trout Waters, Put and Take		
Gooney Run - from mouth to Route 632 above Browntown	V	B
Little Hawskbill Creek - from Route 628 to Route 626	V	B
Hawskbill Creek - from Route 675 in Luray to 1 mile above Route 631	V	B
Brown Run - from its confluence with Big Run upstream 1 mile	V	B
Trout Waters, Natural		
Jeremy's Run - from the national park boundary to its headwaters	VI	B
Little Hawskbill Creek - from Route 626 to its headwaters	VI	B
East Branch, Naked Creek - from Route 759 to its headwaters	VI	B
Fultz Run - from the national park boundary to its headwaters	VI	B
Pass Run - from Route 611 to its headwaters	VI	B
The South Fork, Shenandoah River and its tributaries from 5 miles above the town of Shenandoah's raw water intake to its confluence with the North and South Rivers, and the South River and its tributaries from its confluence with the South Fork, Shenandoah River to their headwaters	IV	A

NOTE: Footnotes 1 and 2 are on following page.

1

Major Class	Geographical Area or Other Description of Waters	Dissolved Oxygen mg/1 Minimum	Dissolved Oxygen mg/1 Daily Average	pH	Temperature °F Rise above Natural*	Temperature °F Maximum	Maximum Hourly Change**
III	Free Flowing Streams (Coastal Zone and Piedmont Zone to the Crest of the Mountains)	4.0	5.0	6.0-8.5	5	90	2
IV	Mountainous Zone	4.0	5.0	6.0-8.5	5	87	2
V	Put and Take Trout Waters	5.0	6.0	6.0-8.5	5***	70	2
VI	Natural Trout Waters	6.0	7.0	6.0-8.5	5***	68	2

*Natural temperature is that temperature of a body of water due solely to natural conditions without the influence of any point-source discharges

**The maximum hourly temperature change of 2°F is to apply beyond the boundaries of mixing zones and does not apply to temperatures caused by natural conditions

***Any rise above natural temperature to be allowed by the Board shall be determined on a case-by-case basis, but in no instance shall exceed 5°F.

2 SUBCLASS A: Waters generally satisfactory for use as a public or municipal water supply, secondary contact recreation, propagation of fish and aquatic life, and other beneficial uses.

Coliform Organisms - Fecal coliforms (multiple-tube fermentation or MF count) not to exceed a log mean of 1000/100 ml. Not to equal or exceed 2000/100 ml. in more than 10% of samples.

Monthly average value not more than 5000/100 ml. (MPN or MF count). Not more than 5000 mpn/100 ml. in more than 20% of samples in any month. Not more than 20,000/100 ml. in more than 5% of such samples. (With the exception of the coliform standard for shellfish waters, the enforceable standards will be those pertaining to fecal coliform organisms. The MPN concentrations are retained as administrative guides for use by water treatment plant operators.)

SUBCLASS B: Waters generally satisfactory for use as a public or municipal water supply, primary contact recreation (prolonged intimate contact; considerable risk of ingestion), propagation of fish and other aquatic life, and other beneficial uses.

Coliform Organisms - Fecal coliforms (multiple-tube fermentation or MF count) within a 30 day period not to exceed a log mean of 200/100 ml. Not more than 10% of samples within a 30-day period will exceed 400/100 ml.

Monthly average not more than 2400/100 ml. (MPN or MF count). Not more than 2400/100 ml. in more than 20% of samples in any month. Not applicable during, nor immediately following periods of rainfall.

APPENDIX C: AUTOMOBILE EMISSIONS TABLE

Summer Season*

North District (31.5 miles)

Weekday Average Daily Traffic--1400 to 1600 Vehicles

HC	CO	NOX
865 to 989 lbs.	7204 to 8233 lbs.	360 to 411 lbs.

Weekend Average Daily Traffic--1680 to 1920 Vehicles

HC	CO	NOX
1038 to 1186 lbs.	8645 to 9880 lbs.	431 to 493 lbs.

Central District (10.2 miles) - Thornton Gap to Skyland.

Weekday Average Daily Traffic--2100 to 2300 Vehicles

HC	CO	NOX
420 to 460 lbs.	3499 to 3832 lbs.	174 to 191 lbs.

Weekend Average Daily Traffic--2520 to 2760 Vehicles

HC	CO	NOX
504 to 552 lbs.	4199 to 4598 lbs.	209 to 229 lbs.

Central District (23.8 miles) - Skyland to Swift Run Gap

Weekday Average Daily Traffic--1600 to 1800 Vehicles

HC	CO	NOX
747 to 840 lbs.	6220 to 6998 lbs.	310 to 349 lbs.

Weekend Average Daily Traffic--1920 to 2160 Vehicles

HC	CO	NOX
896 to 1008 lbs.	7464 to 8398 lbs.	372 to 419 lbs.

South District (39.7 miles)

Weekday Average Daily Traffic--1450 to 1550 Vehicles

HC	CO	NOX
1129 to 1207 lbs.	9403 to 10052 lbs.	469 to 401 lbs.

Weekend Average Daily Traffic--1740 to 1860 Vehicles

HC	CO	NOX
1355 to 1448 lbs.	11284 to 12062 lbs.	563 to 602 lbs.

* 1970-78 Automobile Models - Average Emission Rates

Hydrocarbons (HC)	-	8.9 grams/mile
Carbon Monoxide (CO)	-	74.1 grams/mile
Nitrogen Oxides (NOX)	-	3.7 grams/mile

Speed	19.6 mph
Temperature	75°F.
Cold Starts	20.6%
Hot Starts	27.3%
Class of Vehicles	
Passenger	88.2%
Light Truck Classes	5.9%, 5.9%

Autumn Color Season*

North District (31.5 miles)
Peak Daily Traffic--8500 Vehicles

HC	CO	NOX
5666 lbs.	46,278 lbs.	2184 lbs.

Central District (10.2 miles) - Thornton Gap to Skyland
Peak Daily Traffic--9800 Vehicles

HC	CO	NOX
2115 lbs.	17,277 lbs.	815 lbs.

Central District (23.8 miles) - Skyland to Swift Run Gap
Peak Daily Traffic--6800 Vehicles

HC	CO	NOX
3425 lbs.	27,972 lbs.	1320 lbs.

South District (39.7 miles)
Peak Daily Traffic--5700 Vehicles

HC	CO	NOX
4789 lbs.	39,111 lbs.	1845 lbs.

* 1970-78 Automobile Models - Average Emission Rates
Hydrocarbons (HC) - 9.6 grams/mile
Carbon Monoxide (CO) - 78.4 grams/mile
Nitrogen Oxides (NOX) - 3.7 grams/mile

Speed	19.6 mph
Temperature	50°F.
Cold Starts	20.6%
Hot Starts	27.3%
Class of Vehicles	
Passenger	88.2%
Light Truck Classes	5.9%, 5.9%

NOTE: Automobile emission rates are calculated from traffic counts taken in July-August 1978 and October 1978 and from emission factors of vehicle types, driving conditions, and ambient air temperatures from Mobile Source Emission Factors, Environmental Protection Agency, March 1978.

APPENDIX D: INVENTORY OF CULTURAL RESOURCES

Cultural resource surveys of varying emphasis have been conducted from 1936 through the present. Results of these surveys were collated, refined, and evaluated in 1978. Identification and evaluation of cultural resources is still underway, and periodic updating of the following listing is to be expected.

The resources are divided into four categories of protection and recordation as determined by the National Park Service, Mid-Atlantic Region, on September 13, 1978, and April 11, 1980.

(1) Properties Eligible for the National Register of Historic Places

The National Register of Historic Places is the official list of the nation's cultural resources which are worthy of preservation. The register provides protection for federally owned historic properties through comment by the Advisory Council on Historic Preservation on the effect of federal undertakings on those properties. The cultural resources are evaluated according to criteria and guidelines used to assess the quality of significance in terms of American history, architecture, archeology and culture. Several properties in Shenandoah National Park have been determined eligible for the National Register.

(2) Properties on or Eligible for the List of Classified Structures but not the National Register of Historic Places

The List of Classified Structures is a central listing which identifies all historic structures within the National Park System that may meet the criteria of the National Register of Historic Places, or are elements of districts that may meet National Register criteria, or warrant preservation for their cultural values. The List of Classified Structures records the category of significance and level of treatment--preservation, restoration, or reconstruction--for each structure, and it provides a basis for programming and executing the prescribed level of treatment. Many properties at Shenandoah National Park are not eligible for the National Register of Historic Places at this time, but they do warrant preservation and have been or will be included on the List of Classified Structures.

(3) Properties to be Studied for Possible Inclusion on the List of Classified Structures but Not the National Register of Historic Places

One property at Shenandoah National Park--Skyline Drive--does not meet the criteria for the National Register because it is less than 50 years old. The drive will be studied for possible inclusion on the List of Classified Structures to determine its significance, to

Big Meadows Site (Md-143). The large area seems to have received a great deal of use from the Early Archaic through the Early Woodlands periods. Large and small stone circles suggest the presence of dwellings. (1)(N)

Black Rock Springs Site (Au-167). The site appears to have been used from the Middle to Late Archaic. Over 3,000 stone artifacts were from this hunting campsite. (1)(S)

Compton Gap Site (Wr-103). This site is a hunting camp dating from the Late Archaic period. (1)(S)

Gentle Site (Md-112). The site is located along a river in a hollow and is the largest known site of its type within park boundaries. It is likely to have been a major hunting camp dating from Middle to Late Woodland periods. It is considered to be one of the most important prehistoric sites in the park. (1)(N)

Rock Shelter (Au-158). This natural rock shelter is located at the base of a run near the park boundary. Numerous artifacts in various strata indicate occupation during the Late Archaic, Early Woodland, and Late Woodland periods. (1)(N)

Quarry Site (Rm-130). This site appears to date from Early to Late Archaic. The high density of artifacts indicates that the site was used as a quarry where tool blanks, rather than completed tools, were produced. (1)(S)

Unnamed (Au-154). This major campsite dates from the Late Archaic period. (1)(S)

Unnamed (Md-138). This site ranges from Middle Archaic through Late Woodland occupations. It is well situated for driving game over the cliff during the course of a hunt. (1)(N)

Unnamed (Md-172). This site was occupied from Early Archaic through Late Woodland. The area appears to have been used as a hunting camp with some manufacture of tools. (1)(S)

Unnamed (Pa-116). This site is a compact, well-preserved hunting camp which appears to have been utilized from Middle Archaic to Late Woodland. (1)(S)

All other sites within the park are classified as 4(L).

Thirty-one known archeological sites are located in the vicinity, but outside, Shenandoah National Park. The Flint Run and Thunderbird archeological districts are the only sites listed on the National Register of Historic Places. These show stratigraphic evidence of 12,000 years of occupation.

determine whether it warrants preservation in its historic mode, and to recommend an appropriate level of treatment.

(4) Properties not to be Considered for the List of Classified Structures or the National Register of Historic Places, but to be Identified as Cultural Resources and Plotted

Many cultural resources at Shenandoah National Park neither meet the criteria for resource significance for the National Register nor are included on the List of Classified Structures. These are resources that do not warrant preservation measures as the public benefit derived from their preservation would be minimal and the cost high.

The following listing and the Cultural Resources Survey map in the Description of the Environment indicate the resources by two major themes--settlement and cultural patterns prior to the establishment of the park, and subsequent federal development. The number at the end of a property indicates its category of protection and recordation; the letter indicates the potential level of significance: N-national, S-state or regional, and L-local.

ARCHEOLOGY

In recent years, the cultural resources of Shenandoah National Park have been the object of extensive study by an interdisciplinary team of archeologists and ethnohistorians, headed by archeologist Dr. Michael Hoffman of the University of Virginia. Nearly 150 archeological sites have been located and have received preliminary evaluation within the boundaries of Shenandoah National Park covering human activity since 8000 BC.

CULTURAL CHRONOLOGY

Period	Dates
Woodland	1000 BC - 1600 AD
Late	1000 AD - 1600 AD
Middle	500 BC - 1000 AD
Early	1000 BC - 500 BC
Archaic	8000 BC - 1000 BC
Late	4000 BC - 1000 BC
Middle	6000 BC - 4000 BC
Early	8000 BC - 6000 BC

The following ten sites have been determined as potentially eligible for the National Register. Nomination forms and final determination of levels of significance are to be completed.

SETTLEMENT/CULTURAL PATTERNS

Prior to establishment of the park, the mountains were relatively bare of major forested areas. Most of the land was used for grazing, farming, and orchards, with homesites scattered over the park land. A network of roads and trails crossed the mountains, connecting the developing towns on either side of the mountains and the industries and settlements in the hollows. Sites, structures, and artifacts from 200 years of extensive settlement are extant, although rapid growth of vegetation has absorbed most of the material remnants of the mountain culture.

Farmsteads/Homesites

The farmsteads and homesites varied from proper manor houses of the 19th century, such as Belmont at the north end of the park, to small hollow settlements with modest cabins, such as the Nicholson/Corbin territory in Nicholson Hollow. Usually a residence was surrounded by a variety of outbuildings, including barns, spring houses, smokehouses, and corrals. Very little remains of the more than 2,000 homesites, other than a few ruins.

Belmont Site. The site of this house is southeast of the north entrance station. The two-story brick structure was built in 1845 by the Buck family. The building is alleged to have been a repository for documents during the Civil War. The building was abandoned in 1937. The house is no longer extant, although foundations are evident. The site has not been evaluated according to National Register criteria in terms of historic archeology. (4)(L)

Bower Site. Extensive remains of this farm site are evident, including chimneys of the main house, and ruins of the springhouse and toolhouse. Research indicates that the buildings were constructed by Frank Skinner in 1775 on a site occupied in prehistoric times. The farm was built near one of the early roads crossing the Blue Ridge. The farm was later acquired by the William Barbee family. The site, located off U.S. 211, is overgrown and not visible from the highway. (2)(L)

Gore Farm Site. The house was constructed by William Gore circa 1785, with an addition to the main house constructed by William Nokes circa 1860. According to the Steere report (1930), a large mulberry tree next to the site of the former house was used as a smokehouse and later a toolhouse. Traces of an old road, stone and split-rail fences, and piles of field stone are extant. No house foundation is evident. The site has not been evaluated according to National Register criteria in terms of historic archeology. (4)(L)

Herbert Atkins House Site. The house on this property was located across from the site of the up-and-down sawmill on U.S. 211, until it was moved out of the park circa 1950. The house is more than 130 years old and is now located on the Biddle property outside Sperryville. The original house site was also the location of the toll

gate which served the Thornton Gap turnpike. The site has not been evaluated according to National Register criteria in terms of archeological significance. (4)(L)

Kleiser House Site. The site contains piles of stone from the building foundation, as well as some bricks from the chimney. The building was constructed during the early 19th century and was torn down by the CCC in 1936 despite a recommendation for preservation as a fine example of mountain architecture. The site has not been evaluated in terms of historic archeology. (4)(L)

John P. Shenk House Site. The house was constructed by John Shenk, Sr., for his son, John P. Shenk, Jr. The house and a tenant's cabin on the property were razed in the 1930s, and only foundations remain evident. The property has not been evaluated in terms of historic archeology. (4)(L)

Nicholson Hollow Cultural Resource District. Nicholson Hollow is thought to have been permanently settled in the late 18th century, although evidence of prehistoric occupation is extant. The hollow was occupied by mountain people through the time that the park was established, when the remaining residents were relocated. The district includes several houses, all but one of which are in ruins, as well as the remains of outbuildings, and other evidences of field patterns and land use such as roads, trails, and split-rail fences. The buildings in Nicholson Hollow were never demolished as most others in the park were because they had been set aside in the 1930s as the park's exhibit of the hollow culture, which never transpired. The buildings fell into disrepair and most collapsed, although one cabin has been maintained in recent years. The district includes the following:

> Aaron Nicholson Farmsite. The building was a two-story log house which measured approximately 16 feet by 43 feet. Chimneys were incorporated into the gable end walls. At present, portions of the chimneys are standing, with collapsed sections of hewn log walls in between. A double crib barn was constructed near the house, but only 4 feet of the exterior walls are extant. The Aaron Nicholson house was the most impressive house in Nicholson Hollow because of its commanding size and relative sophistication in style and building technique. Date of construction is unknown. (2)(L)
>
> Corbin Cabin. This building was probably constructed circa 1910 by George Corbin, although conflicting dates appear in several reports. The building is a small cabin constructed of hewn logs on a stone foundation. Additions have been made at the rear and one side of the building. The gable and shed roofs are finished with standing seam metal. This building is the only cabin remaining in the park which is representative of the extensive hollow culture. The Corbin Cabin is the only standing structure out of those set aside in the 1930s, and it is extant due to the efforts of the Potomac Appalachian Trail Club which renovated the building in 1954 with National Park Service concurrence. (1)(L)

John R. Nicholson Homesite. All that remains of a cabin is the standing stone chimney and an L-shaped depression. A log barn adjacent to the structure has two walls remaining. Also located in the vicinity were a pighouse, a stone vegetablehouse, and a log springhouse. Ruins of all of the structures are evident. (2)(L)

John T. Nicholson Cabin. This 19-foot by 21-foot log cabin is extant, although it has deteriorated. The logs are connected with saddle and V-notches. The gable roof is finished with seamed tin. At least one log has been removed from the base of the structure, which partially collapsed the building. (2)(L)

Nicholson Cemetery. This 60-foot by 60-foot cemetery is enclosed by a wire fence and metal gate. Only one stone in the cemetery has a visible marking, that of 1895. The number of headstones and footstones indicates that approximately 25 persons are buried here. Unmarked headstones and footstones are the traditional manner of delineating graves in that area. (2)(L)

Unidentified Cemetery, Nicholson Hollow. This cemetery is located near the Hughes River in Nicholson Hollow. The area enclosed in the split-rail fence marking the boundaries is an oval, approximately 70 feet by 35 feet. The 10 to 12 burials are marked in the local folk manner of designating the graves with uncut stones. (2)(L)

Woody Corbin Cabin. The building is a V-notched log cabin, with an attached lean-to. Two deteriorated outbuildings are located on the property. The cabin has a dry-laid stone foundation. Most of the cabin has collapsed, although sections of a wall and a 20-foot stone chimney are extant. (4)(L)

Remains of Four Cabins. These were noted in a 1973 historic survey. At that time, none of the four buildings was readily accessible due to vegetation. Most of the structures have collapsed, and none were roofed. The buildings were constructed with chestnut timbers. No further information on their historic significance is known. The sites have not been field-checked recently, so it is not known if any remnants are extant. The sites have not been evaluated in terms of historic archeology. (4)(L)

Residence, Headquarters Area. Constructed by the family of Mrs. John Shenk, this building is estimated to be 60 years old. The building has a traditional design--a wood-frame structure with chimneys in the gable end walls. Additions have been made to the front and rear of the building. The structure is used as a residence for park employees. (2)(L)

Robert Sours Cabin Site. Located in Jewell Hollow, the site was visited in 1973 by a historian, who found structural remains, including logs covered with shingles and weatherboarding, as well as two chimneys and sections of walls that are probably of

turn-of-the-century provenance. The site has not been evaluated in terms of historic archeology. (4)(L)

Rorson House Site. In 1936, the former Rorson House was noted as a "typical mountain cabin of the south region of the park." Foundations are allegedly extant, although the site has not been field-checked. The building burned in the 1940s or 1950s. The site has not been evaluated in terms of historic archeology. (4)(L)

Simpson House Site. The Simpson house was built in 1790 by J.G. Williams, representative to Congress from the Shenandoah district, for Samuel Simpson, father of Captain Simpson of the CSA. Portions of the house foundations are supposed to be extant, although they have not been field-checked. The house was recommended for preservation in 1936 but is no longer in existence. The property has not been evaluated in terms of historic archeology. (4)(L)

Superintendent's House. This building is of typical Virginia farm house construction and is approximately 85 years old. Several alterations have been made to the 2½-story wood-frame building. The structure was built by the father of Mrs. John Shenk. (2)(L)

Thomas Sanford House Site. The site is located near the site of the Tom Shenk house in Pass Run. The house was a log cabin, which was used as a storehouse during the 20th century. The site has not been field-checked. When described in 1936, the building was noted for being the type of cabin built by the original settlers of the area. The cabin was constructed prior to 1836 but the exact date is not known. The site has not been evaluated in terms of archeological significance. (4)(L)

Tom Shenk House (Annie Shenk House). Located behind park Headquarters, this house was the last residential inholding in the park. The 2½-story house is a typical example of 19th century Virginia architecture but possibly could date from the 18th century. The grounds are surrounded with ruins of numerous outbuildings. The building has been abandoned since the 1960s and is in a state of disrepair. (4)(L)

William Brown Homesite and Old Rag Post Office. These sites are located near the junction of the Weakley Hollow and Old Rag fire roads. The Brown house was constructed on land granted by Royal Patent to Archibald Dick in 1750. The house was believed to date from the same period of time. During the 1930s, that house was thought to be the "oldest in the mountains." Neither of the two structures is extant, and any foundations have been covered with vegetation. The site has not been evaluated for archeological significance. (4)(L)

Willis House Site. No further information on this house is known other than location. No known foundations are extant, although a spring is located here. The house was a white two-story frame building on the west side of Thornton Gap. The site has not been evaluated in terms of historic archeology. (4)(L)

Commercial/Industrial Enterprises

The mountains held many resources which needed processing from raw materials to more finished products. Mills were constructed to grind the grains and saw the timber; metal ores were mined and processed. Historic background and physical evidence from the enterprises remains in only a handful of cases, although many similar undertakings existed.

Copper Mine. This area is located below Fisher's Gap on the Upper Rose River. A concrete foundation which supported an air compressor for pneumatic drills is located at the base of a tailings dump. The mine entrance, which has caved in, is a visible depression at the top of the slope above the tailings. According to one source, the mine was in operation from about 1845 until 1850 when it was closed. The Blue Ridge Copper Company reopened operations at the site in 1902, but soon discovered that extracting the copper ore from the basalt was not economically feasible, so operations ceased. (4)(L)

Grist Mill Site. The mill was located between Swift Run Gap and Lydia and was probably constructed circa 1830. An up-and-down sawmill, a tanyard, and a slave quarters were also located on the site. The land for the mill was acquired in 1830 by George Dunn. Apparently Garland Dunn, son of George Dunn, hanged himself in the mill just prior to the Civil War. The Dunn widow continued operation of the mill with the help of women relatives. In 1936, the mill was operated with a gas engine by H.L. Dunivan. No buildings are extant. The site has not been evaluated in terms of historic archeology. (4)(L)

Miller's Iron Works. The extant iron furnace is a massive stone structure, surrounded by processing debris. The enormous cut stones of the furnace are laid dry, and the walls are battered. According to a 1936 historical study (Steere), this furnace was constructed circa 1830, and "after exhaustion of a mine about a mile south of the furnace, a fairly rich surface deposit of ore was discovered just within the park boundary and about five miles east of the furnace" (directions may be very inaccurate). The ore from this deposit was taken from open cut and carried over a tramline to the furnace. Slaves were used in cutting wood for charcoal. Free labor, mostly white, was employed in the cuts. The pigs were hauled by six-mule teams to a foundry which stood on the present site of the power plant at Port Republic. There the pigs were cast into 300-pound blooms and sent downriver to Harper's Ferry. According to Mr. R.I. Miller, son of Colonel Miller, the Grottoes furnace was operated by his father until the outbreak of the Civil War. Following the war, the Millers lost control of the property. Various attempts to revive the industry failed. Many structures were located in the vicinity, including an office, house of the superintendent, and seven cabins for workers. The tram that carried the ore from the open cuts in the park to the furnace followed an old roadbed, probably the Madison Run fire road. The site and structure are representative of the industrial revolution that failed in the Valley. (1)(L)

Up-and-Down Sawmill. The site is located just off U.S. 211. The sawmill was constructed circa 1800 by Jonas Clark. Also located at the sawmill were a caretaker's cabin, a shed house for the sawmill or a blacksmith's shop, and a grist mill. The sawmill was dismantled after World War II. The foundation ruins of the sawmill are extant. Portions of the dismantled saw and gear mechanisms are in storage in the park. The property has not been evaluated in terms of industrial archeology and engineering. (4)(S)

Turnpikes and Roads

Roads were constructed through the mountains as early as the latter part of the 18th century to tie the Piedmont with the Valley. More exact data on the early trade and transportation routes and their effect on development in the vicinity will be needed.

Brown's Gap Road. The historic road is supposed to follow the route of the present fire road. The road allegedly dates from the early 19th century, although thorough documentation is lacking. Stonewall Jackson and his troops passed over this road in 1862 according to legend. The road has not been surveyed, so the original route could vary somewhat from the fire road. (4)(L)

Gordonsville Turnpike. This road crosses Skyline Drive at Fisher's Gap. The road (known as Rose River Road and Red Gate Road) was one of the earlier means of access to the Shenandoah Valley, and served as a 19th century route of commerce between New Market and Gordonsville. (4)(L)

Thornton Gap Road. Shortly after the Revolution, William Russell Barbee formed a partnership with Enos McKay to construct and operate a macadam toll road from New Market through Thornton Gap to Sperryville. The road was constructed with slave labor. The terms of the partnership included Barbee's maintenance of the mountain section of the road and his running of an inn below Thornton Gap. Part of the historic sections of road follow the present route of U.S. 211. Sections of historic road traces are visible, intersecting U.S. 211 in numerous places. The original path of the road has not been surveyed or mapped. (4)(L)

Missions/Churches

Religion was usually a normal part of hollow life, whether practiced in buildings set aside for that purpose or elsewhere. The first settlers brought their traditional religions with them, and missions for those and others developed during the mid and late 19th century. Scant documentation on a few of these missions exists.

Dark Hollow Church Site. The site of this former log church is down the Dark Hollow fire road from Skyline Drive. The cemetery for the independent church is extant. (4)(L)

Pocosin' Mission Ruins. The mission consists of the ruins of two buildings: a two-story log building, with a board and batten lean-to and collapsed roof, and a stone building of which only two walls are standing. A cemetery of approximately 40 graves marked with stones and cemetery markers is located in the hollow to the north. This Episcopal mission probably dates from the turn of the century, although further information is not readily available. (4)(L)

Simmons Gap Mission. An Episcopal Mission was constructed at Simmons Gap in 1908-1909. All that remains of that mission is the recreation building, a stone structure rectangular in plan. Other buildings associated with the mission have been destroyed. Currently the building is used as a ranger residence. (4)(L)

Resorts, Hostelries, and Retreats

The construction of the first inns in the mountains arose out of the direct need for stage stops to house and feed travellers, and to change teams of horses. Later, during the 19th and early 20th centuries, people began coming to the mountains to enjoy the mineral water, cool mountain air, or as in the case of Herbert Hoover, the trout fishing. The only evidence remaining of the early hostelries are stone and brick foundations which are rapidly being engulfed by vegetation. A few buildings from the old Skyland Resort and the most significant buildings of Camp Hoover are extant.

Black Rock Springs Hotel Site. This hotel was popular in the 1840s and 1850s as a resort and a place to partake of the fine mineral spring waters, guaranteed to cure multiple ailments. Some foundations and building debris are extant. Local people still collect water from the spring. (4)(L)

Camp Hoover Complex. This retreat was used by President Hoover during his term of office. He chose the location because it met his criteria of being on a trout stream, within 100 miles of Washington, D.C., and at an elevation of at least 2,500 feet so that it was cool and mosquito-free. The camp figured prominently in Hoover's life during his administration and provided the setting for meetings with notables, including British Prime Minister Ramsay MacDonald. A marine camp was built nearby to house the troops constructing Camp Hoover and guarding the president. The marine camp was demolished in 1944. Camp Hoover, constructed on land owned by the president, was given to the National Park Service after his presidency for use by successive presidents. From 1948 to 1958 the camp was leased to the Boy Scouts of America. Twenty-four buildings, including those constructed by the Boy Scouts, have been torn down. Original furnishings for the three remaining structures were replicated in the late 1950s and are used by the intermittent occupants. The president's, the prime minister's, and the creel cabins are simple buildings. The architecture is not particularly distinctive, nor was it meant to be. All three buildings have undergone some alteration, and the grounds have changed considerably. (1)(N)

Hawsberry Inn Site. This inn was located near the center of the Lee Highway (U.S. 211) at Thornton's Gap. The inn was described in a 1936 report (Steere) as follows: "Stage coaches drive through a tunnel-like entrance into the basement. Passengers alighted and went upstairs to rooms. Passageways from the basement led to cavernous excavations in the hillside behind the Inn. Here wagoners found accommodations for the first half in their three-day haul to Fredericksburg." The Hawsberry Inn was operated by William Barbee, who also maintained the Thornton Gap toll road in the late 18th century. This site has not been field-checked and may have been completely destroyed by road construction. (4)(L)

Mountain Inn Ruins. All that remains of this 19th century brick building is a dry-laid stone foundation and several stacks of red brick. Test excavations have revealed that the site may have been occupied at an earlier period of time. According to a 1936 historic summary, the Mountain Inn was built before 1832 by William Kite, since he was granted a license "to keep private entertainment at his house in this county" in May of that year. After the Civil War, the inn was acquired by William Shipp. The hostelry was discontinued in 1870. The Shipp family cemetery is located nearby. The property is under evaluation in terms of historic archeology. (4)(L)

Old Skyland. Several cabins are extant at Skyland, dating to a time prior to the establishment of the park. These include the Byrd's Nest, Pine Grove, Peak View, Trout, and Fell cottages and the Massanutten Lodge. The Fell Cottage is probably the one constructed in 1912 by Dr. Thomas Fell of Annapolis. The Trout Cottage could very likely be that of Mrs. E.B. Trout and dates from 1916. The other cottages possibly date from 1923, when an extensive building program was undertaken by Skyland. (2)(L)

Massanutten Lodge. This was the former residence of George Freeman Pollock and his wife Addie. Constructed in 1913, the L-shaped structure is built into a steep slope with onsite materials, including stone, milled lumber, and bark siding. (1)(S)

Judd Garden. Located at the northernmost end of the Skyland complex, this garden was planted as an arboretum by George H. Judd, a visitor at Skyland from about the turn of the century until 1928. The Judd Garden contains two trees which are recognized by the American Forestry Association on their "National Register of Big Trees" as the largest of their species. These are the largest known American elder (Sambucus candensis) and the largest known Boynton hawthorn (Crataegus boyntonii). (4)(L)

FEDERAL DEVELOPMENT

When the federal government began developing Shenandoah as a national park, visitor needs and park needs were addressed. Skyline Drive, a vision of Herbert Hoover and others, was constructed along the ridge. The Civilian Conservation Corps had several camps in the park and

initiated major programs of reforestation and erosion control. Resorts were planned and constructed at Big Meadows, Lewis Mountain, and Dickey Ridge. Facilities at Skyland were expanded to serve park visitors. The administrative core, including the headquarters, several residences, and the maintenance area, was constructed on the west side of the park. Some of these properties are achieving a significance of their own as being representive of the period when many materials were available on the site, and when labor was supplied through Emergency Conservation Work programs of the Depression era.

Big Meadows Lodge and Cabins. These buildings create the character of the extensive Big Meadows resort area. The main lodge building, designed by Marcellus Wright of Richmond, follows closely along the contours of the earth, hugging the ground. The lodge reflects the early architectural theme of the park in a more general sense than other park structures. The building is constructed with massive chestnut timbers and local stone masonry, and the roof is covered with concrete shingles, a development unique to Shenandoah. It seems likely that the National Park Service developed the concrete shingles to avoid disasters in the rustic, "woodsy" concessions buildings, such as the fire that destroyed the major wood portions of the Grand Canyon Lodge on the north rim of Grand Canyon. The five small cottages (Lynchburg, Mountain View, Bridesburg, Blacksburg, and Pettersburg) near Big Meadows Lodge were among the first cabins constructed at this resort complex. They were designed with rough-sawn chestnut siding in an uncomplicated style, which leaves the lodge the focal point of the area. The main significance of the buildings is architectural. The buildings are maintained by the park concessioner, ARA Virginia Sky-Line Company. (2)(L)

CCC Barracks and Outbuilding. These two buildings at the Piney River ranger station remain from the numerous Civilian Conservation Corps camps which were constructed in Shenandoah National Park. The two simple wood-frame structures are finished with battens which fasten rolled composition sheathing to the exterior. The main building is covered with a gable roof and has an interior stone fireplace and wood plank floors. The outbuilding is a very small rectangular structure. The buildings are used as support structures for the maintenance district. (4)(L)

Headquarters, Residences, and Maintenance Yard. The buildings were constructed during the late 1930s and early 1940s and are prime examples of the eastern application of the principals of early National Park Service architecture. The complex was designed using a theme of middle Virginia Colonial architecture. Local building techniques and materials were chosen to reemphasize that theme. The buildings were constructed to look as if they were handcrafted, using tools and local building techniques available during the time period represented.

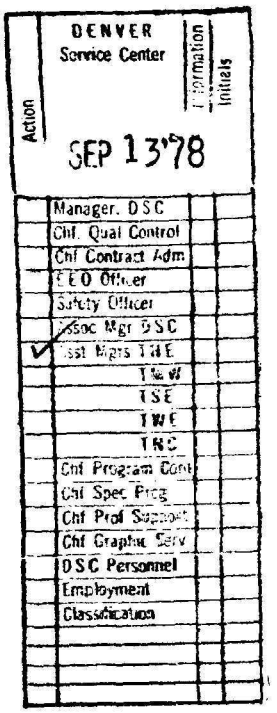
The Headquarters building, designed by a local architect named Parris as part of a PWA project, exemplifies the fineness of the materials, quality craftmanship, and design. The interior is finished

with chestnut paneling, and the furniture is designed to fit with the building through compatible material and style. Every detail is designed to be in harmony with the structure, and the structure is designed to be in harmony with its natural and cultural environment. A new wing was added in 1976. (2)(L)

The residences and maintenance yard reflect the same concern with materials and tradition. (4)(L)

Lewis Mountain Lodge and Cabins. Constructed on a much smaller scale than the resorts at Big Meadows and Skyland, the area was designed as the segregated section of the park, where black visitors were accommodated because they were not allowed to stay in other resort areas or campgrounds until the 1950s. The buildings were designed by Marcellus Wright, who also designed those at Big Meadows Lodge. However the structures at Lewis Mountain are of a simpler design and a smaller scale, because it was expected that they would serve fewer people. The buildings are reminiscent of the Giant Forest facilities at Sequoia National Park, designed by Gilbert Stanley Underwood. The quality of materials is equal to that chosen for use at Big Meadows Lodge - chestnut timbers and siding and local stone masonry. Lewis Mountain warrants further research and interpretation. The buildings are maintained by the park concessioner, ARA Virginia Sky-Line Company. (2)(L)

Skyline Drive. This road, which stretches from Front Royal to Rockfish Gap, is the backbone of park facilities. The drive was designed along the top of the Blue Ridge, with sensitivity to the topography along the ridge and to the expansive vistas. The drive provides scenic views of the peaks along the ridge, as well as the rural scenery across the Valley and the Piedmont. The identifiable stonework along the road edges was designed with an understated harmony with its surroundings, through the use of simple stone masonry with weathered sides exposed to blend carefully with bedrock. This Emergency Conservation Work program had a major impact on the local economy and put hundreds of local persons to work. The Federal Highway Administration has recently completed a study of needs to rehabilitate the surface, replace worn-out cribbing and culverts, reinforce stonewalls, and make minor safety changes without significantly altering the present horizontal and vertical alignment. (3)(N)



H30
MAR(PRP)

SEP 7 1978

Mr. Tucker H. Hill
Executive Director
Virginia Historic Landmarks
Commission
221 Governor Street
Richmond, Virginia 23219

Dear Mr. Hill:

The National Park Service is in the process of preparing a General Management Plan for Shenandoah National Park. This plan will provide the direction for management and development of the Park for future years. One of the major concerns of the Plan is the identification of cultural resources within the Park and the general vicinity. The National Park Service already has underway various considerations for several historic and prehistoric sites within the Park for National Register nomination. We shall consult with you at a later date regarding these proposed nominations.

We are especially interested in learning from you if there are any pending National Register nominations for the following Virginia Counties which might have some relationship to Shenandoah National Park: Albemarle, Augusta, Greene, Madison, Page, Rappahannock, Rockingham, Shenandoah and Warren.

Your assistance will be greatly appreciated.

Sincerely yours,

Richard L. Stanton

Richard L. Stanton
Regional Director

cc:
Superintendent, Shenandoah NP
Gary Tegeder, Denver Service Center

United States Department of the Interior
NATIONAL PARK SERVICE
MID-ATLANTIC REGION
143 SOUTH THIRD STREET
PHILADELPHIA, PA. 19106

IN REPLY REFER TO:

H30
MAR(PRP)

SEP 19 1978

Mr. Tucker H. Hill
Executive Director
Virginia Historic Landmarks
Commission
221 Governor Street
Richmond, Virginia 23219

Dear Mr. Hill:

This amends our letter of September 8, 1978 regarding the General Management Plan which the National Park Service is preparing for Shenandoah National Park. That letter incorrectly listed Shenandoah County as an area of primary concern for this Plan and omitted Nelson County. Please delete Shenandoah County and add Nelson County when considering this Plan.

The General Management Plan will provide the direction for management and development of the Park for future years. One of the major concerns of the Plan is the identification of cultural resources within the Park and the general vicinity. The National Park Service already has underway various considerations for several historic and prehistoric sites within the Park for National Register nomination. We shall consult with you at a later date regarding these proposed nominations.

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Your assistance will be greatly appreciated.

Sincerely yours,

Benjamin J. Zerbey
Acting Regional Director

cc:
Gery Tegeder, Denver Service Center

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COMMONWEALTH of VIRGINIA

Virginia Historic Landmarks Commission

TUCKER HILL
EXECUTIVE DIRECTOR

221 GOVERNOR STREET
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TELEPHONE 786-3143

MID ATLANTIC REGION
OCT 12 1978

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- ☐ Finance
- ☐ Property
- ☐

October 10, 1978

Mr. Richard L. Stanton
Regional Director
National Park Service
143 South Third Street
Philadelphia, Pennsylvania 19106

Dear Mr. Stanton: Re: Register sites near Shenandoah National Park

Thank you for your letter concerning sites eligible for the National Register adjacent to Shenandoah National Park. At this time there are no such known sites or structures. We are conducting architectural surveys in Albemarle and Augusta Counties and may discover new sites within the next year. I look forward to hearing from you concerning your suggestions for nominations.

Sincerely,

Tucker Hill

Tucker Hill
Executive Director

TH/bb

APPENDIX E: INVENTORY OF TRAIL CIRCULATION

The trail system of Shenandoah National Park consists of 455 miles, which include the Appalachian National Scenic Trail and other pedestrian-only trails, administrative roads open to hiking, shared horse and pedestrian trails, and administrative roads open to hiking and horse use. Except for the Appalachian Trail, most of the existing trails evolved from footpaths and roads of mountain residents prior to the establishment of the park. These paths tended to link homesites or serve as mountain crossings from one settlement to another, and thus the present trail networks were not planned as circulation systems for visitors to enjoy a variety of park experiences. As part of the planning effort represented by this Environmental Assessment, the existing foot and horse trail networks were inventoried for access to park features, linkage and circuitry, and variety of length, difficulty, and features offered.

HIKING TRAILS

The possibilities of hikers going to some destination and returning on the same trail are almost endless in Shenandoah. However, circuit or loop hikes in which a person can return to the point of origin without backtracking are not as frequent, making this one of the primary interests in this inventory.

In 1977 a study of over 3,800 trail users, both backcountry campers (27%) and day users (73%), was conducted. Results from the study indicated that 87 percent of those reporting planned to hike 10 miles or less, with 50 percent planning 5 miles or less. Similarly, slightly over 50 percent planned to hike for 4 hours or less, and 85 percent planned to hike only up to one day (24 hours or less).

Hiking time and distance depends not only upon the hiker's available time, but also on the physical condition of the hiker, the difficulty of the trail, and the hiker's interest. Henry Heatwole, an avid hiker in Shenandoah and author of Guide to Skyline Drive (which describes in detail many hikes within the park) estimates that an average hiker in Shenandoah is walking on slopes, enjoying rocks, scenery, and wildflowers, at an average rate of 1.5 miles per hour, with an additional minute for each 20-foot climb. At this rate a hike of 5 miles, with an elevational change of 800 feet, would require about 4 hours.

Based on the relatively short distances and hiking times of visitors, the focus of this inventory was directed to availability and attractiveness of shorter hiking circuits. Although longer loops are available and the combining of several loops is possible, the utility of the shorter circuits is more important to the majority of visitors.

A circuit hike is defined as one that starts and ends at an accessible point on the Skyline Drive or on the park perimeter and is no longer than 15 miles (10-12 hours). No more than 1 mile of the hike is along

Skyline Drive and no more than 2 miles is outside the park. The hike is primarily on one side of the drive, and a segment of the trail may be doubled back upon if it isn't more than one-third the length of the total loop.

By applying the above criteria, there are over 425 circuit hikes in Shenandoah as shown on table E-1. Of these loops, only 11 are less than 2 miles (stroller trails) and only 26 are between 2 and 5 miles most of which begin on Skyline Drive. Almost two-thirds of the available hiking loops are between 10 and 15 miles. This supply of trails contrasts with the demand as expressed in the 1977 study. For the many visitors who would like to hike a loop for only a few hours, there are few choices.

Most trails have an overall elevational change of at least 500 feet, and two-thirds of them have overall changes of at least 1,000 feet. Trails are generally steep and go across the ridge. Only a handful of trails are relatively horizontal, running parallel to the ridge.

Very few hiking circuits are entirely on trails designated for foot use only. Most share 25 to 75 percent of their total length with horse trails or administrative roads. The shorter trail loops have more trails that are strictly for foot use than the longer trails.

Destinations or features along the trail were counted, and these are defined on the Special Natural Features map (waterfalls, outstanding vegetation or geology, and high points). Also cultural resources were surveyed and nature trails, trail shelters and cabins, or developed areas were designated.

Most longer trail loops go through some portion of the designated wilderness of Shenandoah. None of the short loops under 2 miles go into wilderness, and only a few of the loops between 2 and 5 miles have portions in the wilderness. One-third of the 5 to 15 mile circuits are at least 50 percent in wilderness.

Hiking opportunities, as shown on the map under Existing Facilities, are heavily concentrated in the central section of the park where over two-thirds of the available trail circuits are located. Of the 11 loops under 2 miles, eight are in the central section, as well as 18 of the 26 loops between 2 and 5 miles. This is because most of the special features and developed areas are in the central section. Most trail loops in the central section have five or more features or destinations while most loops in the north and south districts have two or less features.

Overall, the origin of trails is fairly evenly distributed between Skyline Drive and the perimeter, and trail circuits are fairly evenly split between the east and west sides of the ridge, although the Skyline Drive trailheads on the east side serve more loops. There is a wide range in the number of trail loops available from each trailhead--as many as 20. Parking spaces are available at most Skyline Drive trailheads, while parking at park perimeter trailheads must be found along the roadside, except in Berry and Weakley hollows.

Table E-1. Hiking Circuit Trail Characteristics Compared by Length

	Number of Trails by Length				
	0-1.9 mi.	2-4.9 mi.	5-9.9 mi.	10-15 mi.	Total
Total Number of Circuits	11	26	126	265	428
Initial Direction of Trail					
Up	3	10	51	126	190
Down	7	11	63	123	204
Horizontal	1	5	12	16	34
Overall Change in Elevation					
0-499 feet	10	7	2	9	28
500-999	1	16	21	76	114
1000-1499	0	2	49	54	105
1500-1999	0	1	34	59	94
2000-2499	0	0	20	59	79
2500+	0	0	0	8	8
Average Slope					
0-1.9 percent	0	1	16	57	74
2.0-2.9	2	10	26	107	145
3.0-3.9	0	5	45	91	141
4.0+	9	10	39	10	68
Use Mix-Percent Foot Trail Only					
0-24 percent	1	1	10	30	42
25-49	1	6	49	103	159
50-74	3	10	36	82	131
75-99	1	1	20	45	67
100	5	8	11	5	29
Mix-No Administrative Road	11	19	69	104	203
Number of Features/Destinations					
0	2	2	21	22	47
1-2	8	15	52	75	150
3-5	1	9	32	87	129
6-10	0	0	21	81	102
Percent of Trails in Wilderness					
0 percent	11	22	32	23	88
1-24	0	0	18	85	103
25-49	0	2	30	52	84
50-74	0	1	26	77	104
75-100	0	1	20	28	49

HORSE TRAILS

These trails were evaluated using slightly different criteria because very few of the 175 miles of existing designated horse trails can be linked into circuits. The categories evaluated were return, cross-mountain, cross-mountain return, and loop. Return trips lead to a destination, feature, or the park perimeter border with a return on the same route. Cross-mountain rides are one-way trips from one border over the mountain to another border and assume some shuttle or other return arrangements. The cross mountain return involves doubling back to the point of origin. A loop is a trip in which no segment doubled back on is greater than 1/3 the length of the total ride. Trips start and end at an accessible point, use only roads and trails designated for horses, and do not use the Skyline Drive other than crossing, unloading, and loading. Trips up to 25 miles were evaluated.

Of the nearly 500 horse trips available, only 50 are loop trips. The other 450 trips are split between the return, cross mountain, and cross-mountain return types. Of the trips available under 25 miles, half are between 5 and 15 miles.

More trips begin with an upward direction, probably because of more perimeter horse trailheads. The overall elevational change of trips over 5 miles is 1,000 feet or more, as most trips cross the ridge. Only a small number of trips are relatively horizontal in profile, paralleling the ridge.

Horses are permitted on designated trails and designated administrative roads. The roads tend to have gentler inclines, smoother surfaces, and better maintenance, which are attractive to many; however, some riders may prefer the narrower backcountry type trail. There is a wide range of mixtures of these two trail types.

Most trips under 15 miles have two or less features or destinations. Horse trails average fewer features and destinations than foot trails. Half the horse trail trips go through some portion of the wilderness; some of the shorter trips go into wilderness.

The greatest number of trails originate on the perimeter of the park rather than along the Skyline Drive, particularly in the central section. As with foot trails, more features are generally located along horse trails, and the greatest selection of rides is available in the central part of the park. Parking at the park perimeter is available only along the roadside, except at Weakley and Berry hollows. Most parking areas at horse trailheads on the Skyline Drive have ten or fewer auto spaces, thus space is quite limited for parking trailers. Most trailheads have five or fewer available trips.

CONCLUSIONS

The relatively large demand and small supply of shorter hiking circuits does not necessarily require an increase in the overall mileage of trails. Rather, this imbalance could be addressed by better connections of existing trails (particularly horizontal), discontinuation of less useful and

longer trails, and construction of shorter circuits along the Skyline Drive.

The finding that most hiking circuits share 25 to 75 percent of their length with horse trails may lead some hikers to believe that horses have too much latitude within the park. However, after examining horse trips, it is found that there are few circuit trips available, and most trips do not take horseback riders to many attractive features and destinations. Here too, a major increase in the overall mileage of horse trails is not necessarily required. Modest relocations and some redesignations of permitted uses on trails could increase circuitry and allow riders access to more park features.

Table E-2. Horse Trail Characteristics Compared by Lengths

	Number of Trails by Length					
	0-4.9 mi.	5-9.9 mi.	10-19.9 mi.	15-19.9 mi.	20-25 mi.	Total
Total number of trips	92	141	121	94	50	498
Trail type						
Loop	4	7	12	11	16	50
Return	39	53	59	51	12	214
Cross-Mtn	40	51	28	2	0	121
Cross-Mtn Return	9	30	22	30	22	113
Initial Direction of Trail						
Up	62	102	82	67	42	355
Down	18	31	31	27	8	115
Horizontal	12	8	8	0	0	28
Overall Change in Elevation						
0-499 feet	16	8	8	0	0	32
500-999	58	31	3	2	0	94
1000-1499	16	55	40	36	6	153
1500-1999	1	31	39	30	14	115
2000-2499	1	10	15	11	18	55
2500+		6	16	15	12	49
Average Slope						
0-1.9 percent	7	26	39	59	40	171
2.0-2.9	18	50	48	33	8	157
3.0-3.9	23	23	24	2	0	72
4.0+	44	42	10	0	2	98
Percent of Foot and Horse Use						
0-24 percent	42	47	28	20	9	146
25-49	5	19	16	28	14	82
50-74	15	30	28	17	19	109
75-99	0	6	13	10	2	31
100	30	39	36	19	6	130
Mix: No Road Outside Park	80	132	99	53	37	401
Number of Features/Destinations						
0	40	27	17	10	0	94
1-2	48	80	60	35	12	235
3-5	3	13	18	13	10	57
6-10	1	21	26	36	28	112
Percent of Trails in Wilderness						
0 percent	75	78	49	41	9	252
1-24	0	8	19	19	27	73
25-49	0	2	10	13	2	27
50-74	10	28	16	9	4	67
75-100	7	25	27	12	8	79

APPENDIX F: EXISTING VISITOR USE AT SHENANDOAH

Thirty general categories of existing visitor activities have been identified within Shenandoah National Park. In table F-1, some of the categories have been subdivided to indicate different aspects. With the exception of those that are illegal, existing visitor use of Shenandoah conforms to the generally accepted range of appropriate uses of the National Park System.

Activities vary in their dependence upon resources and facilities extant, which are defined under the following two types:

> Type A - The Shenandoah Experience - where activities occur because of the unique or special resources, or character of the park. Under this type, the visitor undertakes an activity in Shenandoah. Emphasis is on enjoying the park and its values.
>
> Type B - The Shenandoah Place - where activities occur because the park offers an attractive, conducive, setting. Under this type, the visitor undertakes an activity at Shenandoah. Emphasis is on the activity and its values.

Consider an activity such as hiking under type A, it is an activity involving enjoyment of views along the trail and on top of Old Rag Mountain, seeing close-at-hand the hemlocks and experiencing the deep shade in Limberlost, enjoying the cooler mountain air, and perhaps "conquering" Old Rag. Under type B, hiking is for the purpose of getting exercise, obtaining a Boy Scout merit badge, or satisfying a personal sense of strength and accomplishment of covering many miles. Under type B, it would not be necessary to hike in Shenandoah to accomplish these ends, but the park is an extremely attractive place to undertake this activity.

As shown, some activities occur in only one type, while most activities occur in both. The types are not mutually exclusive; in fact type B can lead into type A. For example, a visitor has intended to take a "Sunday drive" and by chance chose the Skyline Drive; whereupon the scenic views, interpretation, and exhibits at the Dickey Ridge Visitor Center and at the overlooks become more compelling so that the visitor's interest changed to enjoyment and concern for Shenandoah National Park.

It is the current policy of park management to allow visitor activities of both types, subject only to consideration of the capacity of resources and facilities and the compatible interplay of different categories of use. Indications of excessive visitor use are infrequent and localized. Densities do vary in the park, with greater populations occurring at the several developed areas and on a few trails. More maintenance and protection are required in such areas. Illegal activities continue to be a nagging concern, and efforts are constantly underway to alleviate these situations.

Table F-1. Existing Visitor Use

Activities (alphabetically)	Type A	Type B
Auto Driving	X	X
Bicycling - individual	X	X
- club		X
- long distance		X
Bus Touring	X	X
Camping - established tent, trailer, and RV use	X	X
- backcountry	X	X
- long distance trail	X	X
- group		X
- group horse		X
Collecting - berries, mushrooms, etc		X
- ginseng (illegal)		X
Conferences, Business Meetings		X
Cross-country Skiing	X	X
Dining/Eating/Drinking		X
Environmental Education		
- interpretive program	X	X
- NESA program		X
- personal exploration, search	X	X
Filming (Movies & TV commercials)		X
Fishing - for fun	X	X
- for keeps	X	X
Hang Gliding		X
Hiking - walking, strolling	X	X
- overnight, night	X	X
- long distance		X
- bush whacking	X	X
- guided	X	
Horseback Riding	X	X
Hunting, Poaching (illegal)		X
Informal Games and Play		X
Lodging - rooms	X	X
- housekeeping cottages	X	X
- backcountry cabins	X	X
Military Maneuvers		X
Motorcycling	X	X
Painting, Photography	X	X
Picnicking- lunching	X	X
- family	X	X
- group		X
Puberty Rites/Adolescent Maturation		X
Relaxation- sitting, sunning, basking	X	X
- reading		X
- escape, solitude	X	X
- incidentals, such as card playing		X
Religious Activities	X	X
Research - environmental	X	X
- sociological		X

ACTIVITIES (alphabetically)	Type A	Type B
Rock Climbing		
- technical		X
- nontechnical	X	X
Sightseeing	X	X
Shopping - souvenirs	X	X
- native crafts	X	X
- interpretive materials	X	
- camping equipment/supplies		X
Special Population, e.g., therapeutic, "outward bound"		X
Swimming	X	X
Vandalism, Car Clouting		X
Volunteer Public Work	X	

APPENDIX G: TRAFFIC CONDITIONS ON THE SKYLINE DRIVE

Started in the early 1930s before Shenandoah National Park was established, the Skyline Drive today provides not only access to developments such as trailheads and lodging accommodations, it also affords many visitors an opportunity to pleasure drive and to enjoy commanding views of the Piedmont Plain and the Shenandoah Valley. The Skyline Drive also serves as an attractive alternate to the interstate highway system for vacation travelers between the northern and southern areas of the eastern United States. As one of the finest scenic drives in the world, the Skyline Drive has an established renown.

In order to evaluate traffic conditions on the Skyline Drive, data were collected in 1975 and again in 1978. Traffic volumes were obtained, utilizing hourly recorders strategically located to yield results of not only the drive, but also to indicate the traffic patterns at the four main entry/exit points of the park. Data were collected in 1975 through the use of NPS equipment and personnel, and the 1978 data were obtained by the consulting firm of Highway Traffic Consultants of Cheshire, Connecticut. For both sets of data, a summer month (August 1975 and July 1978) and October were selected because they represent the peak use periods of the park. The results of data collection in the form of graphic flow charts for representative time periods are included in this discussion.

An examination of the data obtained from traffic counts reveals that the average daily traffic (ADT) for weekdays in July of 1978 varies only slightly from the ADT for weekdays in August of 1975. In addition the following use of the Skyline Drive during the summer was observed:

The heaviest used portion of the drive is the section between Thornton Gap and Skyland.

Approximately 20 percent of the traffic arriving at Skyland from the north turns around and heads back to Thornton Gap.

Weekday ADT for the northern section is approximately 1400-1600, between Thornton Gap and Skyland, approximately 1600-1800, and for the southern section, approximately 1450-1550.

Thornton Gap experiences more traffic entering and leaving the drive with an ADT of slightly less than 1,930, followed in order by Rockfish Gap, Front Royal, and Swift Run Gap, with ADT flows of 1,550, 1,450, and 930, respectively.

The same general pattern exists for the weekends during the summer except when a 15 to 20 percent increase in ADTs is noted. Although heavy usage of the drive was noted around the 4th of July holiday period, the peak ADT for the summer period actually occurred on Sunday, July 23, 1978.

Weekday traffic in October is about 10 percent higher than the weekday traffic experienced during the summer. However, peak traffic flows were observed on the Sunday which coincides with the peak of the color season. Substantial increases in traffic volume on this day were noted along the entire drive. For example, on October 12, 1975, the ADT in the northern section was around 8,000, south of Thornton Gap about 11,800, and in the southern section about 4,500. The peak day in 1978 was on October 22 when the traffic volumes were around 8,500 in the northern section, 9,800 south of Thornton Gap, and 5,700 in the southern section.

As also observed during the summer period, the most heavily used portion of the drive during October is that section between Thornton Gap and Skyland. Traffic flows on other weekend days during the color season were also well above the summer ADT but reached only about two-thirds of the peak Sunday.

An examination of the hourly counts throughout each day reveals the following:

practically no use of the drive between 9 p.m. and 8 a.m.

traffic entering the park begins at about 8 a.m. and reaches a peak from noon to 2 p.m.

traffic leaving the park begins around 8 a.m. to 9 a.m., with a peak noted between 4 p.m. and 5 p.m.

traffic volumes between Skyland and Big Meadows show a gradual increase from 8 a.m. to 11 a.m., remain somewhat constant from 11 a.m. to 5 p.m., then gradually decrease until 9 p.m. when practically no flow is observed.

In analyzing traffic conditions on the Skyline Drive, a comparison of the use of the roadway was made in relation to its capacity. According to the Highway Capacity Manual prepared by the National Academy of Sciences, road capacity is defined as the maximum number of vehicles which has a reasonable expectation of passing over a given section of lane or roadway during a given time period under prevailing traffic conditions.

For an "ideal" travel corridor, a two-lane, two-way roadway capacity has been established as 2,000 vehicles per hour regardless of the direction of vehicle movement. An "ideal" roadway has the following characteristics: 12-foot-wide lanes, lateral obstructions at least 6 feet away from the pavement edge, adequate paved shoulder width, a horizontal alignment that permits a 1,500-foot passing sight distance, and zero percent grade.

An investigation of Skyline Drive revealed the following characteristics: two-lane, two-way limited access roadway, 10-foot-wide lanes, 2-foot-wide unpaved shoulders, no passing permitted, maximum grade of 7.75 percent (Thornton Gap to Pinnacles), sustained grade of 6.5 to 7 percent for 4 miles, maximum length of sustained grade of 5.5 percent for 5 miles, and stone guardrails at 4 feet from the edge of paving (intermittently spaced along the drive on either side). Since these characteristics differ from those of the "ideal" roadway, the capacity of Skyline Drive is less than

2,000 vehicles per hour. In consideration of the 10-foot-wide lanes and 4 feet to an obstruction on one side of the roadway, a factor of .79 has been established in the Highway Capacity Manual which reduces the capacity to 1,580 vehicles per hour. The counts of 1975 and 1978 showed that the peak hourly flow (which occurred south of Thornton Gap on Sunday, October 22, 1978) was 1,400 vehicles per hour. The capacity of the Skyline Drive is thus greater than 1,400 but less than 1,580 vehicles.

Even though the Skyline Drive has a capacity of around 1,500 vehicles per hour, this volume of traffic is not desirable from a scenic enjoyment standpoint. For example, for the peak day noted above, the maximum traffic flow in one direction was recorded at 847 vehicles per hour. The average speed to be expected with this volume is approximately 27 miles per hour. Using the relationship:

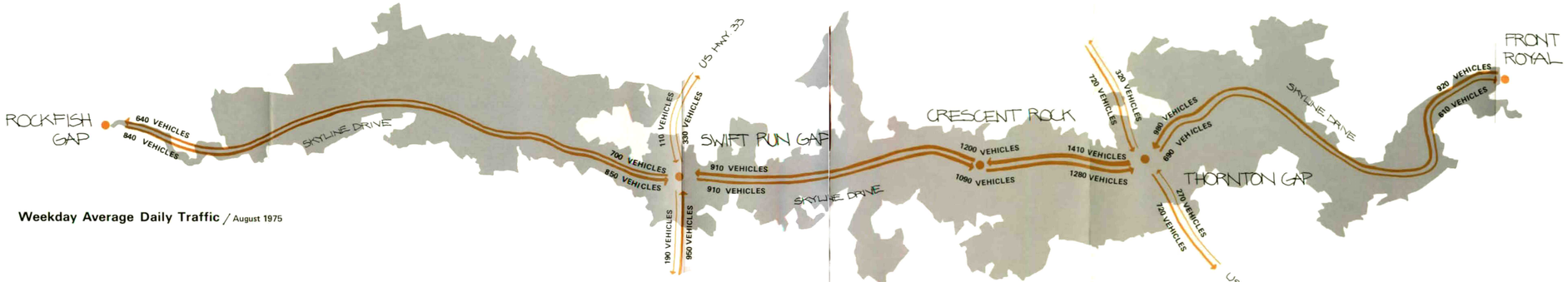
$$\text{Spacing (ft)} = \frac{5{,}280\text{(ft/mi)} \times \text{Speed(mi/hr)}}{\text{Volume (veh/hr)}}$$

the spacing of 847 vehicles per hour traveling at 27 miles per hour is slightly greater than 168 feet. This is equivalent to a vehicle passing any given point every six seconds.

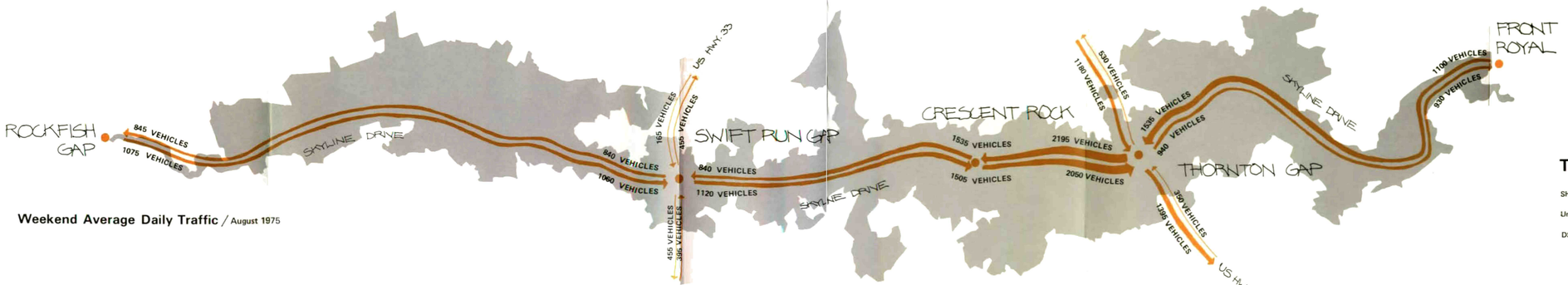
A more desirable headway for scenic driving is around 15 seconds. At the posted speed of 35 miles per hour, this equates to a spacing of 525 feet and a volume of 352 vehicles per hour (one lane), or approximately 700 vehicles per hour for the two-lane, two-way roadway. As a result of the traffic data obtained in 1975 and 1978, this volume of traffic was not exceeded except during the fall color viewing season.

Even though the average headways for scenic driving are rarely exceeded, it is possible to have isolated traffic congestion at any time. This is caused by vehicles stopping along the drive to observe wildlife, waiting for oncoming traffic to clear before crossing to an overlook, or operating at extremely slow speeds for various reasons.

In summary, notwithstanding the popularity and heavy use of the Skyline Drive, its capacity is only approached on a few days during the fall color season. Also during the same season there are a few times when traffic exceeds 700 vehicles per hour which is considered a maximum volume for scenic viewing and pleasure driving. While traffic is usually well below capacity, periods and spots of congestion do occur. Perhaps visitor feelings that the Skyline Drive is overcrowded, or that existing traffic creates a safety hazard, is more of an expression of the disappointments of having to contend with more traffic than hoped for, or the lack of having the road more to oneself, as expected.



Weekday Average Daily Traffic / August 1975



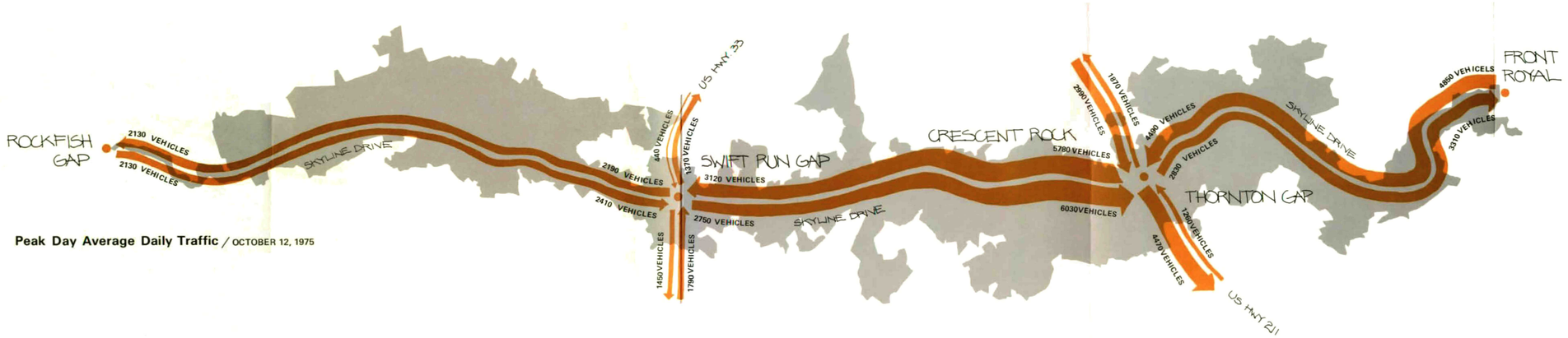
Weekend Average Daily Traffic / August 1975

TRAFFIC FLOW

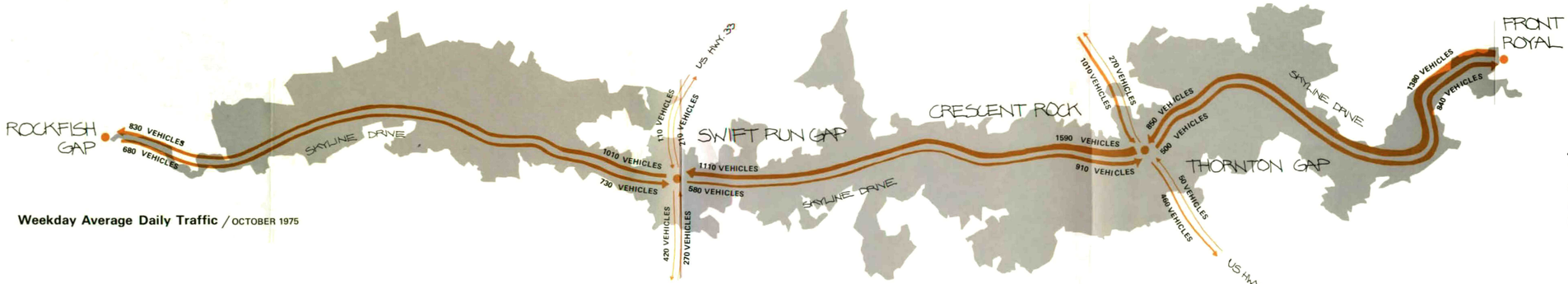
SHENANDOAH NATIONAL PARK

United States Department of the Interior / National Park Service

DSC / SEPTEMBER 1980 / 134-20066



Peak Day Average Daily Traffic / OCTOBER 12, 1975

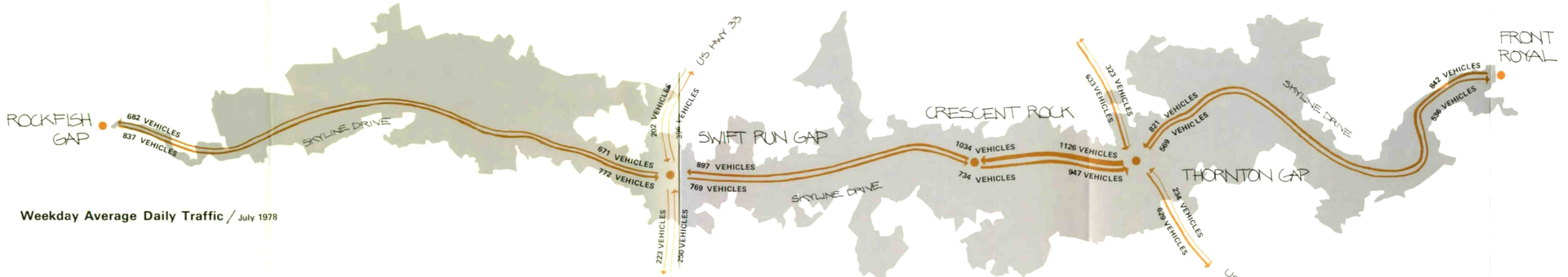


Weekday Average Daily Traffic / OCTOBER 1975

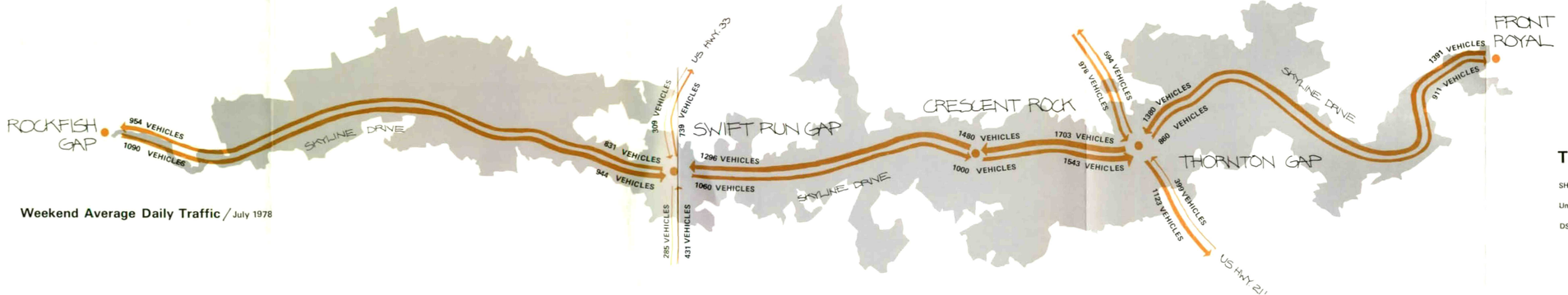
TRAFFIC FLOW

SHENANDOAH NATIONAL PARK

United States Department of the Interior / National Park Service
DSC / SEPTEMBER 1980 / 134-20069



Weekday Average Daily Traffic / July 1978



Weekend Average Daily Traffic / July 1978

TRAFFIC FLOW

SHENANDOAH NATIONAL PARK

United States Department of the Interior / National Park Service

DSC / SEPTEMBER 1980 / 134-20067

APPENDIX H: MANAGEMENT OBJECTIVES
SHENANDOAH NATIONAL PARK
(From "Statement for Management," approved July 1977)

To secure a land base that is adequate to ensure long-term perpetuation of park resources, efficient management, and diverse opportunities for public use.

To the degree possible, restore extirpated native species, and protect and perpetuate rare, endangered, or relic species, habitats, and communities.

To identify, protect, preserve, and maintain the park's cultural resources in a manner consistent with historic preservation laws, management policies, and the purpose for which the park was established.

To manage native park wildlife so that it occupies its proper environmental niche.

To secure, through research or other means, adequate information on the park's natural resources, cultural resources, and visitors in order to develop the best possible park management strategies.

To cooperate with other federal, state, and local agencies; private organizations and interests; and members of the public in (1) helping ensure that land uses in the park's vicinity are compatible with long-term perpetuation of park values; (2) helping ensure that recreational opportunities, visitor services, and public facilities in the park and its vicinity are complementary and efficiently serve the needs of park visitors and regional residents; (3) restoring, preserving, and interpreting structures and sites of cultural significance.

To encourage appropriate safe, year-round use of the park's natural, cultural, recreational, and wilderness resources in a manner that minimizes conflicts between visitor groups and adverse effects on park resources.

To promote public awareness of available recreational opportunities, interpretive programs, and visitor services, and of necessary safety considerations, by providing appropriate information to the public.

To foster public understanding and appreciation of the historical and present role of man and natural processes in shaping the changing environment of the Blue Ridge Mountains, through innovative environmental education and interpretive programs.

To protect and conserve the resources and the atmosphere of solitude in the park's wilderness area, and to manage public activities and park operations in accordance with the requirements of the Wilderness Act of 1964 and wilderness management policies.

To ensure that park and concession facilities are the minimum necessary to provide for efficient park administration and essential services for park visitors, that existing facilities determined to be necessary are maintained at a high standard, and that needed new facilities are constructed on a timely basis.

To make available unimpeded vistas from the Skyline Drive and from developed areas and trails so that the varied landscapes, with their respective patterns of natural environments and cultural alterations, can be viewed, enjoyed, and understood.

To encourage a cooperating natural history association in its creation, production, and distribution of educational and interpretive materials which will supplement the park's interpretive program.

To manage the park in a manner that ensures efficient and effective use of available manpower and funding, conforms to all relevant legal and policy requirements, promotes the greatest possible conservation of energy, encourages employee growth and development, and ensures a safe working environment for park employees.

APPENDIX I: HISTORIC PRESERVATION COMPLIANCE

GENERAL REQUIREMENTS FOR COMPLIANCE WITH THE ADVISORY COUNCIL ON HISTORIC PRESERVATION "REGULATIONS FOR THE PROTECTION OF HISTORIC AND CULTURAL PROPERTIES," 36 CFR PART 800, PURSUANT TO SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 AND EXECUTIVE ORDER 11593 OF 1971

In complying with the Advisory Council Regulations, the regional director is the responsible federal official; he will, however, consult with the state historic preservation officers concerning the National Register eligibility of any historical or archeological remains discovered, and will consult with them to determine the effect or potential adverse effect of any proposal of the plan.

The design, approval, and implementation of all proposals will be accomplished in such a manner that the following (if determined to be adverse) will be avoided or satisfactorily mitigated in accordance with the Regulations of the Advisory Council on Historic Preservation.

Destruction or alteration of all or part of a cultural resource

Isolation from or alteration of the surrounding environment of the cultural resources

Introduction of visual, audible, or atmospheric elements that are out of character with the cultural resource or its setting

Transfer or sale of a federally owned property without first professionally surveying for cultural resources and recommending preservation, maintenance, or use

Neglect of a property through inadequate maintenance which might result in the deterioration or destruction of a cultural resource

All new structures, facilities, or landscape treatment will be compatible and complementary in design, scale, color, materials, texture, and location with the cultural resources and their setting(s).

A professional archeologist will be on site or on call during construction to prevent damage to known archeological resources and to assist in the recognition of any new resources which may be discovered, as deemed necessary by the regional director. The contracting officer and/or archeologist shall have the responsibility and authority to halt any construction activities should historical, archeological, or paleontological resources be exposed. Construction activities endangering the resources will remain halted pending the investigation and evaluation of the resources, as well as completion of the steps required by the Regulations of the Advisory Council on Historic Preservation.

In addition, the contractor shall be made specifically responsible in the contract document(s) to immediately halt construction activities and notify the contracting officer and/or the archeologist if historical, archeological, or paleontological resources are discovered during the course of such construction. The contractor shall be briefed specifically on these provisions by the contracting officer prior to the start of construction.

SUPPLEMENTAL MITIGATION MEASURES

The carrying capacity of the cultural resource(s) will be professionally determined and visitation or use of the resource will be carefully designed, channeled, and managed so as to not exceed the carrying capacity of any portion of the cultural resource(s) or to cause irreversible damage by wear and tear.

Plans for the use, interpretation, repair, stabilization, and/or restoration of the cultural resource(s) will be professionally evaluated as to appropriateness to prevent any unwarranted change in the quality or understanding of those aspects of the resource(s) which qualified, or might qualify it, for the National Register.

Vandalism and looting will be controlled by appropriate signing and security measures.

Appropriate adaptive uses will be designed and implemented so as to not leave resources vacated or unused, providing continued maintenance and appreciation of the cultural resource(s).

Maintenance guides will be prepared which outline procedures appropriate to the preservation of the cultural resource(s).

Structures or other cultural resources will be moved to another location only if there is no prudent and feasible way to leave them in place and then moved only in accordance with National Park Service policy and the Regulations of the Advisory Council on Historic Preservation.

Cultural resources will not be altered, dismantled, demolished, or abandoned until after

compliance with the Regulations of the Advisory Council on Historic Preservation;

the resource has been professionally recorded through descriptive text, measured drawings, and photographs of professional quality;

arrangements have been made to salvage all usable material for use elsewhere in the Service;

arrangements have been made to preserve all artifacts in an appropriate storage, research, or exhibition facility.

The demolition or substantial alteration of any structure, whether historic or not, will be made only in accordance with the procedures outlined in the National Park Service director's memo of January 26, 1973.

Archeological sites will be salvaged only after compliance with the Regulations of the Advisory Council on Historic Preservation and then only in compliance with professional standards.

Appropriate plantings will be designed and implemented to screen potential intrusive developments from the cultural resources.

APPENDIX J: LEGISLATIVE JURISDICTION

The term "jurisdiction" is used to connote a number of things. Of prime importance to management personnel is the jurisdiction--the power or right to exercise legislative authority over an area--that the United States has, or may exercise, over an area. Stated differently, jurisdiction is controlling authority; the right of making and enforcing laws and regulations; the capacity of determining rules of action or use, leading to the exaction of penalties; the function or capacity of judging or governing in general; the inherent power of decision or control. The type of jurisdiction vested in the United States that may be exercised over an area is determinative of the laws--federal or state, or both--that may be enforced within a National Park Service area or on the federally owned lands within a National Park Service area.

The current right to enforce rules and regulations within the boundary of Shenandoah National Park on federal lands is exclusive jurisdiction in accordance with 50 Stat. 700, as amended by 56 Stat. 321 (see appendix A). Other possible forms of jurisdiction are proprietary and concurrent. All three jurisdiction types are explained below.

EXCLUSIVE JURISDICTION

The term "exclusive legislative jurisdiction" as used in this report refers to the power "to exercise exclusive legislation" granted to the Congress by article I, section 8, clause 17 of the Constitution and to the like power that may be acquired by the United States through cession by a state, or by a reservation made by the United States in connection with the admission of a state into the union. In the exercise of such power as to an area in a state, the federal government theoretically displaces the state in which the area is contained of all its sovereign authority, executive and judicial as well as legislative. By state and federal statutes and judicial decisions, however, it is accepted that a reservation by a state of only the right to serve criminal and civil processes in an area, resulting from activities that occurred off the area, is not inconsistent with exclusive legislative jurisdiction.

State laws may be enforced by federal agents through the Assimilative Crimes Act, 18 USC, 13 (1969). However, the federal agency must be prepared to handle all criminal matters--including investigations, prosecutions, etc.

PROPRIETARY JURISDICTION

This form of jurisdiction is common and is based on right of ownership by a sovereign power. The United States at a minimum has proprietary jurisdiction in all park areas. Under this type of jurisdiction, the state has not formally ceded any jurisdiction to the United States, but the United States as a sovereign power may issue reasonable rules and regulations for the use, protection, and control of its property. The courts have ruled that in proprietary jurisdiction federal rules and

regulations prevail over state laws. State laws, however, may be enforced by state agents in the absence of federal regulations. The difficulty in this type of jurisdiction is that applicable state laws may not be enforceable by federal agents where corresponding federal laws have not been passed.

CONCURRENT JURISDICTION

A middle ground exists in establishment of concurrent jurisdictional authority over all park lands. Concurrent jurisdiction results from formal recognition by the state of federal control over certain lands, but in so acting, the state reserves unto itself the right to exercise, concurrently with the United States, similar authority. Concurrent jurisdiction is granted through negotiations with each state and may require an act of each state legislature. The result of this action would be clear understanding of regulating authority: (1) that the federal government is the primary management and law enforcement agency, (2) that the state may assist the federal government in all aspects of management and law enforcement, and may act within its own authority in the absence of federal regulation, and (3) that federal agents can enforce state laws through the Assimilative Crimes Act in concurrent jurisdiction. Thus, both authorities have maximum coverage.

CONCLUSION

Discussions were undertaken in 1973 between the National Park Service and the commonwealth of Virginia to develop concurrent jurisdiction for all areas of the National Park System within the state. In 1975, the governor of the commonwealth was given discretionary authority to accept the relinquishment of a portion of jurisdiction from the United States by the General Assembly's act to amend section 7.1-25.1 of the Code of Virginia. The 1976 General Authorities Act, PL 94-458, established the will of the United States Congress towards concurrent jurisdiction.

In order to establish concurrent jurisdiction in Shenandoah National Park, discussions between the National Park Service and the commonwealth of Virginia will need to be reinstituted to cover procedural details and acceptance by the commonwealth. Better park law enforcement and cooperation between the state and the National Park Service will result when federal and state officers can enforce both federal and state laws.

APPENDIX K: AVAILABILITY OF HOUSING IN PROXIMITY TO SHENANDOAN NATIONAL PARK

The National Park Service traditionally has provided housing for park employees where necessary to maintain the continuity and efficiency of service. This has been done in order to provide protection of park resources and visitor services, including safety, beyond normally scheduled workhours.

Office of Management and Budget Circular No. A-18 states park housing can be justified where "necessary service cannot be rendered or property of the United States cannot be adequately protected unless certain employees are required to live in Government quarters at the station," or where "the available supply - present and prospective - of governmental and private housing within reasonable commuting distance will not meet the necessary housing requirements." Available housing includes property for sale or rent; however, in those situations where the agency customarily transfers personnel between stations at intervals of approximately three years, only the availability of rental housing would be considered. Reasonable commuting distance (between the residence and the work location) will generally be considered that distance which requires travel of not more than 30 miles or 45 minutes. In addition, insufficiency or inadequacy of housing supply in terms of seasonal demands, availability through real estate agents or advertisement, excessive cost to employees, and inability to vacate on a 30-day notice, are to be taken into consideration when such conditions jeopardize the agency's ability to maintain a qualified staff.

The amount of appropriate housing, including rental property and homes for sale, is limited in communities near Shenandoah National Park. Surveys taken by the park generally indicate that rental property is very difficult to find, and while homes for sale are available, they are generally priced beyond the ability of lower graded employees to purchase. The reports of most planning commission districts around Shenandoah National Park expressed concerns for housing shortages and costs.

RENTALS

In 1977, the National Park Service Quarters Rental Evaluation found just enough rentals to satisfy comparability requirements in Front Royal, Luray, Stuarts Draft, and Waynesboro, which are communities nearest the park entrances. In 1979, the Shenandoah National Park Women's Club contacted real estate people who indicated that rentals in the area are almost nonexistent, especially in Luray. Most rental houses were seldom advertised, and real estate agents were not handling them because there were too few. Rental apartments have a waiting list and generally are not large enough for a family. In 1980, as part of the preparation of this Environmental Assessment, a newspaper survey and other inquiries were conducted. The survey indicated that most of the rental housing in the region of the park was in the larger communities of Charlottesville,

Winchester, Staunton, Harrisonburg, and Waynesboro. Real estate agents concluded that only a very few homes were available for rent and a one-year lease was required. All apartments came with a one-year lease, and finding a suitable quality year-around rental would be difficult. Finding a suitable room, apartment, or house for less than a year would be virtually impossible.

PURCHASE

The aforementioned surveys in 1979 and 1980 found that the local real estate market had homes available for sale. However, because of elevated costs and loan interest rates, most of these homes were priced out of reach of most park employees.

At the time of the latest survey (10/9/80), the interest rate was 14 percent. Local banks and savings and loan companies were requiring 20 percent down payments. Savings and loan companies could reduce the down payment, but monthly payments would be greater; banks were making no loans beyond 20 years. Monthly payments for a home in the $20,000 range would be around $240; for a home in the $30,000s, $360; and for a home in the $40,000s, $480.

Using the standard measure of "one week's gross salary to equal the monthly house payment" to determine the qualifications for a loan and assumming the down payment could be met, park employees would be able to make monthly payments as follows: GS 4-$228, GS 5-$236, GS 6-$263, GS 7-$292, GS 9-$357, and GS 11-$469. In the survey of housing in the area around Shenandoah National Park, only 28 of 300 advertised homes were priced in the range available to lower grade employees ($35,000 and lower).

LOCATION

At Shenandoah National Park, another problem is the available supply--present or prospective--of outside-park housing within resonable commuting distance to the park. Most rental or purchase property is located in the larger communities within the vicinity of the park. Most of these are within reasonable commuting distance from some of the entry points of the park. However, the reporting locations or "rally points" for many park employees are located at central points within the three sections of the park. The distances from the communities to most of the reporting stations exceeds the 30-mile guideline for reasonable commuting distance, as shown in the following table.

Table K-1. Commuting Distances
Between Large Communities and Major Employee Reporting Stations
(40 miles or less)

Major Reporting Stations	Winchester	Harrisonburg	Staunton	Waynesboro	Charlottesville
Front Royal	20	-	-	-	-
Dickey Ridge	25	-	-	-	-
Mathews Arm/Piney River	-	-	-	-	-
Thornton Gap	-	40	-	-	-
Headquarters	-	37	-	-	-
Skyland	-	-	-	-	-
Big Meadows	-	39	-	-	36
Swift Run Gap	-	25	-	36	22
Simmons Gap	-	33	-	35	-
Loft Mountain	-	39	-	29	-
Rockfish Gap	-	-	16	3	18

CONCLUSION

A lack of sufficient affordable and available housing in reasonable proximity affects the ability of park management to recruit high quality career and seasonal employees. There has been no indication that the housing situation will be eased in the near future. Barring any unforeseen inventory of new housing, it appears that the National Park Service must continue to provide housing for some employees in Shenandoah National Park.

APPENDIX L: COST ESTIMATES

The following estimates of fixed assets, equipment, and operations indicate the existing public investment in Shenandoah National Park as well as new costs that would occur in the next ten years according to the alternatives described. For documents such as this Environmental Assessment, the National Park Service uses a conceptual type estimate (Class C) which is based on similar type facilities and operations according to the size envisioned and past experience of cost. For example, if a new visitor informational facility is proposed for construction, the various functions are translated into an approximate square footage and multiplied by the typical cost per square foot. to which is then added typical costs for customary furnishings, exhibits, and other. Indirect costs are then added for the necessary design services, contract supervision, etc. Footnotes in the following table define these costs.

It cannot be assummed that the indicated funds required for any alternative will be made available. Shenandoah National Park will have to compete for funding with the more than 300 other units of the National Park System. In turn, the needs of the National Park Service will be weighed against the needs of other federal agencies and programs.

The following costs are given on a 1980 base. No attempt has been made to anticipate future inflation or other conditions which would affect the final actual costs.

Table L-1. Summary of Cost Estimates for a Ten-Year Period

LAND BASE ALTERNATIVES[a]	L1	L2
Fixed Assets - Existing	$194,598,000	$194,598,000
- New	375,000	-
Equipment	44,000	29,000
Operations (Annual Costs x Ten Years)	1,170,000	780,000
TOTAL	$196,187,000	$195,407,000

NATURAL RESOURCES	N1	N2
Fixed Assets[b]	-	-
Equipment	$ 35,000	$ 75,000
Operations (Annual Costs x Ten Years)	1,650,000	3,160,000
TOTAL	$ 1,685,000	$ 3,235,000

CULTURAL RESOURCES	C1	C2
Fixed Assets - Existing[c]	-	-
- New	$ 260,000	$ 596,000
Equipment	11,000	22,000
Operations (Annual Costs x Ten Years)	550,000	1,273,000
TOTAL	$ 821,000	$ 1,891,000

VISITOR USE AND INTERPRETATION ALTERNATIVES	V1	V2
Fixed Assets[c]	-	-
Equipment	$ 359,000	$ 399,000
Operations (Annual Costs x Ten Years)	10,454,000	13,810,000
TOTAL	$ 10,813,000	$ 14,209,000

MANAGEMENT	M
Fixed Assets[c]	-
Equipment	$ 35,000
Operations (Annual Costs x Ten Years)	2,640,000
TOTAL	$ 2,675,000

[a]Costs for the option will vary according to alternative selected.
[b]These costs are included under land base alternatives.
[c]These costs are included under development alternatives.

DEVELOPMENT	D1	D2	D3
Fixed Assets - Existing			
Roads	$ 95,120,000	$ 95,120,000	$ 95,120,000
Trails	7,300,000	7,300,000	7,300,000
Other NPS Development	19,004,000	19,004,000	19,004,000
ARA Virginia Sky-Line Co.	7,000,000	7,000,000	7,000,000
Subtotal	$128,424,000	$128,424,000	$128,424,000
Fixed Assets - New			
Skyline Drive	-	$ 62,196,000	$ 62,196,000
Trails	-	1,946,000	4,508,000
Other NPS Development	1,568,000	9,276,000	18,616,000
ARA Virginia Sky-Line Co.	584,000	1,225,000	3,101,000
Subtotal	$ 2,152,000	$ 74,643,000	$ 88,421,000
Equipment	1,046,000	1,100,000	1,155,000
Operations (Annual Costs x Ten Years)	24,880,000	25,951,000	27,981,000
TOTAL	$156,502,000	$230,118,000	$245,981,000

Table L-2. Summary of New Development By Phases
(Fixed Assests-New)

Phase	D1		D2			D3		
	I	II	I	II	III	I	II	III
Skyline Drive	-	-	$19,126,000	$20,309,000	$22,761,000	$19,126,000	$20,309,000	$22,761,000
Trails	-	-	974,000	972,000	-	2,252,000	1,129,000	1,127,000
Other NPS Development	$1,085,000	$483,000	5,406,000	3,870,000	-	10,017,000	8,599,000	-
ARA Virginia Sky-Line Co.	584,000		916,000	309,000		2,515,000	586,000	
Subtotal (by phase)	$1,669,000	$483,000	$26,422,000	$25,460,000	$22,761,000	$33,910,000	$30,623,000	$23,888,000
Total (by alternative)	$2,152,000		$74,643,000			$88,421,000		

Table L-3. Cost Estimates Breakdown

LAND BASE ALTERNATIVES		L1	L2	Option
Fixed Assets				
Existing[a]				
Fee	194,078 acres	$194,078,000	same	same
Easement	710 acres	355,000	as	as
Rights-of-Way	330 acres	165,000	L1	L1
Subtotals	195,118 acres	$194,598,000	194,598,000	
New				
Donation and Exchange		b	-	Costs would vary according to the alternative selected
Indirect Costs[c]		375,000	-	
Subtotal		$ 375,000	$ -	
Subtotal - Fixed Assets		$194,973,000	$194,598,000	
Equipment				
Patrol Vehicles		$ 35,000	$ 20,000	Costs would vary according to the alternative selected.
Survey Equipment		9,000	9,000	
Subtotal - Equipment		$ 44,000	$ 29,000	
Operations (Annual Costs x Ten Years)[d]				
Donation/Exchange Program		$ 350,000	-	Costs would vary according to the alternative selected.
Easement and Special Use Permit Administration		50,000	50,000	
Boundary Maintenance and Patrol		770,000	730,000	
Subtotal - Operations		$ 1,170,000	$ 780,000	
TOTAL		$196,187,000	$195,407,000	

[a] These estimates are based on a probable cost if purchased today, considering accessibility, timber, developable land, etc.

[b] The value of land received from donations and exhanges cannot be estimated at this time; however, there would be no direct costs to NPS.

[c] This estimate covers costs that would be incurred for an assummed 15 exchanges or donations per year; costs would include removal of unneeded buildings, roads and other structures, site restoration, grading, seeding, etc.; and mapping, surveying, appraisals, title work, etc.

[d] These estimates cover employee salaries and miscellaneous materials.

NATURAL RESOURCE ALTERNATIVES

	N1	N2
Fixed Assets		
The value of trees, rocks, wildlife, etc. are considered an inherent part of the land; therefore no estimate of existing or acquired natural resources is considered. See Land Base Alternatives' costs.	-	-
Equipment		
Vehicles, Lab and Testing Equipment, etc.	$ 35,000	$ 75,000
Subtotal - Equipment	$ 35,000	$ 75,000
Operations (Annual Costs X Ten Years)[a]		
Backcountry Management	$ 740,000	$ 800,000
Wildlife Management	250,000	370,000
Fisheries & Water Quality Management	30,000	100,000
Air Quality Management	250,000	320,000
Fire Management	330,000	450,000
Vegetation Management	-	70,000
Research	50,000	1,050,000
Subtotal - Operations	$1,650,000	$3,160,000
TOTAL	$1,685,000	$3,235,000

[a]These estimates cover employee salaries, materials, etc.

CULTURAL RESOURCES ALTERNATIVES	C1	C2
Fixed Assets		
Existing		
The value of historic structures in current use are covered under the estimates for the development alternatives. The intangible value of history, architecture, archeological remains, and aboveground ruins cannot be estimated.	-	-
New		
Camp Hoover repairs and burglar alarm system	$ 50,000	$ 50,000
Massanutten Lodge covered under development alternatives estimates	-	-
Other Structures improvements cannot be estimated until historic structures reports and/or historic structures preservation guides are prepared	-	-
Indirect New Fixed Assets [a]	$210,000	$546,000
Subtotal - Fixed Assets	$260,000	$596,000
Equipment		
Vehicles	$ 10,000	$ 20,000
Cameras, recorders, etc.	1,000	2,000
Subtotal - Equipment	$ 11,000	$ 22,000
Operations (Annual Costs x Ten Years) [b]		
Maintenance and Stabilization	$280,000	$666,000
Protection and Site Management	220,000	430,000
Museum Management, Oral History, Research, etc.	50,000	110,000
Historic Resource Study	-	67,000
Subtotal - Operations	$550,000	$1,273,000
TOTAL	$821,000	$1,891,000

[a] These costs include historic structures reports, preservation and maintenance guides, etc.

[b] These estimates cover employee salaries, miscellaneous materials, etc.

VISITOR USE AND INTERPRETATION ALTERNATIVES	V1	V2
Fixed Assets		
The buildings, trails, roads, overlooks, etc. used by visitors are covered under the Development Alternatives estimates.	-	-
Equipment		
Vehicles, search/rescue equipment, medical equipment, radios, etc.	$ 307,000	$ 327,000
Audiovisual equipment, cameras, books, etc.	52,000	72,000
Subtotal - Equipment	$ 359,000	$ 399,000
Operations(Annual Costs x Ten Years)[a]		
Interpretive Programs	$ 826,000	$ 1,366,000
Preparation of Publications, Exhibits, Study Collections, etc.	498,000	562,000
Visitor Center Operations	690,000	1,306,000
Environmental Education Programs	40,000	336,000
Direct Telephone Service Leasing	-	150,000
Visitor Protection, Law Enforcement, Road Patrol, Health/Safety Inspections, Search/Rescue, etc.	3,445,000	4,925,000
Entrance Station and Campground Operations, Related Information Services	4,955,000	5,165,000
Subtotal - Operations	$10,454,000	$13,810,000
TOTAL	$10,813,000	$14,209,000

MANAGEMENT	M
Fixed Assets	
The facilities used for park management are covered under the Development Alternatives costs	-
Equipment	
Office equipment, vehicles, etc.	$ 35,000
Subtotal - Equipment	$ 35,000
Operations(Annual Costs X Ten Years)[a]	
Personnel and Property Management, Budget and Finance Administration, Interagency Coordination, Concessions Management, Mail and Files, Overall Management and Direction, etc.	$2,640,000
Subtotal - Operations	$2,640,000
TOTAL	$2,675,000

[a]These estimates cover employee salaries, materials, etc.

DEVELOPMENT ALTERNATIVES

		D1	D2	D3
Fixed Assets-Existing[a]				
Roads	Skyline Drive	$84,000,000	same as	same as
	Other	11,120,000	D1	D1
	Subtotal	$95,120,000	$95,120,000	$95,120,000
Trails	Appalachian	$ 1,900,000	same as	same as
	Other	5,400,000	D1	D1
	Subtotal	$ 7,300,000	$ 7,300,000	$ 7,300,000
Other NPS Development				
Front Royal Entrance		$ 278,000	same as D1	same as D1
Dickey Ridge		636,000		
Piney River		118,000		
Mathews Arm		1,695,000		
Elkwallow		185,000		
Thornton Gap		1,095,000		
Headquarters		3,721,000		
Pinnacles		315,000		
Hughes River Overlook		165,000		
Skyland		1,718,000		
White Oak		65,000		
Big Meadows		4,507,000		
Camp Hoover		168,000		
Lewis Mountain		258,000		
South River		159,000		
Swift Run Gap		275,000		
Simmons Gap		184,000		
Loft Mountain		2,322,000		
Dundo		16,000		
Sawmill Run		18,000		
Rockfish Entrance		7,000		
Parkwide				
Structures--huts, shelters, etc.		293,000		
Signs and Bulletin Boards		416,000		
Utilities-Minor Water Systems (12), Radio System, etc.		390,000		
Subtotal		$19,004,000	$19,004,000	$19,004,000
ARA Virginia Sky-Line Company Facilities				
Elkwallow		$ 159,000	same	same
Panorama		579,000	as	as
Skyland		2,839,000	D1	D1
Big Meadows		2,639,000		
Lewis Mountain		191,000		
Loft Mountain		593,000		
Subtotals		$ 7,000,000	$ 7,000,000	$ 7,000,000
Subtotal Fixed Assets - Existing		$128,424,000	$128,424,000	$128,424,000

[a]The values of existing facilities were estimated to be the fair market values, taking into consideration original cost, age, condition, function or use, and value of similar facilities in the surrounding communities of the park.

DEVELOPMENT ALTERNATIVES (cont'd)

	D1		D2			D3		
	Phase[b]		Phase			Phase		
Fixed Assets-New	I	II	I	II	III	I	II	III
Skyline Drive Rehabilitation[c]								
Signing	-	-	$ 100,000	-	-		same as D2	
Pavement, Shoulders, Slopes	-	-	8,640,000	$6,480,000	$6,480,000			
Drainage			1,560,000	780,000	260,000			
Guardwalls			2,200,000	3,300,000	5,500,000			
Overlook Areas	-	-	-	3,350,000	3,350,000			
Bridge/Tunnel Repairs	-	-	600,000	-	-			
Indirect Costs[d]	-	-	6,026,000	6,399,000	7,171,000			
Subtotal (by phase)			$19,126,000	$20,309,000	$22,761,000	$19,126,000	$20,309,000	$22,761,000
Subtotal (by alternative)				62,196,000			62,196,000	
Trails								
Improvements: Appalachian Trail - add 4 miles, eliminate 5 miles; foot trails - add 26 miles, eliminate 23 miles; foot and horse trails, add 6 miles, eliminate 9 miles; stroller trails, add 6 miles; ski trails - designate 65 miles	-	-	$ 408,000	$ 407,000	-	-	-	-
Improvements: Appalachian Trail - add 14 miles, eliminate 13 miles; foot trails - add 66 miles, eliminate 13 miles; foot and horse trails, add 37 miles, eliminate 4 miles; stroller trails, add 11 miles; ski trails - designate 92 miles	-	-	-	-	-	$ 981,000	$ 491,000	$ 490,000
Trailhead Parking, 10 areas (one 100-car, nine 20-car), 2 vault toilets	-	-	197,000	197,000	-	-	-	-
Trailhead Parking, 33 areas (one 150-car, one 100-car, two 40-car, nineteen 20-car), 4 vault toilet	-	-	-	-	-	418,000	210,000	210,000
Indirect Costs[d]	-	-	369,000	368,000		853,000	428,000	427,000
Subtotal (by phase)	-	-	$ 974,000	$ 972,000	-	$2,252,000	$1,129,000	$1,127,000
Subtotal (by alternative)				$1,946,000			$4,508,000	

b Phases: I=First 5 years, II=Second 5 years, III=Third 5 years

c Estimates provided by Federal Highway Administration

d These costs cover surveys, planning and design services, preparation of construction documents, contract award and administration, construction supervision, etc.

DEVELOPMENT ALTERNATIVES (cont'd)

	D1		D2			D3		
	Phase			Phase			Phase	
	I	II	I	II	III	I	II	III
Other NPS Development								
Front Royal								
Visitor parking (10 cars) at entrance station	$ -	$ -	$ -	$ 12,000	$ -	$ 12,000	$ -	$ -
Operations area: Carport for snowplow, garage and chain-up for patrol car, area for stockpiling sand, utilities, and signing	-	-	-	-	-	-	41,000	-
Happy Creek								
Remove existing beef cattle research station buildings (5) and bridge, restore site	-	-	-	25,000	-	-	25,000	-
Dickey Ridge								
Comfort station: provide utilities, remove portable toilet, upgrade septic system	-	-	$116,000	-	-	116,000	-	-
Visitor center: remodel audiovisual room and projection booth; new movie	53,000	-	53,000	-	-	53,000	-	-
NPS housing: relocate 2 trailers to Big Meadows	10,000	-	-	-	-	-	-	-
NPS housing: relocate 1 trailer to Skyland, remove 1 trailer	-	-	7,000	-	-	-	-	-
NPS housing: 4 apartment units with utilities and furnishings, remove 4 trailers	-	-	-	-	-	172,000	-	-
Picnic Shelter	-	-	-	-	-	-	48,000	-
Snead Farm Barn remodeled for environmental education classroom with restroom, furnishings, water, septic system, parking (5 cars), site work	-	-	-	150,000	-	-	150,000	-
Handicapped access to existing picnic area comfort station	5,000	-	5,000	-	-	5,000	-	-
Piney River								
Office building for rangers, naturalists; maintenance, utility connections, site development; improve and expand existing maintenance structures, furnishings; remove 3 office trailers	-	-	350,000	-	-	-	-	
Operations building for ranger, naturalist and maintenance offices with furnishings, workshops, storage; new septic system, parking (20 cars); remove existing maintenance buildings and office trailers	-	-	-	-	-	1,036,000	-	-
NPS housing: 3 family units, 3 apartment units, utility connections, relocate 4 trailers (2-Big Meadows, 1-Sawmill Run, 1-Lewis Mtn.)	-	-	-	353,000	-	-	-	
NPS housing: 3 family units, 7 apartment units, utility connections, furnishings; remove 6 trailers, site development	-	-	-	-	-	-	478,000	-
Mathews Arm								
Campground registration/reservation building, parking (10 cars), remove old building	-	-	-	80,000	-	-	80,000	-
Realign part of entrance road	-	-	-	70,000	-	-	70,000	-
Handicapped access to one more comfort station, pave trail to amphitheater	$ -	$ -	$ 11,000	$ -	$ -	$ 11,000	$ -	$ -

DEVELOPMENT ALTERNATIVES (cont'd)

	D1		D2			D3		
	Phase		Phase			Phase		
	I	II	I	II	III	I	II	III
Enlarge campground: 50 individual sites, 7 group sites, 2 comfort stations, utilities, and roads; increase and improve amphitheater	$ -	$ -	$ -	$ -	$ -	$ -	$435,000	$ -
Utilities, increased parking (20 cars), site development for concessioner building	-	-	-	-	-	90,000	-	-
Elkwallow								
Handicapped access to comfort station and 2 pit/vault toilets	15,000	-	15,000	-	-	15,000	-	-
Picnic Shelter	-	-	-	-	-	-	48,000	-
Thornton Gap/Panorama								
Remodel entrance station interior for permits	3,000	-	-	-	-	-	-	-
Remodel and expand entrance station, relocate booths, visitor parking (10 cars), improve signs	-	-	64,000	-	-	-	-	-
Visitor contact facility, parking (30 cars, 2 buses), utilities, site development, furnishings, exhibits	-	-	-	-	-	285,000	-	-
Operations area: carport for snowplow, garage and chain-up for patrol car, area for stock-piling sand, utilities	-	-	-	-	-	-	34,000	-
Remove gas pumps, improve parking	-	-	-	35,000	-	-	35,000	-
Headquarters								
Remodel visitor lobby, improve handicap accessibility	10,000	-	10,000	-	-	5,000	-	-
Improve and expand existing maintenance structures	-	-	150,000	-	-	-	-	-
Operations building for maintenance shops, offices, utility connections; remove old structures	-	-	-	-	-	595,000	-	-
Veneer fuel house	-	-	-	-	-	-	40,000	-
NPS housing: convert 1 house to environmentally controlled storage	25,000	-	25,000	-	-	25,000	-	-
NPS housing: convert 2 existing park houses to other uses, including moving the Shenandoah Natural History Association one; remove 1 trailer	12,000	-	12,000	-	-	12,000	-	-
Pinnacles								
Handicapped access to comfort station, replace new pit/vault toilet	12,000	-	12,000	-	-	12,000	-	-
NPS housing: remove existing house, restore site	8,000	-	8,000	-	-	8,000	-	-
NPS housing: relocate 1 trailer to Big Meadows	5,000	-	-	-	-	-	-	-
NPS housing: remove ranger office, maintenance storage, and 3 residential trailers; rehabilitate site	-	-	14,000	-	-	14,000	-	-
Skyland								
Remodel Massanutten Lodge for visitor contact station/interpreter office; exhibits	-	-	50,000	-	-	70,000	-	-
Rustic amphitheater, 200 seats	-	-	-	100,000	-	-	-	-
Amphitheater with audiovisual equipment, 200 seats	$ -	$ -	$ -	$ -	$ -	$125,000	$ -	$ -

DEVELOPMENT ALTERNATIVES (cont'd)

	D1		D2			D3		
	Phase		Phase			Phase		
	I	II	I	II	III	I	II	III
Utility connections and site development for 2 replaced concessioner cottages	$ -	$ -	$ -	$ 14,000	$ -	$ -	$14,000	$ -
Utility connections, site development, and parking (22 cars) for 2 new concessioner lodges	-	-	-	-	-	-	195,000	-
NPS housing and operations: 1 family unit, 3 apartment units, ranger office, utility connections	-	-	220,000	-	-	-	-	-
NPS housing and operations: 1 family unit, 5 apartment units, ranger office, utility connections	-	-	-	-	-	306,000	-	-
White Oak/Old Rag								
Remove 2 buildings from White Oak; repair structure in Weakly or Berry hollows for 2 NPS employee apartments and ranger station	-	-	-	-	-	-	40,000	-
Big Meadows								
Remove stable, parking, and septic system, rehabilitate site	-	-	18,000	-	-	-	18,000	-
Relocate stable, parking, corral, utility connections, septic system	-	-	-	-	-	-	190,000	-
Utility connections and site development for 3 new concessioner lodges (10 units each)	-	-	-	-	-	74,000	-	-
Utility connections and site rehabilitation for replaced ARA dorms	-	-	10,000	-	-	10,000	-	-
Remodel visitor center lobby, improve projection booth; improve exhibits, provide new film	67,000	-	67,000	-	-	67,000	-	-
Environmentally controlled storage in visitor center	-	-	-	20,000	-	-	20,000	-
Handicapped access picnic area pit toilet	5,000	-	-	-	-	-	-	-
Handicapped access to 1 campground comfort station; and replace picnic area pit toilet	-	-	15,000	-	-	15,000	-	-
Campground registration/reservation building, parking (10 cars); remove old building and trailer	-	-	-	146,000	-	-	146,000	-
Group horse campground: vault toilet and hitch racks	-	-	18,000	-	-	-	-	-
Group horse campground: comfort station, hitch racks, water system, and utilities	-	-	-	-	-	-	269,000	-
Replace amphitheater	-	-	250,000	-	-	250,000	-	-
Picnic Shelter								
NPS housing: 4 family units, utility connections	-	-	308,000	-	-	-	-	-
NPS housing and operations: 5 family units, 9 apartment units, utility connections; convert old house to ranger office and remove 3 trailers	-	-	-	-	-	698,000	-	-
Camp Hoover								
See Cultural Resources estimates	-	-	-	-	-	-	-	-
Lewis Mountain								
Handicapped access to comfort station in picnic area	$ 5,000	$ -	$ 5,000	$ -	$ -	$ 5,000	$ -	$ -

DEVELOPMENT ALTERNATIVES (cont'd)

	D1		D2			D3		
	Phase		Phase			Phase		
	I	II	I	II	III	I	II	III
Parking (10 cars) for new concessioner tent cabins	$ -	$ -	$ -	$ -	$ -	$10,000	$ -	$ -
Trailer sewage dump station and new septic system	-	-	-	60,000	-	-	60,000	-
Picnic Shelter	-	-	-	-	-	-	48,000	-
NPS housing: 1 apartment unit, utility connections	-	-	-	-	-	35,000	-	-
South River								
Handicapped access to comfort station	5,000	-	5,000	-	-	5,000	-	-
Picnic Shelter	-	-	-	-	-	72,000	-	-
Swift Run Gap								
Visitor parking (10 cars) at entrance station	-	-	10,000	-	-	10,000	-	-
Simmons Gap								
Office building for rangers, maintenance, utility connections, improve septic system, site development, remove temporary structures	-	-	-	328,000	-	-	-	-
Operations building for ranger and maintenance offices, workshops, storage, parking (20 cars), utilities, improve septic system, site development, remove old and temporary structures	-	-	-	-	-	-	998,000	-
NPS housing: 2 family units, 1 apartment unit, utility connections	-	-	189,000	-	-	189,000	-	-
NPS housing: relocate 2 trailers (1 to Big Meadows 1 to Loft Mountain)	-	-	10,000	-	-	-	-	-
NPS housing: remove 2 trailers	-	-	-	-	-	4,000	-	-
Water storage 50,000 gallons	-	-	75,000	-	-	75,000	-	-
Loft Mountain								
Handicapped access to comfort station in picnic area	5,000	-	-	-	-	-	-	-
Handicapped access to comfort station in picnic area and two in campground	-	-	15,000	-	-	15,000	-	-
Office for naturalists, utility connections, remove trailer	-	-	-	132,000	-	-	132,000	-
Campground reservation/registration building, parking (10 cars), convert old building to air quality monitoring station	-	-	76,000	-	-	76,000	-	-
Picnic shelter	-	-	-	-	-	-	48,000	-
NPS housing: 1 family unit, convert existing building to 4 apartments, utilities connections	-	-	-	129,000	-	-	-	-
NPS housing: 1 family unit, convert existing building to 4 apartments, 11 apartment units, parking (20 cars), utility connections, remove 5 trailers, reconstruct segment of road	-	-	-	-	-	-	596,000	-
Backup water well, pumps, lines	-	-	300,000	-	-	300,000	-	-
Dundo								
Handicapped access to campsites and replace vault toilet	-	-	12,000	-	-	12,000	-	-
Sawmill Run								
NPS housing: remove trailer and road, restore site	$ -	$ -	$ -	$ -	$ -	$10,000	$ -	$ -

DEVELOPMENT ALTERNATIVES (cont'd)

	D1		D2			D3		
	Phase		Phase			Phase		
	I	II	I	II	III	I	II	III
Rockfish								
Remodel entrance station	$ 5,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Remodel and expand entrance station, add traffic lane, visitor parking (10 cars)	-	-	24,000	-	-	24,000	-	-
Rockfish Gap								
Visitor contact facility, parking (30 cars, 2 buses) utilities, site development, exhibits	-	-	-	-	-	305,000	-	-
Operations area: fire cache, ambulance storage, garage, utilities, storage, site development	-	-	-	-	-	-	60,000	-
NPS housing (a family unit, 8 apartment units), utilities, site development	-	-	-	-	-	165,000	225,000	-
Parkwide								
Interpretation: orientation shelters (13), overlook exhibits (30), other exhibits (30), trailhead exhibits (30)	124,000	-	124,000	-	-	124,000	-	-
Travel information stations (8)	-	-	40,000	-	-	40,000	-	-
Utilities								
Replace sewer lines	300,000	300,000	-	-	-	-	-	-
Active inspection and replacement of sewer lines	-	-	650,000	650,000	-	650,000	650,000	-
Grease traps at food service areas	-	-	15,000	-	-	15,000	-	-
Radio system improvements	-	-	-	100,000	-	-	100,000	-
Indirect Costs[e]	$ 411,000	$ 183,000	$2,048,000	$1,466,000	$ -	$ 3,795,000	$3,258,000	$ -
Subtotal (by phase)	$1,085,000	$ 483,000	$5,406,000	$3,870,000		$10,017,000	$8,599,000	-
Subtotal (by alternative)	$1,568,000			$9,276,000			$18,616,000	-
ARA, Virginia Sky-Line Company Facilities[f]								
Mathews Arm								
New building for campstore, wood/ice sales, showers, and laundry	$ -	$ -	$ -	$ -	$ -	$ 360,000	$ -	$ -
Elkwallow								
Remodel and expand food service within existing building	-	-	20,000	-	-	-	-	-
Expand food service within existing building, remodel cottage for gift shop	-	-	-	-	-	59,000	-	-
Thornton Gap/Panorama								
Handicapped access to washrooms	10,000	-	10,000	-	-	10,000	-	-
Skyland								
Handicapped access to restaurant and its washrooms	15,000	-	15,000	-	-	15,000	-	-
Replace 2 guest cottages	-	-	-	40,000	-	-	40,000	-
Construct 2 new lodges (6 unit, 16 unit)	-	-	-	-	-	-	324,000	-
Rehabilitate employee dorms	202,000	-	202,000	-	-	202,000	-	-
White Oak/Old Rag								
Remodel 2 existing buildings for cookouts/ walk-in accommodations	$ -	$ -	$ -	$ 12,000	$ -	$ -	$ -	$ -

DEVELOPMENT ALTERNATIVES (cont'd)

	D1		D2			D3		
	Phase		Phase			Phase		
	I	II	I	II	III	I	II	III
Big Meadows								
Enclose lodge terrace, increase restaurant seating	$ -	$ -	$ -	$140,000	$ -	$140,000	$ -	$ -
Three new lodges (10 units each)	-	-	-	-	-	336,000	-	-
Rehabilitate employee dorms	136,000	-	-	-	-	-	-	-
Replace employee dorms	-	-	312,000	-	-	312,000	-	-
Lewis Mountain								
Handicapped access to 2 cabins	-	-	10,000	-	-	-	-	-
Ten new tent cabins	-	-	-	-	-	80,000	-	-
Expand showers and laundry	-	-	-	-	-	48,000	-	-
Indirect Costs[g]	221,000		347,000	117,000		953,000	222,000	
Subtotal (by phase)	584,000		916,000	309,000		2,515,000	586,000	
Subtotal (by alternatives)	584,000			1,225,000			3,101,000	
Subtotals Fixed Assets-New (by phases)	$1,669,000	$ 483,000	$26,422,000	$25,460,000	$22,761,000	$33,910,000	$30,623,000	$23,888,000
Subtotal Fixed Assests-New (by alternative)	$2,152,000			$74,643,000			$88,421,000	
Subtotal Fixed Assests	$130,576,000			$203,067,000			$216,845,000	

[e]These costs cover surveys, planning and design services, preparation of construction documents, contract award and administration, construction supervision, etc.

[f]These are costs that would be borne by the company and not the National Park Service.

[g]These costs cover surveys, planning and design services, preparation of construction documents, contract award and administration, construction supervision, etc.

DEVELOPMENT ALTERNATIVES (cont'd)

	D1	D2	D3
Equipment (NPS only)			
Trucks	$ 658,000	$ 700,000	$ 724,000
Dozers, Tractors, Loaders, etc.	263,000	263,000	263,000
Tools, Shop Equipment, etc.	125,000	137,000	168,000
Subtotal - Equipment	$1,046,000	$1,100,000	$1,155,000
Operations(Annual Costs x Ten Years)[h]			
Property and Fire Protection	$ 400,000	$ 430,000	$ 650,000
Maintenance			
Roads and Trails	11,779,000	12,128,000	12,931,000
Buildings and Utilities	8,106,000	8,679,000	9,383,000
Grounds	2,175,000	2,215,000	2,388,000
Shop Operations	1,750,000	1,840,000	1,989,000
Quarters	670,000	659,000	640,000
Subtotal - Operations	$24,880,000	$25,951,000	$27,981,000
TOTAL	$156,502,000	$230,118,000	$245,981,000

[h]These estimates cover NPS employee salaries, materials, etc.

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